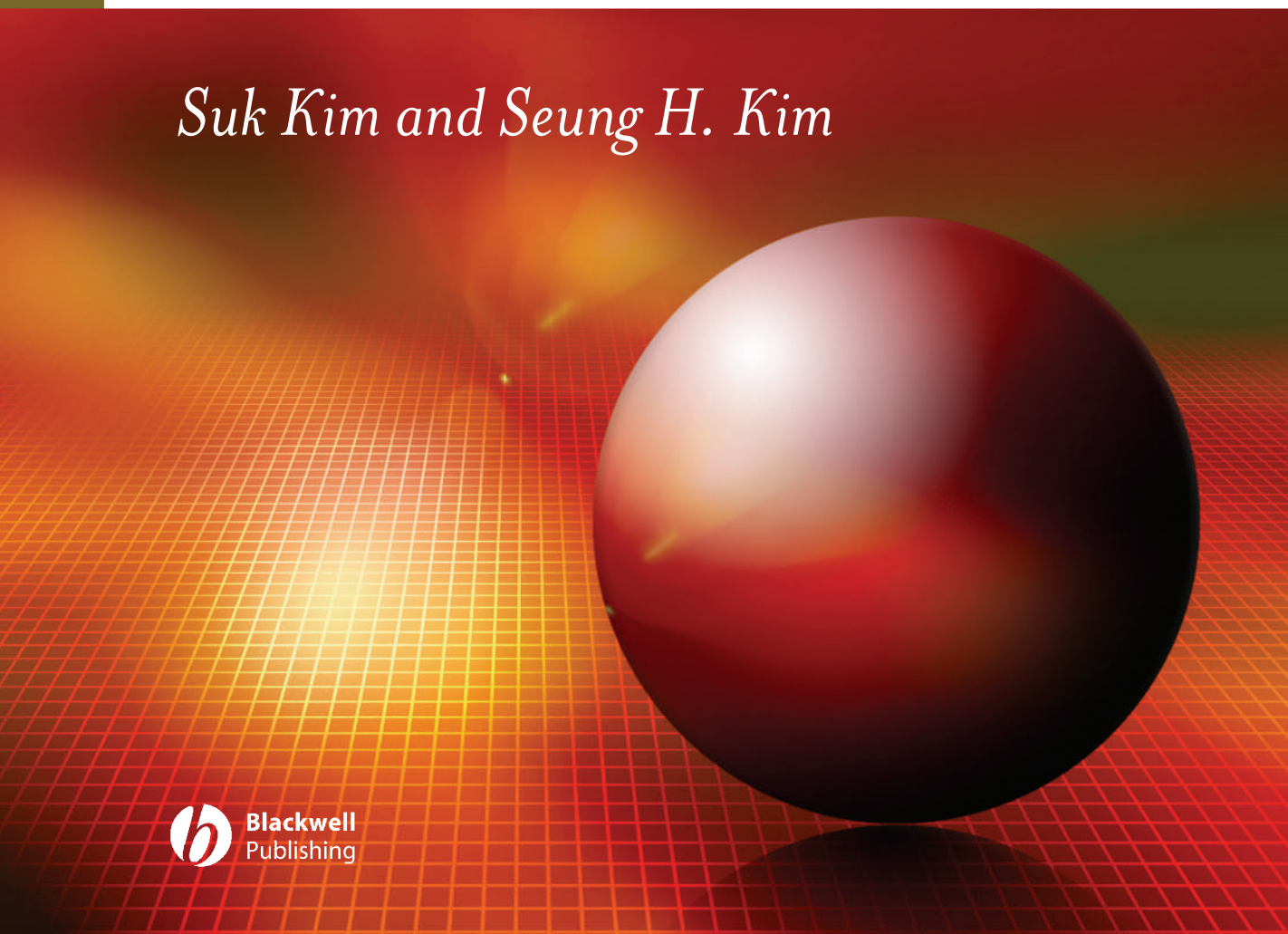
SIXTH EDITION

GLOBAL CORPORATE FINANCE

Suk Kim and Seung H. Kim



Blackwell Publishing

Global Corporate Finance

World Value of the Dollar

The table below, based on foreign-exchange quotations from Reuters, gives the rates of exchange for the US dollar against various currencies as of Friday, July 9, 2004. Unless otherwise noted, all rates listed are middle rates of interbank bid and asked quotes, and are expressed in foreign currency units per one US dollar.

Country (Currency)	*Value 07/09*	*Value 07/02*	*Country (Currency)*	*Value 07/09*	*Value 07/02*	*Country (Currency)*	*Value 07/09*	*Value 07/02*
Albania (Lek)	100.850	100.300	**Gambia** (Dalasi)	29.7500	29.7500	(Kina)	3.1109	3.1090
Algeria (Dinar)	71.0100	71.0100	**Ghana** (Cedi)	9,027.5	9,025.0	**Paraguay** (Guarani) d	5,920.0	5,920.0
Angola (New Kwanza)	83.9911	83.7239	**Gibraltar** (Pound)	0.6269	0.6269	**Peru** (Nuevo Sol) d	3.4507	3.4686
Angola			**Greenland**			**Philippines** (Peso)	55.8036	55.8659
(Readj Kwanza)	83.9911	83.7239	(Danish Krone)	5.9905	6.0347	**Pitcairn Island**		
Antigua			**Grenada**			(NZ $)	1.5200	1.5444
(East Caribbean $)	2.6700	2.6700	(East Caribbean $)	2.6700	2.6700	**Poland** (Zloty) o	3.6460	3.6750
Argentina (Peso)	2.9499	2.9464	**Guadeloupe** (Franc)	7.4330	7.4330	**Puerto Rico** (US $)	1.0000	1.0000
Armenia (Dram)	531.25	533.25	**Guam** (US $)	1.0000	1.0000	**Qatar** (Rial)	3.6398	3.6399
Aruba (Florin)	1.7900	1.7900	**Guatemala** (Quetzal)	7.8950	7.8850	**Réunion, Ile de la**		
Australia (Dollar)	1.3835	1.4021	**Guinea Bissau**			(Franc)	7.4330	7.4330
Azerbaijan (Manat)	4,920.0	4,915.0	(CFA Franc)	528.63	532.93	**Romania** (Leu)	32,943.0	32,964.0
Bahamas (Dollar)	1.0000	1.0000	**Guinea Rep.** (Franc)	2,055.0	2,055.0	**Russia** (Ruble) m, b	29.1121	29.0107
Bahrain (Dinar)	0.3770	0.3770	**Guyana** (Dollar)	179.000	179.000	**Rwanda** (Franc)	563.25	562.75
Bangladesh (Taka)	59.1500	59.2500	**Halti** (Gourde)	33.1070	32.5000	**Saint Christopher**		
Barbados (Dollar)	1.9900	1.9900	**Honduras Rep.**			(East Caribbean $)	2.6700	2.6700
Belarus (Ruble)	2,165.5	2,163.0	(Lempira)	18.2200	18.2100	**Saint Helena** (Pound)	0.6269	0.6269
Belize (Dollar)	1.9700	1.9700	**Hong Kong** (Dollar)	7.8003	7.8003	**Saint Lucia**		
Benin (CFA Franc)	528.63	532.93	**Hungary** (Forint)	203.335	203.542	(East Caribbean $)	2.6700	2.6700
Bermuda (Dollar)	1.0000	1.0000	**Iceland** (Krona)	70.9900	72.1000	**Saint Pierre** (Franc)	7.4330	7.4330
Bhutan (Ngultrum)	47.6250	47.6250	**India** (Rupee) m	45.6204	45.7038	**Saint Vincent**		
Bolivia			**Indonesia** (Rupiah)	8,896.8	9,132.4	(East Caribbean $)	2.6700	2.6700
(Boliviano) f	7.9298	7.9385	**Iran** (Rial) o	8,656.0	8,645.0	**Samoa, American**		
Bosnia & Herzeg.			**Israel** (Shekel)	4.4823	4.4723	(US $)	1.0000	1.0000
(Convertible Mark)	1.5828	1.6113	**Ivory Coast**			**Samoa, Western**		
Botswana (Pula)	4.5403	4.5883	(CFA Franc)	528.63	532.93	(Tala)	2.8063	2.7540
Bouvet Island			**Jamaica** (Dollar) o	60.8100	60.7200	**Sã Tomé and Principe**		
(Krone)	6.8192	6.9052	**Japan** (Yen)	108.331	108.366	(Dobra)	8,700.0	8,700.0
Brazil (Real)	3.0423	3.0386	**Jordan** (Dinar)	0.7090	0.7090	**Saudi Arabia** (Riyal)	3.7509	3.7495
Brunei (Dollar)	1.7040	1.7155	**Kazakhstan** (Tenge)	135.300	135.850	**Senegal** (CFA Franc)	528.63	532.93
Bulgaria (Lev)	1.5755	1.5874	**Kenya** (Shilling)	79.7000	79.4500	**Seychelles** (Rupee)	5.1800	5.1800
Burkina Faso			**Kiribati**			**Sierra Leone** (Leone)	2,455.0	2,455.0
(CFA Franc)	528.63	532.93	(Australia $)	1.3836	1.4022	**Singapore** (Dollar)	1.7021	1.7114
Burundi (Franc)	1,075.3	1,075.5	**Korea, North** (Won)	2.2000	2.2000	**Slovakia** (Koruna)	32.1440	32.2997
Cambodia (Riel)	3,990.0	3,990.0	**Korea, South** (Won)	1,149.4	1,154.5	**Slovenia** (Tolar)	193.230	194.690
Cameroon (CFA Franc)	528.63	532.93	**Kuwait** (Dinar)	0.2948	0.2948	**Solomon Islands**		
Canada (Dollar)	1.3184	1.3242	**Laos, People DR**			(Dollar)	7.2697	7.4375
Cape Verde Isl			(Kip)	7,882.0	7,882.0	**Somalia** (Shilling) d	2,620.0	2,620.0
(Escudo)	108.950	108.950	**Latvia** (Lat)	0.5341	0.5371	**South Africa**		
Cayman Islands			**Lebanon** (Pound)	1,509.0	1,514.0	(Rand) c	6.0864	6.1162
(Dollar)	0.8200	0.8200	**Lesotho** (Maloti)	6.1000	6.1510	**Sri Lanka** (Rupee)	102.780	102.350
Central African Rep.			**Liberia** (US $)	1.0000	1.0000	**Sudan** (Dinar) c	259.540	259.540
(CFA Franc)	528.63	532.93	**Libya** (Dinar)	1.3233	1.3233	**Sudan Rep.** (Pound)	2,595.4	2,595.4
Chad (CFA Franc)	528.63	532.93	**Liechtenstein**			**Suriname** (Guilder)	2,515.0	2,515.0
Chile (Peso)	634.92	630.12	(Swiss Franc)	1.2234	1.2327	**Swaziland**		
China (Yuan)	8.2781	8.2781	**Lithuania** (Lita)	2.7815	2.8027	(Lilangeni)	6.1510	6.1510
Colombia (Peso) o	2,668.8	2,670.2	**Macau** (Pataca)	8.0066	8.0066	**Sweden** (Krona)	7.4074	7.4571
Comoros (Franc)	454.327	454.327	**Macedonia** (Denar)	49.8200	51.5400	**Switzerland** (Franc)	1.2235	1.2326
Congo Dem. Rep.			**Madagascar DR**			**Syria** (Pound)	48.5200	50.2170
(CFA Franc)	528.63	532.93	(Malagasy Franc)	9,508.0	9,305.0	**Taiwan** (Dollar) o	33.5345	33.5458
Congo, People Rep.			**Malawi** (Kwacha)	108.750	108.550	**Tanzania** (Shilling)	1,100.0	1,107.0
(CFA Franc)	528.63	532.93	**Malaysia** (Ringgit) e	3.8000	3.8000	**Thailand** (Baht)	40.7332	40.6669
Costa Rica (Colon)	438.770	438.000	**Maldives** (Rufiyaa)	12.8000	12.8000	**Togo, Rep.**		
Croatia (Kuna)	5.9379	5.9805	**Mali Rep.** (CFA Franc)	528.63	532.93	(CFA Franc)	528.63	532.93
Cuba (Peso)	1.0000	1.0000	**Malta** (Lira)	0.3437	0.3465	**Tonga Islands**		
Cyprus (Pound)	0.4688	0.4718	**Martinique** (Franc)	7.4330	7.4330	(Pa'anga)	1.9608	1.9863
Czech. Republic			**Mauritania** (Ouguiya)	254.250	254.400	**Trinidad & Tobago**		
(Koruna)	25.3743	25.8131	**Mauritius** (Rupee)	28.2400	28.2100	(Dollar)	6.1500	6.1500
Denmark (Krone)	5.9916	6.0350	**Mexico** (Peso)	11.4903	11.4482	**Tunisia** (Dinar)	1.2432	1.2473
Djibouti (Franc)	175.000	175.000	**Moldova** (Leu)	11.8500	11.8550	**Turkey** (Lira) h	1,449,275.4	1,449,275.4
Dominica			**Mongolia** (Tugrik) m	1,180.0	1,174.0	**Turks & Cakos**		
(East Caribbean $)	2.6700	2.6700	**Montserrat**			(US $)	1.0000	1.0000
Dominican Rep. (Peso)	43.5000	45.0940	(East Caribbean $)	2.6700	2.6700	**Uganda** (Shilling)	1,741.5	1,761.5
Ecuador (US $) g	1.0000	1.0000	**Morocco** (Dirham)	8.8756	8.9315	**Ukraine** (Hryvnia)	5.3183	5.3190
Egypt (Pound)	6.2364	6.2201	**Mozambique** (Metical)	22,650.0	22,628.5	**United Arab Emir.**		
El Salvador			**Myanmar** (Kyat)	6.4200	6.4200	(Dirham)	3.6730	3.6730
(Colon) d	8.7520	8.7520	**Namibia** (Dollar)	6.0500	6.1900	**United Kingdom**		
Equatorial Guinea			**Nauru Island**			(Pound Sterling)	0.5378	0.5454
(CFA Franc)	528.63	532.93	(Australia $)	1.3836	1.4022	**Uruguay** (Peso) m	29.4118	29.5858
Estonia (Kroon)	12.6050	12.7063	**Nepal** (Rupee)	72.0000	72.0000	**Vanuatu** (Vatu)	113.220	115.000
Ethiopia (Birr) o	8.5800	8.6795	**Netherlands Antilles**			**Venezuela**		
European Union			(Guilder)	1.7800	1.7800	(Bolivar) d	1,919.4	1,919.4
(Euro)	0.8057	0.8116	**New Zealand** (Dollar)	1.5200	1.5444	**Vietnam** (Dong) o	15,721.0	15,734.0
Faeroe Islands			**Nicaragua**			**Virgin Islands**		
(Danish Krone)	5.9905	6.0347	(Cordoba Oro)	15.8400	15.8300	(US $)	1.0000	1.0000
Falkland Islands			**Nigeria** (Naira) m	134.550	133.300	**Yemen** (Rial) a	184.520	184.520
(Pound)	0.6269	0.6269	**Norway** (Krone)	6.8213	6.9061	**Yugoslavia**		
Fiji (Dollar)	1.7449	1.7715	**Oman** (Sul Rial)	0.3850	0.3850	(New Dinar)	58.6293	58.9989
French Guiana			**Pakistan** (Rupee)	58.2072	58.3431	**Zambia** (Kwacha)	4,780.0	4,763.0
(Franc)	7.4330	7.4330	**Panama** (Balboa)	1.0000	1.0000	**Zimbabwe** (Dollar)	5,350.9	5,338.8
Gabon (CFA Franc)	528.63	532.93	**Papua New Guinea**					

*US $ per national currency unit. a, Parallel; b, Russian Central Bank rate; c, commercial; d, free market; e, government rate; f, financial; h, floating rate as of 2/22/01; m, market; o, official.

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text and cases

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Preface and Acknowledgments

The Intended Market

The sixth edition of *Global Corporate Finance* is suitable for both undergraduate- and graduate-level courses in international finance, no matter where in the world it is taught, because it does not adopt any specific national viewpoint. Moreover, it is self-contained, and it combines theory and applications. The earlier editions of *Global Corporate Finance* have been adopted by teachers in over 200 colleges, universities, and management development programs worldwide, particularly because the book stresses practical applications in a user-friendly format. As evidence of its wide-ranging appeal, a translation of the fourth edition into Chinese Complex Characters was published in 2001 by a major Chinese publishing company in Taiwan.

A Highly Competitive Set of Supplements

The following textbook-related items are available: a Study Guide, transparency masters of lecture notes in Microsoft® Word and PowerPoint, prepared by the authors, and currency symbols and codes. The Study Guide is provided at www.blackwellpublishing.com/kim. Each chapter in the Study Guide includes a list of chapter objectives, detailed chapter outlines, a list of key terms and concepts with definitions, multiple-choice questions, and review problems with solutions for key chapters. The transparency masters of lecture notes, and the currency symbols and codes are also provided on the website.

A comprehensive *Instructor's Manual* is also available on the website. The manual contains a complete set of ancillary materials, including chapter outlines, chapter objectives, key terms and concepts with definitions, answers to end-of-chapter questions, solutions to end-of-chapter problems, answers to end-of-case questions, a test bank of 500 multiple-choice questions, and transparency masters of key tables and figures from the book.

Adopters of this book can also request a complimentary subscription to *Multinational Business Review* (MBR). MBR publishes application-oriented articles and cases dealing with international aspects of accounting, finance, and economics. Some MBR articles may be used as supplemental materials for international finance courses.

The Underlying Philosophy

CORPORATE PERFORMANCE OF FOREIGN OPERATIONS Overall, this book explores two questions: Why do companies increase profits as they boost their foreign presence? Why are they far more successful than domestic firms? By extending the exploration of these questions into detailed operations and strategies, students learn the successful concepts and techniques of multinational firms. For example, students are introduced to seven key principles of global finance. Only then can they grasp the platform on which multinational firms build their strategic plans and, at the same time, sharply define the limited outlook of domestic companies that operate without these seven principles. The sixth edition relentlessly pursues the techniques and concepts that boost the performance of global companies until, almost as if by second nature, students can pinpoint the formula for growth in foreign markets. We then conclude the book by discussing how multinational companies can use international accounting, taxation, and transfer pricing to improve their overall performance even further. This is why we are confident that this book will enable students to develop the requisite skills in international finance, which are essential to improve corporate performance through foreign operations.

SHAREHOLDER VALUE AND CORPORATE GOVERNANCE *Global Corporate Finance* treats shareholder value and effective corporate governance as its foundation. Why? The maximization of shareholder value through effective corporate governance is the best way to strengthen the welfare of all corporate constituents. The stockholders are the owners of the company, and they supply the risk capital that protects the welfare of other constituents. Thanks to them, a higher stock price makes it easier for a company to attract additional equity capital. Effective corporate governance is especially crucial to the success of multinational companies with operations all over the world.

GLOBAL STRATEGY To be competitive in the new economy, which is characterized by information and global competition, companies need to think globally. Thus, this book emphasizes global strategy in order to equip readers with fresh ideas and concepts for successful business operations on a global basis.

AN EMPHASIS ON THE BASICS We believe that students learn most effectively when they first achieve a firm grasp of basics. To stress the basics, we have initially devoted several chapters to the fundamental concepts of international finance. Once the basics have been learned, the advanced material flows naturally. As more advanced topics are developed in later chapters, we tie this material back into the fundamentals, in order to facilitate the learning process and to provide students with the big picture.

USER-FRIENDLINESS This book builds on knowledge derived from basic courses in economics and corporate finance. All traditional areas of corporate finance are explored, but from the view-

point of global financial managers. Tables, figures, and numerical examples clarify discussions of financial concepts and techniques. All end-of-chapter questions and problems are tied or keyed to major topics presented in the chapter. Solutions to most end-of-chapter problems can be found at the end of the text. Additionally, we have made an extra effort to clearly define every key term, which we highlight in bold type. This book also provides a quick reference glossary with 400 key terms.

COMPLETE REVISION Since the first edition of this book, we have applied the same principle in consequent revisions; that is, planning anew rather than simply adding on to what we had already written. This approach has undoubtedly helped us avoid two problems: we have not overlooked important changes in international finance, and we have not unnecessarily increased the length of the book. This sixth edition contains many new cases, new sections, and new practical examples, but it is shorter in length than the previous edition.

A SUMMARY OF THE UNDERLYING PHILOSOPHY Instructors who want students to possess practical, job-oriented skills in international finance will find that *Global Corporate Finance* speaks to their needs. Corporate recruiters often criticize business schools for turning out graduates who cannot contribute immediately. At the core of this criticism is the belief that, while students are educated in various theories, little emphasis is placed on developing practical skills. For that reason, we have been especially careful to ensure that such criticism will not apply to those who adopt a book that aims at developing students' skills in international finance. In fact, we expect that many students will keep this book as a useful reference work after they have completed their courses.

Learning Features

A CASE-STUDY APPROACH Students find different ways to master a subject, but we believe that the case-study approach is the most effective. Although this book is not a casebook, it centers on a series of real-life, current, and decision-oriented cases. We provide actual cases from the real world to begin and end each chapter. In other words, all 40 cases are bona fide real cases.

GLOBAL FINANCE IN ACTION In this edition, students will find 50 discussions under the heading of "Global Finance in Action." We further catch the readers' attention by setting these topics apart on the page. These boxes include real-life examples, contemporary issues, and important research findings, as well as new financial instruments and techniques. Among the topics covered in these boxes are the impact of the September 11, 2001 attacks on the world economy, the high cost of protectionism, and the US accounting scandal of 2002 and its impact on corporate governance.

INTERNET RESOURCES We have added a list of appropriate website addresses and a set of Internet questions for every chapter: these are located at the end of the book to help students find specific online sources of information about current company, market, and business events. In addition, we have designed the questions to help students use real-time resources in preparing executive briefings and in solving global finance problems.

REAL-WORLD EXAMPLES *Global Corporate Finance* focuses primarily on corporate finance practice. Throughout, numerous real-world examples present actual applications of financial theories

and techniques. These discussions center on how managerial decision-makers work within a global business with specific areas of responsibility for corporate finance. Specifically, this book is solidly grounded in the theory of modern corporate finance and yet has strong ties to the real world of international finance. We discuss and illustrate just about every theory and concept with actual data and/or practical examples.

READABILITY This book is readable and easy to understand because it discusses the basic tools and techniques of global finance without a complex treatment of theoretical concepts. Students become frustrated when they have to study mathematical formulas without corresponding numerical examples. Practically all of the formulas used in this book are accompanied by practical, but straightforward, numerical examples. We emphasize readability because we believe that it will motivate readers to pursue further knowledge in international finance.

Pedagogical Features

For ease of learning, each chapter of *Global Corporate Finance* follows a common format:

- At the beginning of each chapter, a mini-case is provided to achieve two objectives: (1) to build student interest with regard to the upcoming chapter and (2) to introduce a real-world example that will be explained further by theories and research findings presented in the chapter.
- The introductory mini-case is followed by a chapter overview, which describes the chapter themes and the content of the major sections.
- Real-world illustrations, numerical examples, figures, tables, and special boxes are integrated throughout the text to clarify discussions of financial concepts and techniques.
- Key terms and concepts are presented in bold type when they are first introduced. We have also concentrated on clearly defining key terms.
- A short summary provides students with a handy overview of key concepts for review.
- Those references used in each chapter are listed to allow readers to find sources that provide additional information about specific topics discussed in the chapter.
- A generous number of questions and problems support text discussions; they reemphasize definitions, concepts, and the application of theory.
- An analytic mini-case concludes each chapter. The closing case problems serve a different purpose from the opening ones. They present situations for which students must analyze possible actions on the basis of what they have learned in the chapter. In other words, the opening cases enhance interest and recall essential facts; the closing case problems enhance the development of critical reasoning skills. Moreover, Internet exercises have been added at the end of each case problem, to explain how the Internet may be used to access international financial data and obtain information on the case concepts.

To the Student

While you may use this book in whatever way you find most comfortable, the following tips may give your learning experience added value. In each chapter:

- Read the opening case, to view the upcoming material through a real-world example.
- Read the chapter text.
- Read the chapter summary.
- Study the key terms and concepts that are highlighted in bold type. The website consolidates all of the key terms and concepts, with end-of-chapter definitions.
- Rework any numerical examples provided in the chapter.
- Read our lecture notes for the chapter.
- Prepare notes using your professor's lectures, lecture notes, and the textbook. Make those notes your own.

Changes to the Sixth Edition

We have carefully revised the sixth edition to reflect changes in global finance. In response to reader suggestions, we have eliminated four chapters, added two new chapters, added 16 new cases, developed 20 Internet resources, and discussed many new practical examples in special boxes under the heading "Global Finance in Action." We have also revised 40 Internet exercises for students who take international finance courses. We have expanded our coverage on shareholder value and corporate governance. We have discussed the introduction of the euro and its impact in several chapters. We have also discussed several new topics in many chapters – the impact of the September 11, 2001, attacks on the world economy, the growing economic power of China, and the 2002 corporate scandal in the United States and its impact on corporate governance. To enhance the international focus of the sixth edition, we have dropped those topics that took specifically American viewpoints while increasing our coverage of emerging markets. Finally, we have replaced the currencies of 12 eurozone countries with other currencies throughout the text, the *Instructor's Manual*, and the Study Guide. These and other changes are designed to place the focus of the book on managerial finance for multinational companies.

Chapter 1, "Introduction," has been extensively rewritten to eliminate a few existing topics and to discuss three new topics: the corporate governance of a major pension fund as an opening case; the impact of the September 11, 2001, attacks on the world economy; and the orientation of globalization. Chapter 2, "Motives for World Trade and Foreign Investment," examines the impact of economic freedom on consumption, the cost of protectionism, and the fruits of free trade under the World Trade Organization. Chapter 3, "The Balance of Payments," considers the implications of the huge US trade deficit and the trade friction between the USA and China. Chapter 4, "The International Monetary System," discusses the euro as an opening case, compresses the history of the international monetary system, and expands the coverage of the euro.

In chapter 5, "The Foreign-Exchange Market and Parity Conditions," we have replaced both the opening case and the ending cases with new ones, shortened our discussion on the overview of the foreign-exchange market, and, in a box, examined the effectiveness of official exchange intervention. Chapter 6, "Currency Futures and Options," discusses the risk of financial derivatives more explicitly and analyzes the reasons for the decline in the importance of currency futures. We have substantially revised chapter 7, "Financial Swaps," to reflect new information in the opening case, to describe the US accounting scandal of 2002, and to explain the motives for the use of financial swaps. Chapter 8, "Exchange Rate Forecasting," tracks the fluctuation of the US dollar in a box and discusses the reasons for central bank intervention in currency markets.

The fifth edition of this book had only one chapter about foreign-exchange risk management, but the sixth edition discusses this important topic in two separate chapters: chapter 9, "Managing Transaction Exposure and Economic Exposure," and chapter 10, "Translation Exposure Management." This means that we have covered foreign-exchange risk management in its entirety.

Chapter 11, "International Financial Markets," has been completely rewritten to shorten our coverage of a few existing topics and to discuss four new topics: the attractiveness of Asian shares, international interest rate linkages and corporate governance reform as a matter of global concern, new trends in stock markets, and the rotation from debt to equity by developing countries. Chapter 12, "International Banking Issues and Country Risk Analysis," has undergone extensive revision to discuss Argentina's currency crisis, the World Bank, and the World's largest financial companies. Chapter 13, "Financing Foreign Trade," evaluates countertrade in a new section and explains how to collect overdue accounts in a new topic. Chapter 14, "Financing Foreign Investment," examines motives for strategic alliances in a new topic. Chapter 15, "International Working Capital Management," has been shortened. Chapter 16, "International Portfolio Investment," has a new opening case and discusses most topics with updated information. Chapter 17, "Corporate Strategy and Foreign Direct Investment," looks at the reasons for the recent growth in new mergers and discusses the impact of reduced foreign direct investment in the USA. Chapter 18, "International Capital Budgeting Decisions," has been substantially revised to include political risk analysis in a major new section. In chapter 19, "The Cost of Capital for Foreign Projects," a few topics have been dropped but we discuss cultural values and capital structure in a new section. Chapter 20, "Corporate Performance of Foreign Operations," is a new chapter that discusses those factors affecting the corporate performance of foreign operations.

Suk H. Kim and Seung H. Kim

Acknowledgments

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PART I

The Global Financial Environment

Part I of this text (chapters 1–4) presents an overview of the global financial environment. Chapter 1 develops the goal of the multinational company to be used in the financial decision-making process and examines the role of global finance in achieving this goal. Chapter 2 examines motives for world trade and foreign investment. Before considering foreign trade and foreign investment separately in the coming chapters, we will discuss key trade and investment theories in this chapter. Chapter 3 describes the balance of payments and its relationship to currency regimes. Chapter 4 looks at an overview of the international monetary system and how the choice of system affects exchange rates.

CHAPTER 1

Introduction

Opening Case 1: TIAA-CREF Goes Global with Corporate Governance

Teachers Insurance and Annuity Association College Retirement Equities Fund (TIAA-CREF) is one of the largest financial service providers in the world, and has provided a variety of financial services to the faculty and staff of America's education and research communities for more than 80 years. As one of the world's largest institutional investors, TIAA-CREF historically acted on behalf of shareholders to improve the way US companies operate. Now, it is applying this expertise abroad with stock holdings in international companies. With the CREF Stock Account holding more than $200 billion in net assets and equity investments, TIAA-CREF is one of the largest proactive shareholder activists in the US market. In the past few years, its experienced corporate governance team has expanded efforts to ensure fair representation for shareholders of the international companies whose stock is held in the CREF Stock Account, the CREF Global Equities Account, and CREF's other international investments.

First stop: Western Europe. With international holdings in about 30 countries worldwide, TIAA-CREF has the luxury of starting with any region, but the team picked Western Europe, and for good reasons. TIAA-CREF approaches Western Europe as one economic entity because of the European Union, which makes corporate governance changes easier to initiate on a regional basis than in other parts of the world. "Europe is a market that is ripe for accepting change," says Peter Clapman, TIAA-CREF senior Vice President and Chief Counsel. Although European and US corporations are increasingly similar, European shareholders lack representation – such as in voting rights and disclosure practices. "In many countries, there are companies where there is an absence of one share–one vote for shareholders. And disclosure practices,

such as timely quarterly data, are not as good as in the US," says Clapman. "There is also a lesser degree of accountability to corporate boards."

TIAA-CREF works for generalized, improved European corporate governance standards both on its own and through global organizations. In fact, TIAA-CREF intends to use greater resources in corporate governance programs in Western Europe in order to foster changes in both national policies and in specific companies. Its corporate governance team focuses on issues on a country-by-country basis, meeting with government regulators, stock exchange officers, and company executives. As in its dealings with US companies, TIAA-CREF initially approaches European executives behind the scenes, without much fanfare, to discuss the need to make changes. Respecting cultural differences takes top priority. "We have to be careful that our approach is calibrated to respect their culture, while at the same time making them understand our concerns and appreciate that it is to their benefit to reasonably accommodate our requests," Clapman stated.

Although maintaining cultural sensitivity abroad, TIAA-CREF still files resolutions to seek change on behalf of shareholders if companies ignore its concerns. In France, for example, the government tried to force a company to transfer a percentage of assets for political influence. TIAA-CREF successfully stopped the action by filing a shareholder resolution, which had support from shareholders and others within the country. In another instance, in 2000 an Italian telephone company planned to sell some of its assets at an unreasonably low price to a major corporate shareholder. TIAA-CREF communicated with regulators in Italy and stifled the corporate action.

Clapman believes that corporate governance initiatives will continue to improve in Europe and expand to Asia and Latin America, because countries and companies increasingly recognize that they will not otherwise receive necessary capital from investors. A recent study by the consulting firm McKinsey & Company, in cooperation with the World Bank and Institutional Investor's regional institutes, indicates that investors are willing to pay, on average, a premium of about 20 percent for shares in a well-governed European company. The average varies from 17.9 percent for companies in the United Kingdom to 19.8 percent in France, 20.2 percent in Germany, and 22 percent in Italy. In Asia, the average premium in well-established markets, such as Korea and Japan, is 24.2 percent and 20.2 percent, respectively.

TIAA-CREF's governance team discusses shareholder issues with the International Corporate Governance Network and the Organization for Economic Cooperation and Development, both of which have major European representation. For its part, Western Europe has become receptive to TIAA-CREF's efforts, but "there is still room to grow," says Clapman. "It is two steps forward, one step back, but the momentum is there."

Source: www.tiaa-cref.org.

Globalization stands for the idea of integrating the world marketplace, creating a so-called "borderless world" for goods and services. In addition, to some extent, we already have such a world. Consider physical communications (mail, the telephone, the Internet, and airline and ocean shipping networks); entertainment (film and TV, music, news, and sports); economic and business

exchange (banking and insurance networks, dependable foreign-exchange and stock markets, and reciprocal trade arrangements); and even ideas and competing spiritual values through evangelical Christianity, Islam, and others (Harry 2001).

The increasing economic integration of goods, services, and financial markets presents opportunities and challenges for governments, business firms, and individuals. Although business operations in countries across the globe have existed for centuries, the world has recently entered an era of unprecedented worldwide production and distribution. Worldwide production and distribution are critical for the survival of the multinational corporation (MNC) – its ability to produce products and sell them at a profit. International finance is an integral part of total management and cuts across functional boundaries because it expresses inputs, outputs, plants, and results in monetary terms.

This book deals with the financial decisions of an MNC, decisions that both large and small MNCs must make. Thus, the underlying financial principles are basically the same for both types of companies. In this introductory chapter, we lay the foundation for the entire text with six separate sections. The first section explains reasons to study international finance. The second section identifies the primary goal of the MNC and the functions of the financial manager necessary to achieve this primary goal. The third section analyzes MNCs and their performance. The fourth section discusses the major principles of global finance that favor MNCs over domestic companies. The fifth section describes two major constraints that impede an MNC's effort to achieve its goal: large agency costs and environmental differences. The last section gives an overview of the book.

1.1 Reasons to Study International Finance

A college student, such as yourself, should study international finance. "I am not an international finance major," you say. "Why should I have to take a course in international finance?" That is a reasonable question. It is true that most readers of this book will not necessarily work in the international finance department of a large company such as IBM or the foreign-exchange department of a large bank such as Chase Manhattan. All textbooks on business and economics teach that resources are scarce. We know that your time is one of those scarce resources. Hence, we will give you just a few reasons why you should study international finance.

To understand a global economy

The world has recently reached the climax in a drama of economic change. No one can deny the effects of these changes on our hopes for peace and prosperity: the disintegration of the Soviet Union; political and economic freedom in Eastern Europe; the emergence of market-oriented economies in Asia; the creation of a single European market; trade liberalization through regional trading blocs, such as the European Union, and the world's joint mechanisms, such as the World Trade Organization. As global integration advances amid intensified international competition, the United States, Japan, and Europe are expected to lead the world toward a system of free trade and open markets.

Three recent changes have had a profound effect on the international financial environment: the end of the Cold War, the emergence of growing markets among the developing countries of

East Asia and Latin America, and the increasing globalization of the international economy. Understanding these changes should help you see where the international economy is headed in the future so that you can more effectively respond to these challenges, fulfill your responsibilities, and take advantage of these opportunities.

THE END OF THE COLD WAR In 1989, the Soviet Union relaxed its control over the Eastern European countries that had suffered its domination for over 40 years. These countries immediately seized the opportunity to throw off authoritarian communist rules. Two years later, the Soviet Union itself underwent a political and ideological upheaval, which quickly led to its breakup into 15 independent states. Most of these and other formerly centrally planned economies are now engaged in a process of transition from central planning and state ownership to market forces and private ownership. In fact, the market reforms of some former communist countries, such as the Czech Republic, Hungary, and Poland, have become so advanced that they were able to join the European Union in 2004.

THE INDUSTRIALIZATION AND GROWTH OF THE DEVELOPING WORLD The second great change of recent years has been the rapid industrialization and economic growth of countries in several parts of the world. The first of these emerging markets were the four Asian "tigers": Hong Kong, Singapore, South Korea, and Taiwan. China and other Asian countries have followed in their footsteps. Having overcome the debt crisis of the 1980s and undertaken economic and political reforms, some of the Latin American countries – Argentina, Brazil, Chile, Mexico, and Venezuela – have also begun to see faster, more sustained growth. As a result, some countries classified as developing countries until not too long ago – Mexico and South Korea – are now members of the Organization for Economic Cooperation and Development (OECD), which is often called "the rich man's club" because it consists of 30 of the wealthiest nations in the world.

INCREASED GLOBALIZATION The third major change in the international financial environment is even more sweeping than the first two. National economies are becoming steadily more integrated as political, regulatory, technological, and economic forces radically change the global competitive environment. Some of these forces include the collapse of communism, the privatization of state-owned enterprises around the world, the revolution in information technologies, massive deregulation, the adoption of global standards by many developing countries, and the wave of mergers, leveraged buyouts, and takeovers.

Advances in information technologies and reductions in trade barriers have played a particularly important role in the globalization process of the world economy. Reductions in technological barriers have occurred as transportation and communication costs have dropped. "This death of distance" (OECD 1999) facilitates international production activities, enlarges trading areas, and enables companies to exploit international cost differentials. Government-made barriers have also fallen as tariffs and nontariff barriers have been reduced in a series of multilateral negotiations and trading blocs since World War II. These falling technological and government-made barriers have caused trade and foreign direct investment to increase several times faster than world output since 1985.

There are also many examples of the growing importance of international operations for individual companies. Coca Cola, Dow Chemical, ExxonMobile, DaimlerChrysler, Hewlett Packard, IBM, Johnson & Johnson, and McDonald's earn more than half of their total operating profits through international operations. MNCs, such as BP Amoco, General Motors, and Sony, do

business in more than 150 countries around the world. Nestlé, Philips Electronics, Ford, and IBM have more workers overseas than in their own home countries. In 2002, Nestlé SA, for example, had 245,000 workers overseas compared with only 10,000 workers in its home country, Switzerland.

By the same token, global finance has also become increasingly important as it serves world trade and foreign investment. International earning assets for the Bank of America, for example, represent more than half of its total earning assets. Deutsche Bank maintains more than 500 overseas branches in over 100 countries. Simply stated, each nation is economically related to other nations through a complex network of international trade, foreign investment, and international loans.

Most large and many medium-size companies around the world have international business operations. In recent years, it has become clear that international events significantly affect companies that do not have foreign operations. Business school graduates have an advantage in moving their companies forward if they understand the basic elements of international finance. Apart from career interests, persons who want to improve their knowledge of the world will be seriously handicapped if they do not understand the economic dynamics and policy issues of finance, trade, and investment flows among nations.

Global Finance in Action 1.1

Have the September 11, 2001, Attacks Ended Globalization?

The last great period of globalization ended effectively in 1914, when an act of violence – the assassination of Archduke Ferdinand in Sarajevo – touched off World War I. More than a half-century passed before cross-border trade and investment would again play such a prominent role in the global economy. After the September 11 attacks against the World Trade Center in New York and the Pentagon in Washington, DC, economists worried that the year 2001 would go down in history as another high-water mark in an era of globalization. Recession, security concerns at home, and resentment abroad seemed to neutralize forces that drove America's search for new markets and cheap supplies overseas during the 1990s.

A survey in November 2001 of 171 business executives at large US multinational companies by PricewaterhouseCoopers found that their commitment to international expansion rose after the September 11 attacks. Twenty-seven percent of the respondents planned some form of geographical expansion during the year ahead, up 19 percent before the attacks. Starbucks Corp., for example, opened more than 70 international stores between the end of September and the end of November, an 8 percent increase. Dell Computer Corp., meanwhile, picked up market share abroad, although Gateway retreated.

Furthermore, policy-makers have generally moved toward free trade since September 11, 2001. China, the world's most populous nation, has officially entered the World Trade Organization. In Doha, Qatar, 142 nations agreed in November 2001 to start a new round of talks to lower trade barriers. In addition, the US Congress voted to extend to President George W. Bush "fast track" authority to negotiate trade

deals that lawmakers can approve or disapprove but cannot amend. The very same forces that drove globalization during the 1990s signal no turning back on the road to "a borderless world."

Source: Jon E. Hilsenrath, "Globalization Persists in Precarious New Age," *The Wall Street Journal*, Dec. 31, 2001, p. 1A.

To make intelligent personal decisions

When you graduate from college and decide to take a job, you may have the advantage of comparing two job offers: one from Merrill Lynch and another one from Nomura Securities. When you decide to buy a car, your choice between the latest models offered by General Motors and Volkswagen may well depend on the exchange rate between the dollar and the euro. When you begin a career and save for your retirement, you may choose between US securities and non-US securities. When you take your next vacation, you may spend it at Tokyo Disneyland or at Euro Disneyland. Although these are not international finance jobs, they all require significant knowledge of international finance to make intelligent decisions. In all of these cases, the important point is that you will participate not just in the US economy but in economies around the world.

1.2 Company Goals and Functions of Financial Management

1.2.1 Multinational company goals

Management is motivated to achieve a number of objectives, some of which conflict with each other. Such conflicts arise because the firm has a number of constituents, such as stockholders, employees, customers, creditors, suppliers, and the local community, whose desires do not necessarily coincide. It is management's responsibility to satisfy such differing desires. Hence, the conflicting objectives that confront management raise the problem of setting priorities. In addition, it is essential for management to set priorities for the most efficient use of a company's scarce resources. The setting of priorities by an MNC is particularly important and difficult because it has highly diversified groups of constituents in many countries.

The commonly accepted objective of an MNC is to maximize stockholder wealth on a global basis, as reflected by stock price. The stock price reflects the market's evaluation of the firm's prospective earnings stream over time, the riskiness of this stream, the dividend policy, and quality aspects of the firm's future activities. Quality aspects of future activities include stability, diversification, and growth of sales.

Stockholder wealth maximization is generally accepted as the primary goal of a company in the USA and the UK. In some other countries such as Germany and Japan, however, the goal of a company is to maximize corporate wealth. "Corporate wealth" includes not only the company's stockholder wealth but also its marketing, technical, and human resources. Under this model, a company should treat shareholders on a par with other corporate constituents. In other

words, management should strive to increase the corporate wealth for the benefit of all constituents.

There are a number of compelling reasons for management to focus on stockholder wealth maximization. First, because stockholders are the owners of the company, management has a fiduciary obligation to act in their best interests. Second, stockholders provide the risk capital that protects the welfare of other constituents. Third, stockholder wealth maximization – a high stock price – provides the best defense against a hostile takeover or a forced corporate restructuring. Fourth, if a company enhances shareholder value, it is easier for the company to attract additional equity capital. For these and other reasons, many financial economists believe that stockholder wealth maximization is the only way to maximize the economic welfare of all constituents (Shapiro 2003).

1.2.2 *The functions of the international financial manager*

In order to achieve the firm's primary goal of maximizing stockholder wealth, the financial manager performs three major functions: (1) financial planning and control (supportive tools); (2) the efficient allocation of funds among various assets (investment decisions); and (3) the acquisition of funds on favorable terms (financing decisions).

FINANCIAL PLANNING AND CONTROL Financial planning and control must be considered simultaneously. For purposes of control, the financial manager establishes standards, such as budgets for comparing actual performance with planned performance. The preparation of these budgets is a planning function, but their administration is a controlling function.

The foreign-exchange market and international accounting play a key role when an MNC attempts to perform its planning and control function. For example, once a company crosses national boundaries, its return on investment depends on not only its trade gains or losses from normal business operations but also on exchange gains or losses from currency fluctuations. For example, Thailand's chemical giant Siam Cement PCL incurred a foreign-exchange loss of $517 million in the third quarter of 1997 due to currency turmoil in Asia during the second half of 1997. The company had $4.2 billion in foreign loans, and none of it was hedged. The exchange loss wiped out all the profits that the company earned between 1994 and 1996 (Glain 1997).

International reporting and controlling have to do with techniques for controlling the operations of an MNC. Meaningful financial reports are the cornerstone of effective management. Accurate financial data are especially important in international business, where business operations are typically supervised from a distance.

ALLOCATION OF FUNDS (INVESTMENT) When the financial manager plans for the allocation of funds, the most urgent task is to invest funds wisely within the firm. Every dollar invested has alternative uses. Thus, funds should be allocated among assets in such a way that they will maximize the wealth of the firm's stockholders.

There are 200 countries in the world where large MNCs, such as General Electric and the Royal Dutch/Shell Group, can invest their funds. Obviously, there are more investment opportunities in the world than in a single country, but there are also more risks. International financial managers should consider these two simultaneously when they attempt to maximize their firm's value through international investment.

ACQUISITION OF FUNDS (FINANCING) The third role of the financial manager is to acquire funds on favorable terms. If projected cash outflow exceeds cash inflow, the financial manager will find it necessary to obtain additional funds from outside the firm. Funds are available from many sources at varying costs, with different maturities, and under various types of agreements. The critical role of the financial manager is to determine the combination of financing that most closely suits the planned needs of the firm. This requires obtaining the optimal balance between low cost and the risk of not being able to pay bills as they become due.

There are still many poor countries in the world. Thus, even Citigroup, the world's largest bank in 2003, cannot acquire its funds from 200 countries. Nevertheless, MNCs can still raise their funds in many countries thanks to recent financial globalization. This financial globalization is driven by advances in data processing and telecommunications, liberalization of restrictions on cross-border capital flows, and deregulation of domestic capital markets. International financial managers use a puzzling array of fund-acquisition strategies. Why? The financial manager of a purely domestic company has just one way to acquire funds – instruments that have varying costs, different maturities, and different types of agreements. The financial manager of an MNC, on the other hand, has three different ways to acquire funds: by picking instruments, picking countries, and picking currencies.

THE CHANGING ROLE OF THE FINANCIAL MANAGER The role of the financial manager has expanded in recent years. Instead of merely focusing on the efficient allocation of funds among various assets and the acquisition of funds on favorable terms, financial managers must now concern themselves with corporate strategy. The consolidation of the corporate strategy and the finance function – a fundamental change in financial management – is the direct result of two recent trends: the globalization of competition and the integration of world financial markets facilitated by improved ability to collect and analyze information. For example, financial managers increasingly participate in corporate strategic matters – from basic issues such as the nature of their company's business to complex issues such as mergers and acquisitions.

The chief financial officer as strategic planner is emerging. In an era of heightened global competition and hard-to-make-stick price increases, the financial fine points of any new strategy are more crucial than ever before. Many finance chiefs can provide that data, as well as shrewd judgment about products, marketing, and other areas. The key place where everything comes together is finance. In a recent survey by headhunters Korn/Ferry International, Fortune 100 chief financial officers almost unanimously described themselves as "more of a partner with the Chief Executive Officer (CEO)" than they used to be.

1.3 Multinational Companies and their Performance

1.3.1 What is a multinational corporation?

In 1963, the term "multinational corporation" became a household term after a cover story about the institution in *Business Week*. Ever since, international business guided by MNCs has prospered as a result of the need for poor countries to develop, the end of the Cold War, privatiza-

tion of state-owned businesses and banks, and the growing economic power of the global triad – Asia, the USA, and Europe (Baker 1997). There are approximately 60,000 multinational companies in the world with 500,000 foreign affiliates. These multinational companies and their foreign affiliates account for roughly 25 percent of global output, one third of it in host countries (*The Economic Report of the President to Congress* 2004). In the twenty-first century, these MNCs are expected to play an even greater role in international business, because they have the know-how, money, and experience.

The World Book Encyclopedia defines a **multinational corporation** (**MNC**) as "a business organization that produces a product, sells a product, and provides a service in two or more countries." The US Department of Commerce defines an American MNC as "the US parent and all of its foreign affiliates." A US parent is a person, resident in the USA, who owns or controls a minimum of 10 percent voting equity in a foreign firm. "Person" is broadly defined to include any individual, branch, partnership, associated group, association, estate, trust, corporation, other organization, or any government entity. A **foreign affiliate** is a foreign business enterprise in which a US person owns or controls a minimum of 10 percent voting equity. A **majority-owned foreign affiliate** is a foreign affiliate in which the combined ownership of all US parents exceeds 50 percent.

Donald Lessard (1991), a professor of international finance at MIT, classifies all MNCs into three groups: (1) international opportunists – companies that focus on their domestic markets but engage in some international transactions; (2) multi-domestic competitors – companies committed to a number of national markets with substantial value added in each country, but with little cross-border integration of activities; and (3) global competitors – companies that focus on a series of national and supranational markets, with substantial cross-border integration of activities.

1.3.2 From multinational company to global company

What Lessard called "a global competitor" has come to be known as a **global company**, a generic term used to describe an organization that attempts to standardize and integrate operations worldwide in all functional areas. Here are three possible definitions of a global company – an organization that attempts to:

1 Have a worldwide presence in its market.
2 Integrate its operations worldwide.
3 Standardize operations in one or more of the company's functional areas.

For example, if a company designs a product with a global market segment in mind and/or depends on many countries for the production of a product, it qualifies as a global company. In this type of company, the development of capabilities and the decisions to diffuse them globally are essentially made in the company's home office. Some people believe that a global company must possess all these three characteristics. Critics of this definition say that there is no global company by that definition (see Global Finance in Action 1.2).

Global Finance in Action 1.2
Is Globalization Myth or Reality?

The answer to this question depends on whether you look at globalization in tangible terms (i.e., production and trade volumes) or in intangible terms (i.e., information and knowledge). Professor Alan R. Rugman, at Indiana University in Bloomington, Indiana, argues that multinational business enterprises (MNEs) – which are the agents of international business – largely operate within their home-based markets in each part of the "triad" of North America, the European Union, and Japan/Asia. Empirical evidence suggests that even the 20 most "international" MNEs (those with the highest ratio of foreign-to-total sales) are mainly home-triad based in their activities.

Globalization has been defined in business schools as producing and distributing goods and services of a homogeneous type and quality on a worldwide basis – simply put, providing the same output to countries everywhere. To back up their claims, some analysts often point to the fact that foreign sales account for more than 50 percent of the annual revenues of companies such as Dow Chemical, ExxonMobile, and IBM. Accurate as they may be, those figures do not explain that most of sales of "global" companies are made on a "triad" regional basis. For example, more than 85 percent of all automobiles produced in North America are built in North American factories; over 90 percent of the cars produced in the EU are sold there; and more than 93 percent of all cars registered in Japan are manufactured domestically. The same holds true for specialty chemicals, steel, energy, transportation, and heavy electrical equipment. Furthermore, MNEs cannot develop homogeneous products for world markets or dominate local markets no matter how efficient production techniques are. MNEs have to adapt their products for the local market. For example, there is no worldwide, global car. Rather, there are regionally based American, European, and Japanese factories that are supported by local regional suppliers.

"Rugman's perspective is based on homogeneity of markets and comparative advantage concepts whereby commodity and unskilled labor markets are major drivers of world trade and commerce," Professor Paul Simmons, at Florida State University in Tallahassee, Florida, points out. "Unfortunately, this perspective is more suited to trade concepts of the 18th and 19th centuries where economists argued the value of absolute and comparative advantage." Market homogeneity is not the major determinant of globalization; it is market interdependency. Supply and demand imbalances create linkages between markets. A standardized product or service in all markets is only one of several options available to satisfy those linkages. A definition of globalization that focuses on the ability of firms to leverage certain resources and compete in worldwide markets suggests that globalization does exist in interdependent markets.

Global branding is an illustrative example. Whether franchising or product branding, firms seek interconnectivity throughout their competitive domains to leverage their intangible assets. Everyone is familiar with McDonald's. Strict control of key

operational aspects in food preparation and delivery are consistent globally despite varied additions to menu offerings that accommodate local tastes and customs. McDonald's expects customer experiences in any of its locations to generate certain expectations between locations because of its brand identity. Thus, the interdependence of knowledge and information among the various locations are circuital to McDonald's competitive success. The most relevant definition of globalization, therefore, is the ability to transfer information and knowledge globally. Products and services may be produced, delivered, and traded on a regional basis, but global diffusion of knowledge makes this possible. Globalization exists because bits and bytes – that is, process knowledge and other intangible assets – can be transferred globally at minimal costs. The result is greater integrated trade flows.

Sources: Alan M. Rugman, "Multinational enterprises are regional, not global," *Multinational Business Review*, Spring 2003, pp. 3–12; Alan M. Rugman, "The myth of global strategy," *AIB Newsletter*, Second Quarter 2001, pp. 11–14; and Paul Simmonds, "Globalization: another viewpoint," *AIB Newsletter*, Second Quarter 2001, pp. 15–16.

1.3.3 *The performance of multinational companies*

Evidence indicates that US MNCs earn more money as they boost their presence in foreign markets. In 1974, for example, *Business International* reported that 90 percent of 140 Fortune 500 companies surveyed achieved higher profitability on foreign assets. This trend continued into the 1990s, but the percentage of those companies with higher profitability on foreign assets has declined in recent years (Ball et al. 2004). The US Department of Commerce found that the return on assets for nonfinancial US MNCs has exceeded the return on assets for all US nonfinancial companies from 1989 to 2003, but that the excess of the return on assets for US MNCs over the return on assets for US domestic companies has declined since 1991. Apparently, the cost and competition drivers to globalization have reduced the differences between overseas and home-country profits, but all analysts predict that US MNCs will earn more money than US domestic companies for years to come.

Foreign-based companies with a higher degree of international business have also experienced superior performance in recent years. Foreign-owned companies in the world's most highly developed countries are generally more productive and pay their workers more than comparable locally owned businesses, according to the Organization for Economic Cooperation and Development (OECD). The Paris-based organization also says that the proportion of the manufacturing sector under foreign ownership in European Union countries rose substantially during the 1990s, a sign of increasing economic integration. The finding underlines the increasing importance in the world economy of large companies with bases scattered across the globe. Gross output per employee, a measure of productivity, in most OECD countries, tends to be greater in multinational companies than in locally owned companies (Marsh 2002). Why do multinational companies perform better than domestic companies? In the following section, we attempt to answer this important question.

1.4 Principles of Global Finance

The primary objective of this book is to help the reader understand basic principles of global finance. Before we advance too far into the material, perhaps it would be helpful to take a brief look at some of these principles so that you may see where we are heading.

As discussed earlier, the financial manager has three major functions: financial planning and control, the acquisition of funds, and the allocation of funds. However, each of these three functions shares most principles of global finance and their relationships. Seven important principles of global finance are introduced in this section. In addition, these principles should help you understand why MNCs perform better than domestic companies.

1.4.1 The risk–return trade-off

The maximization of stockholder wealth depends on the trade-off between risk and profitability. Generally, the higher the risk of a project, the higher is the expected return from the project. For example, if you are offered a chance to invest in a project that offers an extremely high rate of return, you should immediately suspect that the project is very risky.

The risk–return trade-off does not apply to 100 percent of all cases, but in a free enterprise system, it probably comes close. Thus, the financial manager must attempt to determine the optimal balance between risk and profitability that will maximize the wealth of the MNC's stockholders. Figure 1.1 shows how the financial manager assesses the various risk–return trade-offs available and incorporates them into the wealth maximization goal. Given the risk–return trade-offs, various financial decisions are made to maximize stockholder wealth. Practically all financial decisions involve such trade-offs. Such decisions include foreign-exchange risk management, global reporting and controlling, global financing decision, and global investment decision.

An investor's risk–return trade-off function is based on the standard economic concepts of utility theory and opportunity sets. An opportunity set shows different combinations of business opportunities, which make the investor equally happy in terms of risk–return trade-offs.

Companies can benefit from an expanded opportunity set as they venture into global markets. It seems reasonable to assume that international business is riskier than domestic business. However, this is not necessarily true, because returns on foreign investments are not highly positively correlated with returns on domestic investments. In other words, MNCs may be less risky than companies that operate strictly within the boundaries of any one country. Consequently, to minimize risk, companies should diversify not only across domestic projects but also across countries.

Possible revenue opportunities from international business are also larger than possible revenue opportunities from purely domestic business. MNCs can locate production in any country of the world to maximize their profits and raise funds in any capital market where the cost of capital is the lowest. MNCs may see another advantage from currency gains. These two factors – lower risks and larger profitability for international business – suggest the possibility that an MNC can achieve a better risk–return trade-off than a domestic company.

Figure 1.2 shows that international business pushes out the opportunity set, thus allowing MNCs to reduce risk, increase return, or attain both. As shown in figure 1.2, we can think of three possible cases in which international operations are better than domestic operations. Relative to US project A, international project B has the same return but less risk; international project C has the same risk but higher return; and international project D has higher return but less risk.

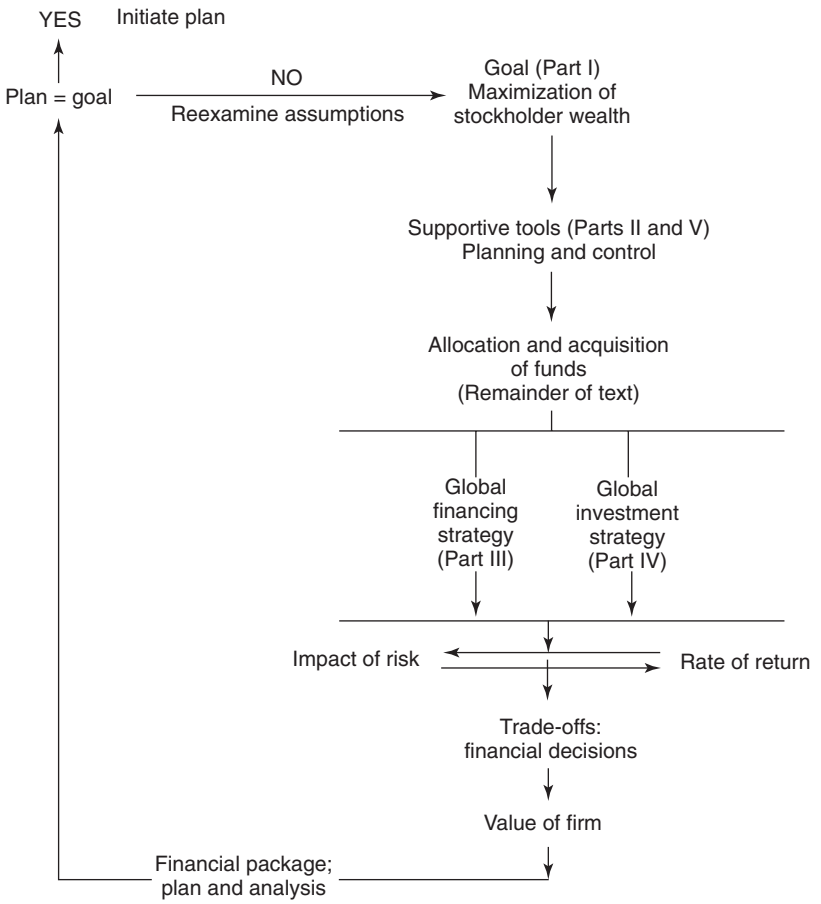

Figure 1.1 An integrated decision-making model in global finance

1.4.2 *Market imperfections*

Perfect competition exists when sellers of goods and services have complete freedom of entry into and exit out of any national market. Under such a condition, goods and services would be mobile and freely transferable. The unrestricted mobility of goods and services creates equality in costs and returns across countries. This cost–return uniformity everywhere in the world would remove the incentive for foreign trade and investment.

Factors of production, such as land, capital, and technology, are unequally distributed among nations. Even with such comparative advantages, however, the volume of international business would be limited if all factors of production could be easily transferred among countries. The real world has imperfect market conditions, where the resources available for the production of goods are somewhat immobile.

The trend toward a global economy through the World Trade Organization and the European Union will undoubtedly remove market imperfections that restrict the international

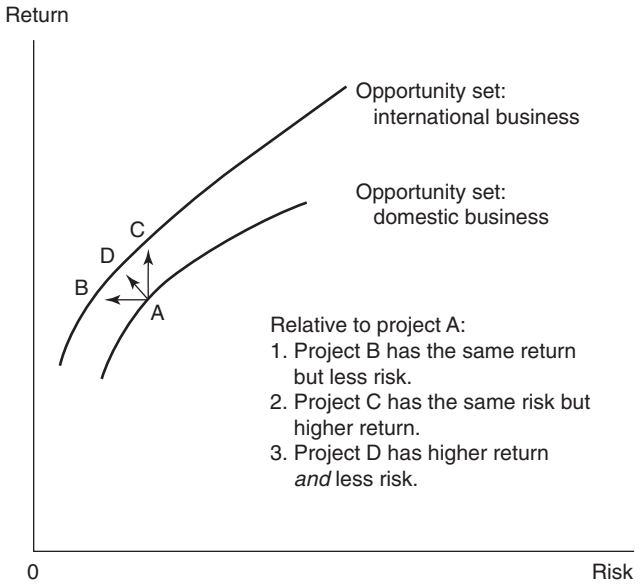

Figure 1.2 Expanded opportunity set for international business

flows of goods and services. However, a variety of barriers still impede free movements of goods, services, and financial assets across national boundaries. These barriers include government controls, excessive transportation and transaction costs, lack of information, and discriminatory taxation. Consequently, companies can still benefit from imperfections in national markets for factors of production, products, and financial assets. In other words, imperfect national markets create a variety of incentives for companies to seek out international business. For example, Japanese automakers, such as Toyota, have established automobile transplants in the USA to avoid US trade restrictions.

1.4.3 The portfolio effect (diversification)

The **portfolio effect** states that as more assets are added to a portfolio, the risk of the total portfolio decreases. There are some qualifying conditions that we will add to this principle later, but diversification is a very valuable quality.

This principle explains much of the rationale for large MNCs to diversify their operations not only across industries but also across countries and currencies. Some MNCs, such as Nestlé of Switzerland, have operations in countries as varied as the USA, Japan, Hong Kong, France, Russia, Mexico, Brazil, Vietnam, Nigeria, and North Korea. Because it is impossible to predict which countries will outperform other countries in the future, these companies are "hedging their bets."

Domestic investment projects tend to correlate less with foreign investment projects than with other domestic projects. As a result, international diversification is more effective than domestic

diversification. The economic cycles of different countries, such as the USA and Japan, do not tend to be totally synchronized. On the other hand, most domestic projects tend to be highly correlated with each other because they depend on the same state of economy. The energy operations of ExxonMobil in Saudi Arabia, for example, may be hurt if world oil prices unexpectedly take a nosedive. However, this might be offset by its operations in energy-consuming countries such as France. Overall, the MNC earns its desired rate of return even if the profitability of its investment in individual countries may not be that predictable.

1.4.4 Comparative advantage

You have perhaps heard on the news that the Japanese and the Americans are competitors in the global economy. In some ways, this is true, because American and Japanese companies produce many of the same goods. Ford and Toyota compete for the same customers in the market for automobiles. However, trade between the USA and Japan is not like a sports contest, where one team wins and the other team loses. In fact, the opposite is true. Trade between two countries can make each country better off.

The classical argument for free trade is based on the principle of comparative advantage. Assume that US workers are better at producing computer software than workers in China and that Chinese workers are better at producing shoes than workers in the USA. Comparative advantage states that trade between the two countries – the USA exporting software and China exporting shoes – can boost living standards in both. This is because the USA has comparative advantage in producing software while China has comparative advantage in producing shoes. Trade allows countries to specialize in what they do best and to enjoy a greater variety of goods and services. At the same time, companies earn profits from trade because most trade is carried out by individual companies.

1.4.5 The internationalization advantage

Why do some companies prefer to export while others build overseas manufacturing facilities? When a company expands its operations beyond national borders for the first time, it tends to exploit a foreign market through exports. An export-oriented strategy serves a company well for some time. However, to become part of a global market, a company should have a world presence. Because the world presence cannot be sustained by exports alone, the company should eventually invest.

The advantages of internationalization influence companies to invest directly in foreign countries. These advantages depend on three factors: location, ownership, and internationalization. ExxonMobil has ownership advantages, such as technology, marketing expertise, capital, and brand names. Venezuela has location advantages, such as crude oil, abundant labor, and low taxes. Thus, ExxonMobil has built oil refineries in Venezuela. These factories magnify both wages of workers in Venezuela and profits of ExxonMobil from the use of its technology and capital. These magnified portions of location advantages and ownership advantages are called **internationalization advantages**, and they allow MNCs to enjoy superior earnings performance over domestic companies.

1.4.6 Economies of scale

There are economies of scale in the use of many assets. **Economies of scale** take place due to a synergistic effect, which is said to exist when the whole is worth more than the mere sum of its parts. When companies produce or sell their primary product in new markets, they may increase their earnings and shareholder wealth due to economies of scale. Economies of scale explain why so many Asian companies invested in North America in preparation for the North American Free Trade Agreement of 1994. As the European Union removed trade barriers in 1993 and adopted the euro as its common currency in 1999, they allowed US MNCs to achieve greater economies of scale through their investment in Western Europe.

Companies can gain from greater economies of scale when their real-capital and monetary assets are deployed on a global basis. The expansion of a company's operations beyond national borders allows it to acquire necessary management skills and spread existing management skills over a larger operation. There are also opportunities to eliminate duplicate facilities and consolidate the functions of production and marketing. In addition, MNCs can raise funds at the lower cost of capital and reduce the pool of money without loss in the level of production. These types of operating and financial economies along with better management can cause an MNC to increase its profit margin and reduce its risks as well.

1.4.7 Valuation

The valuation principle states that the value of an asset is equal to the present value of its expected earnings. Because the values of all assets stem from streams of expected earnings, all such assets are valued in essentially the same way. First, the earning is estimated. Second, the required rate of return for each earning is established. Third, each earning is discounted by its required rate of return, and these present values are then summed to find the value of the asset. Alternatively, the value of an entire firm is determined by dividing the firm's earnings after taxes or net cash flows by its required rate of return.

The value of an MNC is usually higher than the value of a domestic company for two reasons. First, studies show that MNCs earn more profits than domestic companies. Second, earnings of larger companies are capitalized at lower rates. The securities of MNCs have better marketability than those of domestic companies. MNCs are also better known among investors. These factors lead to lower required rate of returns and higher price–earnings ratios. When MNCs attempt to maximize their overall company value, they also face various constraints. Those constraints that hamper an MNC's efforts to maximize its stockholder wealth include large agency costs and environmental differences.

1.5 Agency Theory and Corporate Governance

1.5.1 Agency theory: management versus stockholders

Agency theory deals with the conflict of interest between managers and shareholders. We may think of managers as agents of the owners. Stockholders delegate decision-making authority to managers on the condition that the agents will act in the stockholders' best interest. However, it

has often been argued that the objectives of managers may differ from those of the firm's stockholders. Because the stockholders of most MNCs today are well diversified, the control of these companies is separated from ownership. This situation allows managers to act in their own best interest rather than in the best interest of the stockholders. Thus, some managers may be concerned with their own welfare, such as their own income, power, self-esteem, and prestige. The welfare of managers, therefore, could be increased by management decisions that tend to lower stockholder wealth.

To ensure that managers act in the best interest of the stockholders, the managers must be monitored and rewarded with appropriate incentives. Incentives could include stock options, bonuses, and perquisites. Monitoring can be carried out by reviewing management perquisites, auditing financial statements, and limiting management decisions. **Agency costs** include incentives and monitoring costs. It is reasonable to assume that managers will undertake actions that are relatively consistent with stockholder wealth maximization. This is because over the long run, their own goals, including survival, will largely depend on the value of the firm.

In this text, we explain the issues and concepts of international finance as though managers act on behalf of the firm's stockholders. Nevertheless, the size of some MNCs can make it difficult to determine whether all managers make decisions on the basis of this single corporate objective – stockholder wealth maximization on a global basis. For example, financial managers of MNCs with many subsidiaries may be tempted to make decisions that would maximize the value of their respective subsidiaries at the expense of their parent company. Consequently, the agency costs of assuring that managers try to maximize stockholder wealth can be larger for MNCs than for purely domestic companies.

1.5.2 *Corporate governance*

Few issues in the literature and in practice on corporate finance have received as much attention in recent years as corporate governance. In the USA and in other countries, there is new interest in how firms' decision-making structures are organized, the priorities of these structures, and the structures' effect on shareholders. **Corporate governance** refers to the way in which major stakeholders exert control over operations of a company. The rights of the company's stakeholders in corporate governance are determined by each nation's laws, legal institutions and conventions, and regulations. However, corporate governance is often narrowly defined as the prudent exercise of ownership rights toward the goal of increased shareholder value (Gillan & Starks 1998). In the USA, corporate governance has evolved from a system with a few yet influential individual investors around the turn of the last century to the present environment in which large institutional investors flex their shareholder muscle. Institutional investors include pension funds, mutual funds, university and other nonprofit endowments, and insurance companies.

Today, large institutional investors actively encourage effective corporate governance practices to maximize their investment returns. Major corporate governance issues include board independence, executive compensation, and anti-takeover devices. Unlike other stakeholders that have dealings with the corporation – customers, suppliers, lenders, and labor – common shareholders do not have contractual protection of their interests. Thus, shareholder activism is an important part of corporate governance to ensure that managers take actions to mitigate agency problems (conflicts) and thus increase shareholder value.

SHAREHOLDER ACTIVISM Any activity by an investor that tries to change the status quo through voice, without the control of the company, is known as **shareholder activism**. The voice reflected in the most common form of shareholder activism covers a broad spectrum of activities, such as a shareholder proposal for proxy fight, direct negotiation with management, and public targeting of a corporation.

Proxy represents the assignment of the voting right to management or a group of outsiders. If earnings are poor and stockholders are dissatisfied, an outside group may solicit the proxies in an effort to overthrow management and take control of the business. This is known as a proxy fight. When performance analysis reveals problems with a company's governance practices, shareholders will directly negotiate with management for needed changes in the company's practices and policies. Public targeting is the use of media to send information to other investors about the problems and needed changes at a company. The issues addressed by these voice activities span a wide range of topics, but most often pertain to issues of social policy or corporate governance reform.

CHANGES IN CORPORATE GOVERNANCE Since 1980, a number of changes have made US managers more responsive to the interests of shareholders. These changes include a more active takeover market, an increased usage of executive incentive plans that increase the link between management performance and corporate performance, and more active institutional shareholders, who have demonstrated a growing tendency to vote against management (Grinblatt & Titman 1998). In addition, as one corporate scandal after another broke in 2002, President George W. Bush signed into law the Sarbanes–Oxley Act on July 30, 2002, which would likely reduce agency problems (Nofsinger & Kim 2003).

First, the threat of a hostile takeover for inefficiently managed companies tends to encourage managers to make decisions that enhance stockholder wealth. Other companies are more likely to acquire undervalued companies at a low price and might layoff existing managers.

Second, these days many companies partially compensate their executives with stock options that encourage managers to make decisions that maximize their company's stock price. Stock options and other types of incentive plans such as bonuses are designed to increase the link between management performance and corporate performance.

Third, institutions have become more active as shareholders and have compelled managers to act in the stockholders' best interest. Increased shareholder activism by institutions has occurred at the same time as the rapid increase in institutional investor holdings during the past two decades. These holdings have grown from approximately one-quarter of US equity markets in 1980 to over one-half today. Two rule changes in the early 1990s by the US Security and Exchange Commission have also sparked the active role of institutional investors. The first change, which required complete disclosure of executive compensation packages, put managers under greater pressure to perform up to their level of compensation. The second change made it easier for shareholders to get information about other shareholders and reduced the cost of staging a proxy fight.

Fourth, a series of recent accounting scandals at companies such as Enron and WorldCom compelled the government to introduce a host of new laws and regulations so that managers may not pursue their own private interests at the expense of shareholders. For example, the Public Company Accounting Reform and Investor Protection Act of 2002, otherwise known as the Sarbanes–Oxley Act, sets up a new overseeing body to regulate auditors, creates new laws to increase corporate responsibility, and increases punishments for corporate white-collar criminals. The Act establishes a nonprofit organization called the Public Company Accounting Oversight

Board to oversee the audit of public companies and to protect the accuracy of audit reports. These and other reforms introduced after recent corporate scandals are expected to strengthen US corporate governance practices.

NATIONAL DIFFERENCES IN CORPORATE GOVERNANCE Although national legal systems in industrialized countries share many common elements, laws for corporate governance have notable differences. The UK and the USA are often viewed as prototypes of a market-oriented financial system (the AS model), whereas Continental Europe (France and Germany) and Japan are generally regarded as typical representatives of a bank- or relationship-based system (the CEJ model).

In AS countries, institutional investors make up an important part of the financial system. In CEJ countries, banks represent the most important part of the financial system. Equity finance is important in AS countries, and institutional shareholders exert a great deal of corporate control. The accepted objective of the AS model is to maximize shareholder value. In 1998, an international advisory panel to the Organization for Economic Cooperation and Development (OECD) endorsed shareholder value maximization as the primary goal of companies. On May 27, 1999, the OECD officially adopted "OECD Principles of Corporate Governance" recommended by its advisory panel. Consequently, corporate policies throughout the world are now undertaken with more awareness about their impact on the stock price. Other countries have just begun to adopt American-style corporate governance practices in an effort to force local companies to make decisions that would satisfy their respective stockholders.

OECD Principles of Corporate Governance are intended to achieve two goals. The first goal is to assist member and nonmember governments in their effort to improve the legal, institutional, and regulatory framework for corporate governance in their countries. The second goal is to provide guidance and suggestions for stock exchanges, investors, corporations, and other parties that have a role in the process of developing good corporate governance. The document for the OECD Principles of Corporate Governance covers five areas: (1) the rights of shareholders, (2) the equitable treatment of shareholders, (3) the role of stakeholders, (4) disclosure and transparency, and (5) the responsibilities of the board.

Although securities markets are more important in market-based systems, banks are prominent in both systems. A crucial distinction concerns the roles that banks play. In AS countries, banks are one of many sources of external finance for companies. They compete with bond and commercial paper markets, along with markets for equity, to provide funds to companies. And bank loans are typically provided through arm's-length market transactions. In CEJ countries, particularly in Japan, banks are the main source of funds for many companies and thus take an active role in monitoring the decisions of the borrowing firm's management. The influence of Japanese banks is further enhanced by their stock ownership. In contrast with the USA, Japanese banks can hold common stock up to 5 percent of a company's shares. In addition, the large cross-holdings of Japanese firms make corporate decision-making heavily influenced by close personal relationships between top executives, who sit on each other's boards of directors. Individual shareholders have little voice and this results in relatively low return on capital.

1.6 Environmental Differences

From a financial manager's point of view, what are the differences between MNCs and domestic companies? An efficient allocation of funds among assets (investment) and an acquisition of

funds on favorable terms (financing) are conceptually the same for both types of companies. However, these two types of companies differ because they do business in different environments. International financial managers must understand these differences if they are to succeed in the international environment.

For successful international operations, a manager must have information about environmental factors that affect business operations in foreign countries. Domestic methods should be adjusted to accommodate customs, attitudes, economic factors, and political factors that prevail in the country of operation.

How do management practices in one country differ from those in other countries? In principle, concepts in accounting, economics, finance, management, and marketing are as relevant to business management in one country as they are in another country. However, when a business crosses national boundaries, the environment differs for these functions. In other words, multinational financial managers are confronted with various environmental constraints when they attempt to maximize their firm's value on a global basis. The three types of environmental constraints described in this section are (1) various risks, (2) conflicts of interest, and (3) multiple environments. These constraints are not mutually exclusive, nor do they exhaust the differences that we might find in international business.

1.6.1 Types of risk

Three major risks in international business are political, financial, and regulatory. **Political risks** range from moderate actions, such as exchange controls, to extreme actions, such as confiscation of assets. **Financial risks** involve varying exchange rates, divergent tax laws, different interest and inflation rates, and balance-of-payments considerations. **Regulatory risks** are differences in legal systems, overlapping jurisdictions, and restrictive business practices against foreign companies.

If a company plans to invest heavily in foreign countries, it must consider all of these risks. Business operations that cross national boundaries add dimensions of risk that are rarely confronted in domestic business operations. Ideally, a company should analyze these risks to understand their underlying causal forces, so that the company may develop specific measures to handle them.

1.6.2 Conflicts of interest

Conflicts of interest may occur for a variety of reasons. Owners, employees, suppliers, and customers may have different national identities. The interests of sovereign national states may be divergent. The goals of MNCs and host countries may conflict. Some conflicts of interest may exist within an MNC. Furthermore, the MNC and the external environment may clash.

Companies tend to have home-country nationals in key positions for foreign operations, but they tend to hire local persons for nonmanagerial positions. Thus, disparities in salaries and wages are inevitable. Most developing countries require MNCs to hire and train local people for management positions in exchange for local business operations. External conflicts relate to profit-motivated decisions that involve the transfer of funds, production, exports, imports, and employment from one country to another. For instance, an MNC's wish for foreign-exchange remittances frequently conflicts with a local government's restrictions on these remittances.

1.6.3 Multiple environments

In addition to risk and conflict, MNCs can have operational problems because they operate in several international environments. These environmental diversities require different concepts, analytic methods, and information. Therefore, MNCs should identify, evaluate, and predict all environmental variables. Some important environmental variables are the form of business organization, different institutional settings, and cultural differences.

1.7 The Structure of this Book

This book has five major parts. Part I (chapters 1–4) provides an overview of the global financial environment, such as motives for foreign trade and investment, the balance of payments, and the international monetary system. In other words, this part develops the primary goal of an MNC and the basics of international finance.

Part II (chapters 5–10) deals with the forces that affect the relative prices of currencies in international markets. This part is devoted to financial derivatives – currency forwards, futures, options, and swaps – with an emphasis on their relationships to foreign-exchange risk management.

Part III (chapters 11–14) describes sources of global corporate finance. One major facet of corporate finance is to raise funds on favorable terms. In the case of global corporate finance, financing involves the sources of funds for international trade and foreign investment.

Part IV (chapters 15–20) discusses the management of assets. The second major facet of corporate finance is the efficient allocation of funds among assets. A decision to invest abroad must take into account various environmental differences, such as disparities in exchange rates, differences in taxes, and differences in risk factors.

SUMMARY

The international financial manager has the same objective as every other manager in the multinational firm: to maximize the wealth of the stockholders. If the firm's stock price goes up as a result of the manager's decisions, the decisions were good ones. The stockholders would recognize that the value of the company has been enhanced by the manager's efforts. In order to achieve the firm's primary goal of maximizing stockholder wealth, the financial manager performs three major functions: financial planning and control, the efficient allocation of funds, and the acquisition of funds on favorable terms.

MNCs have superior performance over domestic companies because they enjoy a better risk–return trade-off, market imperfections, the portfolio effect, comparative advantage, internationalization advantage, economies of scale, and a higher valuation. However, when MNCs attempt to maximize their overall company value, they face various constraints, such as large agency costs, a variety of risks, conflicts of interest, and multiple environments.

Questions

1 What is the primary goal of multinational companies? Why is stockholder wealth maximization more important than profit maximization?
2 Discuss the agency problem of multinational companies.
3 In order to achieve a firm's primary goal of maximizing stockholder wealth, the financial manager performs a number of important functions. What are the three major functions of financial management?
4 Why do multinational companies perform better than domestic companies?
5 Explain environmental constraints that conflict with the primary goal of multinational companies.
6 The concept of a perfect market depends on a number of conditions. What are these conditions? Would inflation rates, interest rates, and wages among countries be more similar or less similar under conditions of a perfect market than under conditions of an imperfect market?
7 Global companies can become so well known throughout the world that they lose their association with any single country. Can you match the following companies with the location of their headquarters?

1	Xerox	A	Atlanta, Georgia, USA
2	Royal Philips Electronics	B	Ludwigshafen, Germany
3	ABB	C	Montreal, Canada
4	BASF	D	Ludvika, Sweden
5	Alcan Aluminum	E	Stamford, Connecticut, USA
6	Nestlé	F	Eindhoven, the Netherlands
7	Coca Cola	G	Vevey, Switzerland

8 What are the two major sets of external forces that are causing fundamental change in financial management?
9 Explain why management should focus on stockholder wealth maximization.
10 What is corporate governance? What are the changes that have made US managers more responsive to the interests of shareholders since 1980?
11 What is meant by Japanese-style corporate governance structures?

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Case Problem 1: What is a National Company?

Evidence indicates that it has become increasingly difficult to define a national company in recent years. "There is no longer any such thing as a purely national economy. The rest of the world is just too big to ignore, either as a market or as a competitor. If business schools do nothing other than to train their students to think internationally, they would have accomplished an important task" (John Young, CEO of Hewlett-Packard). "There is no German, French, or American capital market any more. It is a global capital market, and we all have to play by the same rules" (Ulrich Hartmann, CEO of Veba AG). On the one hand, many non-US companies such as Toyota Motor and BP Amoco are also listed on the New York Stock Exchange. On the other hand, US companies, such as IBM and GM, are listed on most European stock exchanges. A management team from Ford took over Mazda Motor of Japan in 1996. In 1999, capital raised in several countries by Deutsche Bank financed its acquisition of Bankers Trust New York, which had taken over management of overseas clients from Nippon Credit Bank of Japan in 1996.

Companies have pursued international business for many years – in order to expand sales, acquire resources, diversify sources of sales and supplies, and minimize competitive risk. However, they have recently entered an era of unprecedented worldwide production, distrib-

ution, and financing due to several factors: expansion of technology, liberalization of cross-border movements, increased global competition, and the development of supporting institutional arrangements.

In today's global economy, it is not easy to define "a national company," especially a US company. In his recent interview with *The Wall Street Journal*, Edmund Fitzgerald, Chairman of Northern Telecom, said: "My company has its headquarters in Canada, but most of its sales are in the United States. It employs about as many Americans as Canadians. A big chunk of its shares are owned by Americans. Whose company is it anyway?"

In 1993, US government economic officials attempted to prepare papers on the issue and debated it at the National Economic Council. The outcome of these discussions would deeply influence trade and technology policies, ranging from who builds next-generation television sets to US negotiations with Japan. The US government needs a set of guidelines to follow, so that government economic officials can handle such questions as "What is an American company?" and "Whose interests do they advocate?"

When Labor Secretary Robert Reich was an academic, he posed a simple-sounding but fundamental question to US capitalism: "Who is us?" In an age of global business, he asked, do US-owned companies still represent the USA?

Mr Reich argued that American workers should come first, because America's standard of living depends primarily on improving worker skills. "American" companies are those that provide high-skill jobs for American workers in America – regardless of whether those companies are owned by American, German, or Japanese shareholders. The flag that flies over a factory or corporate headquarters is less and less relevant, he said.

Not at all, responded chief White House economist Laura Tyson, who said that the nationality of a company still largely determines where it will locate the bulk of its sales, production, and research and development. In her paper entitled, "They Are Not Us," written before either she or Mr Reich joined the government, Tyson argued that "the economic fate of nations is still tied closely to the success of their domestically-based corporations."

With the globalization of trade, dumping cases can be difficult. Under American law, only US companies are eligible to bring charges. In case law, though not by statute, the firm is considered to be a US company when half or more of a product is made in the USA. A US subsidiary of a Japanese firm, Brother Industries USA, makes portable electric typewriters in the USA. In 1993, it won a dumping case against Smith-Corona, a US company that makes its typewriters in Singapore.

Case Questions

1 What are the reasons for the recent growth in international business?
2 What are the possible definitions of a US company described in the case?
3 Why is it so important to be a US company?
4 Explain how Japanese negotiators have cited Mr Reich's theories in talks with the USA over opening the Japanese government procurement market to foreign computer makers (see Reich 1990).

5 Can you guess how Mr Reich reacted to the fact that the Bush Administration helped Toys "R" Us Inc. set up stores in Japan? Do you think that President Clinton's Japan team had the same reaction as Mr Reich's?
6 How would Mr Reich rank companies owned by Americans and/or with US operations?
7 The website of the White House, www.whitehouse.gov/, gives direct access to US Federal services, a virtual library of the White House press releases, executive orders, and many other pieces of information. Access the above website to answer the following questions: How and when was the National Economic Council (NEC) created? Who is the current chairman of the NEC? What are the principal functions of the NEC?

Sources: D. B., "Clinton Aids Grapple With Definition of a US Company in Global Economy," *The Wall Street Journal*, July 2, 1993; R. B. Reich, "Who Is Us?" *Harvard Business Review*, Jan./Feb., 1990, pp. 53–64; and M. Starr, "Who Is the Boss? The Globalization of US Employment Law," *Business Lawyer*, May 1996, pp. 635–52.

CHAPTER 2

Motives for World Trade and Foreign Investment

Opening Case 2: The Effect of Foreign Investment on Exports

In 1989, Mexico significantly liberalized its foreign investment regulations to allow 100 percent foreign ownership. The North American Free Trade Agreement of 1994 extends the areas of permissible foreign direct investment (FDI) and protects foreign investors with a dispute settlement mechanism. In addition, Mexico has recently taken a series of additional actions to increase FDI in Mexico. As a consequence, the US FDI in Mexico has increased more rapidly in recent years than ever before. Mexico is now the third-largest host country for US FDI after the United Kingdom and Canada.

Because FDI is generally used to set up foreign production, US exports to Mexico should have dropped as a result of increased US FDI in Mexico. Right? Apparently not, according to a 1999 study by Wilamoski and Tinkler. The study found that US FDI in Mexico raises total US exports to Mexico and has a positive effect on the US trade balance with Mexico. The removal of barriers to investment has allowed US firms to establish a presence in Mexico. This has required the Mexican subsidiary to import inputs from the US parent firms and capital goods from unaffiliated US firms.

International investment flows can boost efficiency and the flow of information across borders. In addition, FDI is closely linked to export expansion. For example, FDI by US companies can open the way for US exports, both as inputs to foreign production and as consumer goods to supply foreign demand. It also offers US companies a toehold in foreign markets, from which they can further expand sales. In many cases, investment in distribution and other essential services increases a supplier's ability to export into a market. Trade between firms and their foreign affiliates (intrafirm trade) can be an efficient means of international trade, particularly when problems of imperfect information exist. Over a third of US exports and two-fifths of

US imports are estimated to be intrafirm. Worldwide, about a third of trade is intrafirm trade. In fact, many recent studies have confirmed that FDI is closely linked to export expansion.

Source: Peter Wilamoski and Sarah Tinkler, "The Trade Balance Effect of US Foreign Direct Investment in Mexico," *Atlantic Economic Journal*, Mar. 1999, pp. 24–37.

This book deals with both foreign trade and foreign investment. Because these two types of international transactions are extremely interdependent, this chapter examines motives for foreign trade and foreign investment. The knowledge and understanding of these motives are essential if we are to appreciate the economic dynamics and policy issues of trade and investment flows among nations. Thus, in this important overview, we will discuss key trade and investment theories before we consider them separately in the coming chapters. This chapter also describes global and regional market agreements designed to eliminate trade barriers.

2.1 Motives for Foreign Trade

Human desires for goods and services are unlimited, yet our resources are limited. Thus, one of our most important tasks is to seek new knowledge necessary to bridge the gap between desires and resources. The traditional concept of economic man assumed that man allocates his scarce resources between competing uses in the most economical manner. In Robinson Crusoe's world, for example, he would allocate his time for labor between different alternatives. He would use one level site on the uncharted island as either the location for a hut (shelter) or as a vegetable garden (food). Of course, the real world consists of many persons and nations that are interdependent for sociological and economic reasons. Most societies face problems similar to those faced by Robinson Crusoe, but in more complex forms.

The advantages of economic interdependence between persons and nations center mainly on the efficiency of specialization. Specialization of function or division of labor allows each person or nation to utilize any peculiar differences in skills and resources in the most economical manner. There are a number of reasons why specialization produces a greater amount of goods and services:

1 Natural talents among people are different. If intelligent people specialized only in mental tasks while physically strong people specialized only in physical tasks, the total amount of their output would be greater than if each person tried to do both for him- or herself.
2 Even if the natural abilities of two persons are identical, specialization is advantageous because it creates the opportunity for improved skills and techniques through repetition of tasks.
3 The simplification of function through specialization leads to mechanization and the use of large-scale machinery.
4 Personal specialization saves time, because one person does not have to shift from one task to another.

The theories of comparative advantage, factor endowments, and product life cycle have been suggested as three major motives for foreign trade.

2.1.1 The theory of comparative advantage

The classical economic theory of comparative advantage explains why countries exchange their goods and services with each other. Here, the underlying assumption is that some countries can produce some types of goods more efficiently than other countries. Hence, the **theory of comparative advantage** assumes that all countries are better off if each specializes in the production of those goods that it can produce more efficiently and buys those goods that other countries produce more efficiently.

WHY COMPARATIVE ADVANTAGE OCCURS The theory of comparative advantage depends on two elements:

1 Factors of production, such as land, labor, capital, and technology, are unequally distributed among nations.
2 Efficient production of various goods and services requires combinations of different economic resources and different technologies.

For instance, Canada has vast amounts of fertile land resources and relatively few people. In contrast, Japan has little land and abundant skilled labor. Thus, Canada may produce such land-intensive goods as wheat more economically than Japan, while Japan may produce such labor-intensive goods as cameras more economically than Canada.

However, it is important to recognize that the distribution of economic resources and technology can change over time. This change may alter the relative efficiency of production. In the past 10–20 years, some developing countries have considerably upgraded the quality of their labor forces and have substantially expanded their stock of capital. Therefore, they now produce capital-intensive products such as steel, machinery, and automobiles. Moreover, some newly developed countries, such as Korea, Taiwan, and Brazil, now produce high-technology products, such as computers and computer software.

Example 2.1

Suppose, for the time being, that the world has two nations (Canada and Japan) and two commodities (wheat and cameras). For a fixed amount of $1,000 in land, labor, capital, and technology, Canada and Japan can produce either of the two commodities listed in table 2.1. In other words, if each country were to make one or the other, Canada could produce 180 bushels of wheat or six cameras, while Japan could produce 80 bushels of wheat or eight cameras. If there is no trade, then Canada can produce 90 bushels of wheat and three cameras, while Japan can produce 50 bushels of wheat and three cameras.

It is clear from table 2.1 that under full employment conditions, Canada's exchange ratio for the two products is one camera (C) for 30 bushels of wheat (W), or 1C = 30W. Japan's

Table 2.1 Production alternatives of wheat and cameras

Country	*Wheat*	*Cameras*
Canada	180	6
Japan	80	8

Table 2.2 Gains to both nations from specialization and trade

Country	*Before specialization*	*After specialization*	*Exports (–) and imports (+)*	*After trade*	*Gains from trade*
Canada	90W	180W	–80W	100W	10W
	3C	0C	+4C	4C	1C
Japan	50W	0W	+80W	80W	30W
	3C	8C	–4C	4C	1C

exchange ratio for the two products is one camera for 10 bushels of wheat, or 1C = 10W. Thus, Canada has a greater advantage in the production of wheat, whereas Japan has a better advantage in the production of cameras. In other words, these two countries produce both products but at different levels of economic efficiency. If they specialize according to their comparative advantage, Canada must produce only wheat while Japan must produce only cameras. If they trade with each other, larger outputs of both wheat and cameras would be available to both nations, because specialization allocates world resources more efficiently.

The exchange ratios for the two products differ in the two countries. This difference becomes the basis for mutually beneficial specialization and trade. Trade requires a new exchange ratio between the two products, so that Canada may obtain one camera for less than 30 bushels of wheat and Japan may obtain more than 10 bushels of wheat for one camera. Thus, the terms of trade lie somewhere between 1C = 30W and 1C = 10W, or 30W > 1C > 10W. The actual exchange ratio will depend on world conditions of supply and demand. However, assume that the international exchange ratio for the two products is 1C = 20W. The quantities of the two products available to both countries after specialization and trade would be greater than the optimum product mixes before specialization and trade.

Table 2.2 shows the gains of the two nations from specialization and trade. If Canada were to export 80 bushels of wheat (out of 180 bushels) for four cameras, it would enjoy 100 bushels of wheat and four cameras. Hence, Canada would have 10 more bushels of wheat and one more camera than the optimum product mix that existed before specialization and trade. If Japan were to trade four cameras (out of eight cameras) for 80 bushels of wheat, Japan would enjoy four cameras and 80 bushels of wheat. Thus, Japan would enjoy one more camera and 30 more bushels of wheat than its optimum product mix without specialization and trade.

Specialization and trade permit the two countries in our model to obtain a total of 180 bushels of wheat and a total of eight cameras. It is important to note that the two countries had a total of 140 bushels of wheat and a total of six cameras before specialization and trade. Thus, larger outputs of both wheat and cameras are available to the two countries from specialization and trade.

2.1.2 *The theory of factor endowments*

Countries are endowed differently in their economic resources. Thus, Colombia is more efficient in the production of coffee and the United States is more efficient in the production of computers. Colombia has the soil, weather, and abundant supply of unskilled labor necessary to produce coffee more economically than the USA. The USA possesses the facilities, key parts, and ample supply of skilled labor necessary to produce computers more efficiently than Colombia.

Differences in these national factor endowments explain differences in comparative factor costs between the two countries. Capital costs are lower in the USA than in China because the USA has more capital than China. Labor costs are lower in China than in the USA because China has more labor than the USA. Simply stated, the more abundant the supply of any factor, the lower is the cost of that factor.

The **theory of factor endowments** says that countries are mutually benefited if they specialize in the production of those goods that use a large amount of abundant factors and trade those goods among them. This means that a country must specialize in the production and export of any good that uses large amounts of abundant factors. It must import those commodities that use large amounts of production factors that are scarce at home. On the one hand, most developing countries have a comparative cost advantage in the production of labor-intensive commodities. On the other hand, most industrialized countries enjoy a comparative cost advantage in the production of capital-intensive commodities. Thus, specialization and trade can be mutually beneficial if industrialized countries specialize in the production and export of capital-intensive goods, and if developing countries specialize in the production and export of labor-intensive commodities.

2.1.3 *The product life cycle theory*

All products have a certain length of life. During this lifetime, they go through certain stages. A product's life begins with its market introduction; its market grows rather rapidly; its demand reaches maturity; its market declines; and finally, its life ends.

This **product life cycle theory** attempts to explain both world trade and foreign investment patterns on the basis of stages in a product's life. In the context of international trade, the theory assumes that certain products go through four stages:

1 A large company introduces a new product in response to some change in the home-country market. After a time lag, this home country establishes itself as an exporter with a monopoly position.

2 Increasing transportation and tariff costs make it less attractive to export the product. Thus, the firm begins to produce its product in some foreign countries. This international production replaces home-country exports in certain foreign markets.
3 Some foreign companies begin to compete in third-country markets. This competition leads to a further reduction in home-country exports.
4 Some foreign companies export the product back to the home country. Many factors, such as low labor costs, economies of scale, and government subsidies, make it possible for foreign companies to invade the home-country market.

2.1.4 Other motives for world trade

ECONOMIES OF SCALE A synergistic effect is said to exist when the whole is worth more than the mere sum of its parts. It is this effect, which has frequently been defined as "2 + 2 = 5," that leads to **economies of scale**. Hence another important cause of international trade is that costs may fall as outputs expand. Economies of mass production can be realized if each country specializes in a limited number of products in which it has a comparative advantage. Mass production and mass marketing improve skills and technologies. Opportunities to eliminate duplicate facilities occur. There are also opportunities to consolidate the functions of production, marketing, and purchasing. These types of operating economies and improved skills can lead to larger outputs of goods and services even if no differences existed in comparative costs among countries.

DIFFERENCES IN TASTES Even if differences in comparative costs among countries and economies of scale were absent, world trade might take place due to differences in tastes. Suppose that both Canada and Japan produce the same amount of fish and meat. If Canadians prefer meat and Japanese prefer fish, then a mutually beneficial export of meat from Japan to Canada and fish from Canada to Japan would take place. Both countries would gain from this trade, because the sum total of satisfaction derived from the trade would be greater than would be possible under isolated self-sufficiency without trade.

2.1.5 Benefits of open trade

Open, competitive trade promotes the economic welfare of all countries that engage in it, and does so in four ways. Open trade secures the benefits of national comparative advantage; increases domestic competitive pressures; accelerates the flow of technology and ideas; and broadens the variety of goods and services available to both producers and consumers.

ALLOCATION EFFICIENCY FROM COMPARATIVE ADVANTAGE A more traditional approach depicts a world in which markets are competitive and economies of scale do not exist. In these situations, gains stem from comparative advantage. Under the concept of comparative advantage, each country imports those goods produced more efficiently abroad and exports those goods produced more cheaply at home. Such types of trade allow each trading country to devote more of its resources to producing those goods and services that it can produce more efficiently. Because

free trade leads to the most efficient use of scarce resources, all countries that engage in free trade would obtain economic gains.

INCREASED COMPETITION Foreign trade strengthens competitive pressures in the domestic economy, stimulating efficiency and growth. An open trade regime effectively increases the number of both actual and potential competitors in the domestic market by including those located beyond a nation's borders. This encourages domestic producers to innovate and become more competitive. Consumers, both at home and abroad, reap the benefits.

INCREASED PRODUCTIVITY FROM PRODUCTION EFFICIENCY Access to international markets through foreign trade stimulates the flow of information across borders. Domestic companies engaged in international competition assimilate new ideas about production methods, product design, organizational structure, and marketing strategy. These new ideas allow domestic companies to employ their resources more efficiently. Thus, open competition through free trade increases productivity.

Open trade also creates opportunities for economies of scale or synergistic effects. The reduction of barriers automatically increases total demand. As economic resources shift to the more efficient producers due to increased competition, companies can expand production to take advantage of the larger market. This dynamic change in market size allows companies to spread fixed costs over more and more units of production.

AN EXPANDED MENU OF GOODS Foreign trade expands the menu of goods and services available to both producers and consumers. Companies gain access to a wider variety of inputs. Consumers get to choose from a broader assortment of goods and services. By expanding the choices, foreign trade boosts efficiency and improves living standards.

Global Finance in Action 2.1
Economic Freedom and Consumption

People who live in free countries enjoy substantially higher living standards than those living in repressive countries. The World Bank collects data on per capita consumption by country. Two independent research groups – the Heritage Foundation in Washington, DC, and the Fraser Institute in Canada – measure economic freedom across the world using a broad variety of criteria based on key components of free enterprise, including trade policies and openness to foreign investment. Relating the consumption to freedom data sets, one finds that per capita consumption in the economically freest fifth of countries is eight to nine times that of the least free fifth (see figure 2.1).

Source: Robert D. McTeer, Jr, *The Fruits of Free Trade: 2002 Annual Report*, Federal Reserve Bank of Dallas, 2002, p. 13.

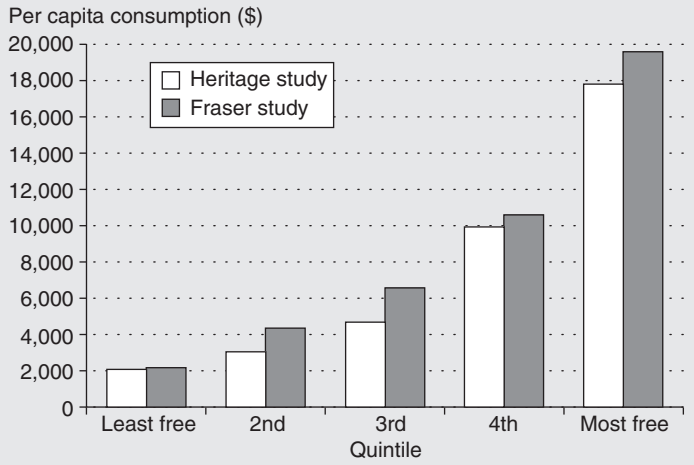

Figure 2.1 Economic freedom and consumption

2.1.6 *Free trade versus protectionism*

The possibility of a foreign embargo on sales of certain products and the needs of national defense may cause some countries to seek self-sufficiency in some strategic commodities. Political and military questions constantly affect international trade and other international business operations. Conflicts have historically taken place between multinational companies (typically exporters) and host countries (typically importers) over political ideology, national sovereignty, control of key industries, balance of payments, and control of export markets.

REASONS FOR PROTECTIONISM There are a variety of arguments for protectionism: (1) national security, (2) unfair competition, (3) the infant-industry argument, (4) domestic employment, and (5) diversification.

First, if a country wishes to be a world power, it must maintain key sectors, such as steel, for national security. By maintaining strategic commodities, it is assured of supplies in the event of global conflicts and boycotts.

Second, labor-intensive industries in developed countries argue that low wages in foreign countries constitute unfair competition. In addition to low wages, countries with industrial policies enjoy unfair competitive advantage because of their public policies, such as special tax incentives, subsidies, and selective protection to overcome the competition.

Third, the logic of the infant-industry argument is that protective measures are essential for newly begun domestic industries to establish themselves. They need time and thus protection to realize the economies of mass production.

Fourth, protection maintains domestic employment and living standards. The costs from unemployment may be higher than the costs of inefficient domestic production for certain products.

Fifth, highly specialized economies, such as Kuwait's oil economy, depend on international markets for incomes. If they are to reduce their dependence upon world markets for one or two products, these countries need some protection to diversify the economy.

FORMS OF TRADE CONTROL Tariffs, import quotas, and other trade barriers are three primary means of protectionism.

Tariffs are duties or taxes imposed on imported commodities. Tariffs on imported commodities may be imposed for purposes of revenues or protection. Tariffs are usually modest when they are used to increase revenues. However, tariffs are typically high when they are imposed to protect domestic companies from foreign competition. Although protective tariffs do not eliminate the importation of foreign products completely, they clearly put foreign sellers at a comparative disadvantage. Here, consumers must pay more for foreign goods, thereby reducing their consumption of imported commodities.

Import quotas specify maximum amounts of certain products to be imported during a given period of time, usually 1 year. Import quotas may also be used to shield domestic producers from foreign competition. They are sometimes more effective than tariffs in reducing the importation of certain products. Even if tariffs are high, certain commodities may still be imported in relatively large quantities. In contrast, low import quotas totally prohibit imports beyond a quota. Hence, it is no wonder why many countries have recently imposed quotas on the importation of certain goods.

There are **other trade barriers**. The general trend around the world since World War II has been to reduce such obvious trade barriers as quotas and tariffs. This trend has compelled governments to replace them with less obvious forms of protection which, according to a survey by Ball and McCulloch (1999), number over 800. Three major classes of such other trade barriers are:

1 Direct government participation in trade.
2 Customs and other administrative procedures.
3 Technical and health regulations or standards.

First, a government's participation in trade covers export subsidies, countervailing duties, and antidumping duties; when engaged in these activities, the government prefers national over foreign bidders. **Countervailing duties** are additional import duties imposed to offset an export subsidy by another country. **Antidumping duties** are customs duties imposed on an imported product whose price is lower than that of the same product in the home market.

Second, customs and other administrative procedures include customs classification, valuation, and procedures. Import duties imposed on certain products often depend on how they are classified into the tariff schedule and how they are valued by customs authorities. In addition, customs inspectors can discriminate against a good or a country by delaying the importation process.

Finally, technical and health regulations make up the standards that can hinder imports. Governments apply many safety rules and regulations on imports, in the form of marking, labeling, packaging, and technical standards. These standards tend to discriminate against imports by imposing greater hardship on foreign than domestic companies.

Other trade barriers can have a significant impact on international trade. For example, Japan is criticized by some countries for its nontariff barriers, such as extremely stringent product standards on imported products. Some economists argue that these barriers are major causes of the lingering US trade deficit with Japan. Others, however, attribute the deficit to Japan's superior quality and production efficiencies based on teamwork, quality education, and work ethic.

Global Finance in Action 2.2

The High Cost of Protectionism

How much does it cost to protect a job? An average of $231,289, figured across just 20 of the many protected industries (see table 2.3). Costs range from $132,870 per job saved in the costume jewelry business to $1,376,435 in the benzenoid chemical industry. Protectionism costs US consumers nearly $100 billion annually. It increases not just the cost of the protected items but downstream products as well. Protecting sugar raises candy and soft drink prices; protecting lumber raises home-building costs; protecting steel makes car prices higher; and so forth. Then there are the job losses in downstream industries. Workers in steel-using industries outnumber those in steel-producing industries by 57 to 1. In addition, the protection does not even work. Subsidies to steel-producing industries since 1975 have exceeded $23 billion; yet industry employment has declined by nearly two-thirds.

Table 2.3 The cost of protectionism

	Protected industry	*Jobs saved*	*Total cost (in millions)*	*Annual cost per job saved*
1	Benzenoid chemicals	216	$297	$1,376,435
2	Luggage	226	290	1,285,078
3	Softwood lumber	605	632	1,044,271
4	Sugar	2,261	1,868	826,104
5	Polyethylene resins	298	242	812,928
6	Dairy products	2,378	1,630	685,323
7	Frozen concentrated orange juice	609	387	635,103
8	Ball bearings	146	88	603,368
9	Maritime services	4,411	2,522	571,668
10	Ceramic tiles	347	191	551,367
11	Machine tools	1,556	746	479,452
12	Ceramic articles	418	140	335,876
13	Women's handbags	773	204	263,535
14	Canned tuna	390	100	257,640
15	Glassware	1,477	366	247,889
16	Apparel and textiles	168,786	33,629	199,241
17	Peanuts	397	74	187,223
18	Rubber footwear	1,701	286	168,312
19	Women's nonathletic footwear	3,702	518	139,800
20	Costume jewelry	1,067	142	132,870

Source: Robert D. McTeer, Jr, *The Fruits of Free Trade: 2002 Annual Report*, Federal Reserve Bank of Dallas, 2002, p. 13.

2.2 Economic Integration

World leaders have recognized that the reduction or elimination of artificial barriers to trade is necessary for expanding world trade. The worldwide postwar efforts to expand foreign trade included the elimination of tariff barriers through the World Trade Organization and the stabilization of currencies through the International Monetary Fund. At the same time as these efforts went forward on the international level, many countries around the world also pursued economic cooperation at the regional level. Regional economic cooperation is based on the premise that countries in a region connected by historical, geographical, cultural, economic, and political similarities may be able to strike more intensive cooperative agreements for mutually beneficial economic advantages.

2.2.1 From GATT to WTO

In 1947, 23 countries signed the General Agreement on Tariffs and Trade (GATT) in Geneva. To join GATT, countries must adhere to the **most favored nation (MFN)** clause, which requires that if a country grants a tariff reduction to one country, it must grant the same concession to all other countries. For example, if the USA cuts its tariff from 20 percent to 10 percent on wool sweaters from Australia, it must grant the same concession on wool sweaters from all other countries. The MFN clause also applies to quotas and licenses.

GATT members have held many talks since 1947 to expand and promote world trade. First, GATT members held periodic meetings from 1947 to 1952 to cut specific tariffs. Second, the Kennedy Round (1964–7) covered across-the-board tariff reductions on industrial products. Perhaps the most important part of the Kennedy Round was to reduce trade barriers between the USA and the European Economic Community. Third, the Tokyo Round (1973–9) of multilateral trade negotiations discussed the reduction of nontariff barriers. The most important part of these agreements is a series of detailed codes spelling out permissible and nonpermissible "good" behavior by governments in almost all nontariff measures. Fourth, the Uruguay Round (1986–93) discussed the expansion of trade liberalization to include services, intellectual property rights, and agricultural products.

The new organization, known as the World Trade Organization (WTO), has replaced the GATT since the Uruguay Round accord became effective on January 1, 1995. Today, the WTO's 144 members account for more than 97 percent of world trade. The WTO has five major functions: (1) administrating its trade agreements; (2) acting as a forum for trade negotiations; (3) monitoring national trade policies; (4) offering technical assistance and training for developing countries; and (5) cooperating with other international organizations. China joined the WTO in 2001. China's WTO membership has further legitimized the idea of free trade.

The WTO has more power to enforce the rules of international trade than the GATT. Under the WTO there is a powerful dispute-resolution system, with three-person arbitration panels. Countries may bring charges against their trading partners to a WTO panel. WTO members cannot veto the panel's rulings, as was the case under GATT. If an offending country fails to comply with panel recommendations, its trading partners are guaranteed the right to compensation. As a final resort, the trading partners are given the right to impose countervailing sanctions against the offending country.

In November 2001, WTO members began to explore a new round of talks with the aim of further liberalizing global commerce. Major issues include a moratorium on tariffs for electronic commerce, easier access to foreign markets for high-tech, banking, and insurance exports, elimination of agricultural subsidies, tougher labor standards around the world, revision of US antidumping laws, and more time for developing countries to liberalize trade.

2.2.2 *Trading blocs: types of economic cooperation*

A **trading bloc** is a preferential economic arrangement between a group of countries that reduces intraregional barriers to trade in goods, services, investment, and capital. There are more than 50 such arrangements at the present time. There are five major forms of economic cooperation among countries: the free trade area, the customs union, the common market, the economic union, and the political union.

The **free trade area** type of cooperation requires member countries to remove all tariffs among themselves. However, the member nations are allowed to have their own tariff arrangements with nonmember countries. The North American Free Trade Agreement among the USA, Canada, and Mexico illustrates the free trade area type of agreement.

Under the **customs union** arrangement, member nations not only abolish internal tariffs among themselves but also establish common external tariffs. The trading bloc called Mercosur in Spanish constitutes a customs union. The four members of Mercosur – Argentina, Brazil, Paraguay, and Uruguay (see figure 2.2) – account for 70 percent of South America's total output. The aims of this customs union are designed to establish free trade among member countries and to impose a common tariff of 5–20 percent on products imported from the outside. Furthermore, the leaders of these four countries wish to develop a unified strategy for trade negotiations with the USA over the proposed Free Trade Area of the Americas.

In a **common market** type of agreement, member countries abolish internal tariffs among themselves and levy common external tariffs. Moreover, they allow the free flow of all factors of production, such as capital, labor, and technology. The Central American Common Market exemplifies a common market type of agreement among Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. This common market wishes to permit the free flow of production factors among its member countries, but its goal is hampered by the nonuniformity of economic conditions among them.

The **economic union** combines common market characteristics with harmonization of economic policy. Member nations are required to pursue common monetary and fiscal policies. This means that economic union members have to synchronize taxes, money supply, interest rates, and regulation of capital markets. The current version of the European Union (EU) represents an economic union. The name of the European Economic Community (EEC) was officially changed to the EU on November 1, 1993, when the Maastricht Treaty of the EEC came into effect.

The **political union** combines economic union characteristics with political harmony among the member countries. Essentially, countries merge with each other to create a new nation. Thus, it is the ultimate market agreement among nations. In the 1950s, Egypt, Syria, and Yemen formed a political union, but it did not last long. Thus, in its pure form, an example of the political union does not exist. However, the recently created commonwealth of 11 former Soviet republics could be considered a political union.

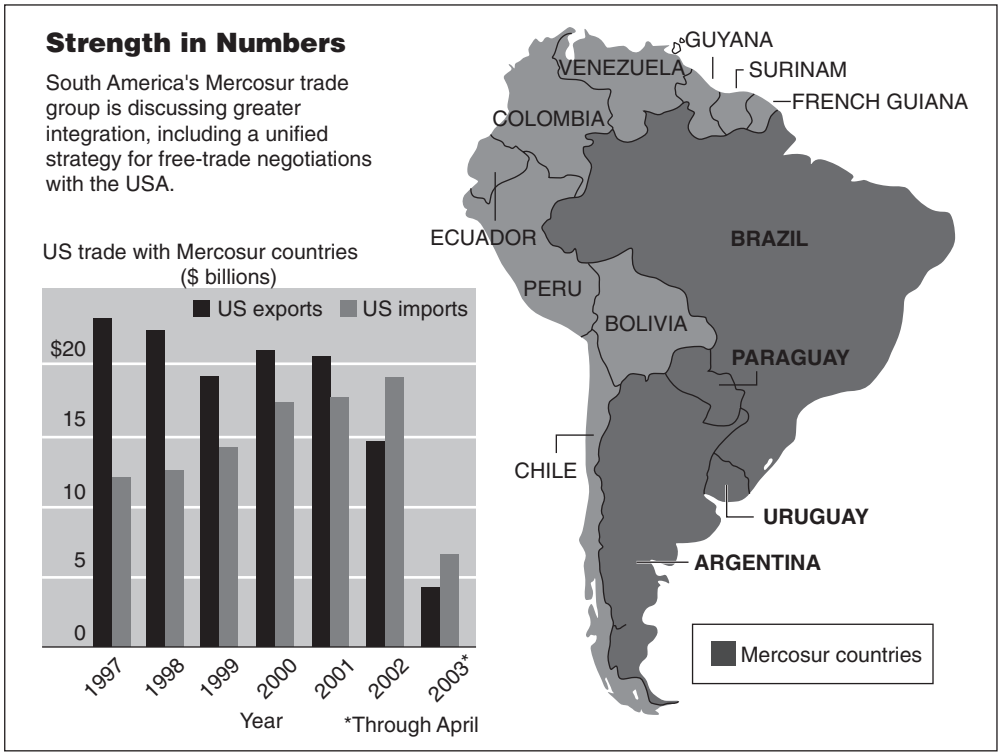

Figure 2.2 The Mercosur trade group
Source: *The Wall Street Journal*, June 16, 2003, p. A13.

2.2.3 *Regional economic agreements*

The world has been swiftly moving toward trading blocs in recent years. Economists divide trading nations into three groups based on the euro, the dollar, and the yen. The world's future economic landscape will see that companies will compete within the boundaries of trading blocs – whether in Europe, North America, or Asia. Each of these trading blocs is expected to pose its own challenges. If countries continue to compete with one another as single nations, they could lose their competitiveness in the world marketplace. Many world leaders loudly assail regional trading blocs that serve as protectionist trade umbrellas. However, they also concede that trading blocs may be an unfortunate but emerging trend.

THE EUROPEAN ECONOMIC AREA Six European countries – Belgium, France, West Germany, Italy, Luxembourg, and the Netherlands – established the EEC through the Treaty of Rome in March 1957, to remove trade barriers among the member countries. Since then, the EEC has added Denmark, Greece, Ireland, Portugal, Spain, and the United Kingdom.

According to the 1957 Treaty of Rome, EEC member countries agreed to: (1) abolish tariffs, quotas, and other trade restrictions among member countries; (2) impose a uniform tariff on

imports from nonmember countries; (3) remove restrictions on movements of capital and labor within the six-nation group; (4) establish a common policy on transportation, agriculture, competition, and business conduct; (5) coordinate and synchronize member countries' monetary and fiscal policies; and (6) set up a "social fund" to compensate workers who might experience economic injury due to the integration process.

The 12 member countries created a single market on January 1, 1993, through the Single European Act of 1987. The EU identified three general barriers for complete removal: (1) physical barriers, such as customs controls and border formalities; (2) technical barriers, such as different health and safety standards; and (3) fiscal barriers, such as differences in value-added tax rates and excise duties. These goals are identical with those established under the 1957 Treaty of Rome. The EU made 280 regulatory changes to create a genuine single market in Europe.

In December 1993, the EU ratified a treaty to create the European Economic Area (EEA). The treaty took effect on January 1, 1994. It extends most of the then 12-country EU's single-market legislation to Austria, Finland, and Sweden, which are members of the European Free Trade Association (EFTA). On January 1, 1999, the European Central Bank began to conduct monetary policy for 11 of the 15 EU nations with a single currency known as the euro (Greece joined in 2001). The existing 12 central banks expect to become regional banks in the next few years, much like the 12 Federal Reserve Banks in the US Federal Reserve System. The EU accepted 10 new members on May 1, 2004. Several EU member countries are expected to join the eurozone in the next few years.

THE NORTH AMERICAN FREE TRADE AGREEMENT On January 2, 1988, President Reagan and Canadian Prime Minister Mulroney signed the US–Canada Free Trade Agreement (FTA), which came into effect on January 1, 1989. The USA and Canada are each other's most important trading partners. The FTA liberalizes the largest trading relationship in the world. Throughout the 1990s, the FTA phased out tariffs, liberalized investment laws, and granted "national treatment" to companies on both sides of the border.

In August 1992, representatives of Canada, Mexico, and the USA concluded their negotiations of the North American Free Trade Agreement (NAFTA), which became effective on January 1, 1994. As of January 1, 1994, NAFTA created the world's largest trading bloc, with 365 million people and $7 trillion in purchasing power. NAFTA eliminates tariffs among the three countries over a period of 15 years, it substantially reduces nontariff barriers over the same period, and it immediately ensures the free flow of capital throughout its region. Business leaders, government officials, and scholars view the NAFTA as a natural trading bloc because of American technology, Canadian resources, and Mexican labor. In 2001, the USA and 33 other countries initiated trade negotiations for a free trade area of the Americas, which would include all North–South American countries and some countries in the Caribbean Sea. Chile has become the first Latin American country to forge a free trade agreement with the USA in 2003, one step toward what the Bush Administration foresees as a new era of open markets around the Americas.

ASIAN INTEGRATION EFFORTS Asia represents the third major region of the world economy, although it is difficult to clearly delineate its boundaries. Hence, the development in Asia has been quite different from that in Europe and in the Americas. While European and North American agreements have been driven by political will, market forces may force more formal integration on the politicians in Asia. If Asian countries continue to compete in the world

marketplace as single nations, they could lose their competitiveness in the world marketplace. While Japan is the dominant force in the area to take leadership in such an endeavor, neither the Japanese themselves nor the other nations wanted Japan to do it.

As a result, Asia does not have a strong trading bloc such as NAFTA or EU, but it has two loose affiliations: the Association of South East Asian Nations (ASEAN) and the Asian Pacific Economic Cooperation (APEC). Created in 1967, ASEAN consists of Brunei, Burma (currently Myanmar), Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam; since then, ASEAN has added Cambodia and Laos. In November 2001, China and 10 ASEAN countries agreed to create a free trade area within 10 years. Trade liberalization already under way in the region, through the ASEAN Free Trade Area, which began in 2002, will cut tariffs on all foreign trade to a maximum of 5 percent by January 1, 2008.

APEC was formed in 1989 to promote multilateral economic cooperation on issues of trade and investment. APEC consists of 18 countries that account for half of world output and it includes the world's three largest economies: the USA, Japan, and China. In 1994, APEC leaders agreed to achieve free and open trade in the region by 2010 for the industrial nations and 2020 for the rest of the members.

Japan has sought to cut the best trade deals for itself by negotiating through the multilateral World Trade Organization instead of making bilateral or regional pacts. This continued in recent years even as many countries around the world formed regional trading blocs, such as the NAFTA and the EU. However, Japanese officials and business executives have grown alarmed as regional blocs have continued to put Japanese exporters at a disadvantage. Thus, Japan and Singapore recently signed a bilateral free trade agreement, in a move that eventually could change the way in which Japan conducts its long-troubled trade relations. There has already been talk of Japan forging trade zones with such Pacific Rim countries as Korea, Mexico, and the USA. Other Asian countries have recently stepped up to cut their own trade deals with their fellow Asian countries and countries from other regions. For example, South Korea and Chile formed a free trade agreement in 2003, and the USA signed a free trade agreement with Singapore in 2004.

2.2.4 Corporate response to trading blocs

Corporations' investments are an important consideration in the proliferation of trading blocs. On the one hand, investments are made in various blocs to ensure continued access to the markets should protectionist barriers be erected. In a sense, this necessity may foster inefficiency, because investments would not be made with the objective of optimization in mind. However, if trading blocs attract nations with similar consumer profiles, these investments do make sense from an overall business-development and customer-service point of view. Regional strategies may, in turn, accelerate the concentration of the different markets that comprise the trading blocs.

Many companies may not have the resources or the time to invest in all of the emerging trading blocs. To ensure future competitive capability, many strategic alliances have been forged across national and regional borders in recent years. These alliances involve arrangements ranging from contract manufacturing to joint research and development. Corporate mergers have occurred across regional borders to guarantee access to blocs as local entities.

What impact will these corporate investments and alliances have on blocs and the argument that they are indeed basically protectionist? The "stateless" corporation may be able to move production and investment wherever it gets its best return without concern for a particular country or a region. Technology has made such transfer relatively swift and quite painless.

First, corporations and their assets can no longer be held hostage by a dismayed government or even a supranational organization. Second, it is becoming increasingly difficult to establish a product's national/regional origin, which makes protectionist moves correspondingly difficult. Finally, the interdependence that is being formed by companies may also spill over in a major way to the national and regional levels as well. As has been shown recently, tariff barriers erected against Japanese and European imports into the USA have ended up hurting US businesses as well. In 1991, IBM urged the US government to remove an antidumping duty that it had imposed on certain computer display screens imported from Japan. The effect of this duty was that American-built computers using this component became uncompetitive against models built completely in Japan.

2.3 Motives for Foreign Investment

In recent years, many companies have been induced to enter into new and profitable markets abroad. Economic and political forces in the host countries, along with their desire to sell more abroad, are largely responsible for the expansion of direct foreign investment. Companies find it increasingly easier to reach foreign markets through direct investment. The product life cycle theory, the portfolio theory, and the oligopoly model have been suggested as bases for explaining and justifying foreign investment.

2.3.1 The product life cycle theory

The theory of product life cycles explains changes in the location of production. When new products are introduced in home-country markets, their sales and profits tend to increase sharply until they reach maturity. Competition increases rapidly as these products approach their maturity point; this competition narrows profit margins. At this stage, companies may utilize foreign manufacturing locations to lower production costs and sustain profit margins.

This theory assumes that larger companies in highly advanced countries have a comparative advantage in new products over the companies in developing nations. Companies in developing countries, however, have a comparative advantage in fabricating mature products. Highly advanced technologies, highly educated labor resources, and abundant capital are essential to develop new products. They are readily available to larger firms in advanced countries. Larger markets and necessary alteration requirements in early production stages are additional reasons why larger companies in the developed areas of the world first introduce new products in the home-country markets.

As products become mature, product defects and technological imperfections inherent in new products are ironed out, so that the method of production becomes standardized. Competition begins to appear during the stage of market growth and becomes highly intensive during the stage of market maturity. At this point, some companies will shift their standardized manufacturing methods to developing countries for a number of good reasons:

1 Standard production methods require many unskilled workers.
2 Most developing countries have an abundant supply of unskilled labor.
3 Labor costs are lower in developing countries than in advanced countries.

2.3.2 The portfolio theory

The **portfolio theory** indicates that a company is often able to improve its risk–return performance by holding a diversified portfolio of assets. This theory represents another rationale for foreign investment. This theory rests on two variables: risk and return. Risk is the variability of returns associated with an investment project. Two projects may have the same long-term average rate of return. But one project may fluctuate widely in annual return while the other may have a stable return. A project whose returns fluctuate widely is said to be more risky than the other whose returns are stable.

Typically, only a few financial variables are known in advance. Business executives and investors are, basically, risk averse. Thus, they desire to minimize the overall degree of risk for their investment projects. Fortunately, there are many business situations in which the risks of individual projects tend to offset each other. As a consequence, successful diversification makes it possible for investors to have a portfolio with risk less than the sum of the risks of the individual projects in the portfolio.

A study by Levy and Sarnat (1970) indicated that a company is often able to improve its risk–return performance by holding an internationally diversified portfolio. The key element in the portfolio theory is the correlation coefficient between projects in the portfolio. When projects with low degrees of correlation are combined with each other, a company is able to reduce its risk of expected return. The Levy–Sarnat model assumes that foreign investment projects tend to be less correlated with each other than domestic investment projects. The economic cycles of different countries – the USA and Saudi Arabia, for example – do not tend to be totally synchronized. On the other hand, most domestic projects tend to be highly correlated with each other, because they depend on the same state of economy.

2.3.3 The oligopoly model

If you decide to buy tennis balls in the USA, you will end up with one of four brands: Wilson, Penn, Dunlop, or Spalding. These four companies make almost all of the tennis balls sold in the USA. Together, these four firms determine the quantity of tennis balls and the price at which tennis balls are sold. Analysts say that only a small number of giant multinational companies in each major industry also dominate the world market in that segment.

An oligopoly exists where there are only a few firms whose products are usually close substitutes for one another. Because a few firms dominate a market, each of these firms has a large share of the market. Thus, the policies of one firm have repercussions on the other firms.

The oligopoly model offers a way of explaining why multinational companies (MNCs) invest in foreign countries. The **oligopoly model** assumes that business firms make foreign investments to exploit their quasi-monopoly advantages. The advantages of an MNC over a local company may include technology, access to capital, differentiated products built on advertising, superior management, and organizational scale.

Horizontal investments for foreign production of the same goods as made in a home market are made to produce operational economies of scale. A horizontal investment may reduce the number of competitors, eliminate duplicate facilities, and expand a firm's operation in an existing product line. Vertical investments for foreign production of raw materials are usually made to control input sources. The control of input sources may make it possible for companies in an

oligopolistic industry to raise barriers to the entry of new competitors and to protect their oligopoly position. Some companies make defensive investments to prevent others from gaining an unanticipated advantage.

2.3.4 Other studies of motives for foreign investment

Many foreign investors are motivated by strategic decisions. Although there are numerous sorts of strategic considerations, we can group them into two categories: those from the standpoint of investors and those from the standpoint of host countries.

CONSIDERATIONS FROM THE STANDPOINT OF INVESTORS Nehrt and Hogue (1968) suggested that companies invest abroad for several purposes:

1 New markets.
2 Raw materials.
3 Production efficiency.
4 New knowledge.

First, many companies attempt to satisfy local demand or expand their markets through foreign manufacturing locations. For example, Japanese automobile manufacturers have built their assembly plants in the USA to satisfy local demand and to expand their market.

Second, oil companies, mining companies, and lumber companies find it difficult or costly to obtain raw materials at home. Hence, they invest their money abroad to obtain these raw materials.

Third, some production efficiency-oriented companies look for low costs of production, such as low labor costs. This is one of the most important reasons why MNCs choose countries in Africa, Asia, and South America for their overseas investment.

Fourth, some companies invest abroad to seek new knowledge and managerial expertise. For example, German, Japanese, and Korean companies have acquired US-located electronic firms for their technology.

CONSIDERATIONS FROM THE STANDPOINT OF HOST COUNTRIES The National Industrial Conference Board (1969) surveyed a sample of 60 nations and found that many developing countries have various incentive programs for private foreign investments. They include tax incentives, tariff exemptions, financial assistance, remittance guarantees, administrative assistance, protection against competitive investments and imports, and protection against nationalization and political risk. These and other incentive programs would undoubtedly motivate MNCs to invest in those nations offering them.

MIXED CONSIDERATIONS Aharoni (1966) studied the process for foreign investment decisions. After surveying 38 American companies that had invested in Israel, he found the following investment motives:

1 Outside proposals, such as those from foreign governments.
2 Fear of losing a market.
3 The bandwagon effect, which means that successful foreign operations reported by a company induce competitors to go abroad.
4 Strong competition from abroad in the home market.

In addition to these four motives, the survey also detected a number of auxiliary motives for foreign investment:

1 Utilization of old machinery.
2 Capitalization of know-how; spreading of research, development, and other fixed costs.
3 Creation of a market for components and other products.
4 Indirect return to a lost market through investment in a country that has commercial agreements with these lost territories.

2.4 A Synthesis of Foreign Trade and Investment Theories

Traditionally, economists concentrated on trade only at the national level, while management scholars focused almost exclusively on the behavior of MNCs. Both groups of scholars thus failed to incorporate trade and investment theories into a single theory of international involvement. This was not a serious problem when foreign trade was largely carried on by intermediaries, while producers remained at home. However, MNCs have recently crossed the confines of individual nation-states to carry on their operations throughout the world. Consequently, motives for foreign trade and investment are too closely interrelated with each other to consider them separately.

2.4.1 Eclectic theory

The **eclectic theory**, associated with Dunning (1981), attempts to explain a logical link between the international allocation of resources and the exchange of goods between countries. In other words, this theory makes the case for an integrated approach to international economic involvement based on the advantages of both a country's location and a company's ownership. Location-specific advantages, such as natural resources and low labor costs, are advantages that are available only or primarily in a single location. Ownership-specific advantages, such as capital funds and technology, are advantages that favor MNCs over local companies. The eclectic theory implies that location-specific advantages favor a host foreign country, while ownership-specific advantages favor an investing firm. Thus, the eclectic theory helps to explain cross-country differences in patterns of MNCs' international involvement.

When a company expands its operations beyond national borders for the first time, it tends to exploit a foreign country's markets through exports. A company favors investment in a foreign country only if it is most profitable for the company to internationalize its advantages in that country. Dunning argues that a company is willing to invest in overseas production facilities if the company has the following three kinds of advantages:

1 Ownership-specific advantages: this is the extent to which a company has tangible and intangible assets unavailable to other firms.

2 Internalization advantages: it is in the company's best interest to use its ownership-specific advantages rather than license them to foreign owners.
3 Location-specific advantages: the company will profit by locating part of its production facilities overseas.

It is important to note that empirical tests of the eclectic theory show that the major part of foreign direct investment is made by large, research-intensive companies in oligopolistic industries. These companies find it profitable to invest overseas because they enjoy both location and ownership advantages.

SUMMARY

Several theories explain the motives for world trade and foreign investment. The theory of comparative advantage and the theory of factor endowments explain why countries exchange their goods and services with each other. The theory of comparative advantage depends on two assumptions. First, economic resources are unequally distributed among nations. Second, efficient production of various products requires combinations of different economic resources and different technologies.

Both the product life cycle theory and the portfolio theory provide a conceptual rationale for foreign investment. The product life cycle theory assumes that a country uses foreign manufacturing locations when products approach their maturity point. The portfolio theory maintains that a company invests overseas because internationally diversified portfolios of assets improve risk–return performance.

A synthesis of foreign trade and investment theories is needed to form a single theory of international economic involvement. We can integrate trade and investment theories into a model that demonstrates how these theories influence a firm's choice of entry mode best suited to a particular country. The eclectic theory postulates that specific factors of both firm and country are necessary for a firm's foreign investment. When it is most profitable for a multinational firm to internationalize its oligopolistic advantages in a given foreign country, it will invest in that country; otherwise, it will exploit the country through exports.

Questions

1 Explain the theory of comparative advantage as a motive for foreign trade. What is the logic behind this theory?
2 The theory of the product life cycle is used as a motive for foreign trade as well as a motive for foreign investment. Discuss this theory as a motive for both foreign trade and foreign investment.
3 What are economies of scale?
4 Describe reasons for trade protectionism.

5 Assume that world leaders attempt to reduce or eliminate artificial barriers to trade through many forms of economic integration. Describe the different types of economic cooperation.
6 What are the major functions of the World Trade Organization?
7 What are the major benefits of market integration?
8 Why do many companies diversify their operations internationally when there are many opportunities for domestic diversification?
9 Explain the oligopoly model as a motive for foreign direct investment.
10 Lee Nehrt and Dickerson Hogue suggested that companies invest abroad for new markets, raw materials, production efficiency, and new knowledge. Discuss each of these four motives for foreign investment.
11 What is the eclectic theory?

Problems

Assume that production possibilities data for the USA and Taiwan are as follows:

		Production alternatives		
Country	Product	A	B	C
USA	Clothing	0	30	90
	Food	30	20	0
Taiwan	Clothing	0	20	60
	Food	15	10	0

1 What is the comparative cost of clothing and food in the USA?
2 What is the comparative cost of clothing and food in Taiwan?
3 Identify the product that each country should specialize in according to comparative advantage.
4 Assume that both countries decided to specialize in a product according to the comparative advantage. With 1 food = 3½ clothing terms of trade, the USA exchanges 10 tons of its food for 35 units of Taiwanese clothing. With the assumption that B is the optimum-product mix, prepare a table such as table 2.2.
5 With a fixed investment of $10,000, the USA produces more in both clothing and food than Taiwan. Does this mean that specialization and trade do not provide any benefits for the USA?

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Case Problem 2: The Fruits of Free Trade Under the World Trade Organization

The essential difference between free trade and protection is this: Under a system of free trade excellence of the product is the only means by which it can secure a market, while under protection an inferior article can dominate the market through the aid of legislation. The necessary effect of free trade is, therefore, to encourage efficiency in production, while the necessary effect of protection is to encourage skill in corruption. Prosperity is an abundance of commodities. The merit of any policy or system can be tested by its effect on the volume of commodities available for the use of the people.

William Bourke Cockran, *In the Name of Liberty*, 1925

In 1947, in Geneva, 23 countries signed the General Agreement on Tariffs and Trade (GATT), a voluntary association of countries designed to promote free trade. GATT members have held many talks since 1947 to expand and promote world trade. As shown in figure 2.3, such talks have resulted in vast tariff reductions for industrialized countries. Many developing countries have implemented similar tariff reductions. These tariff reductions have caused world trade to increase twice as fast as world output since 1950, thereby boosting the standard of living for millions of people around the world.

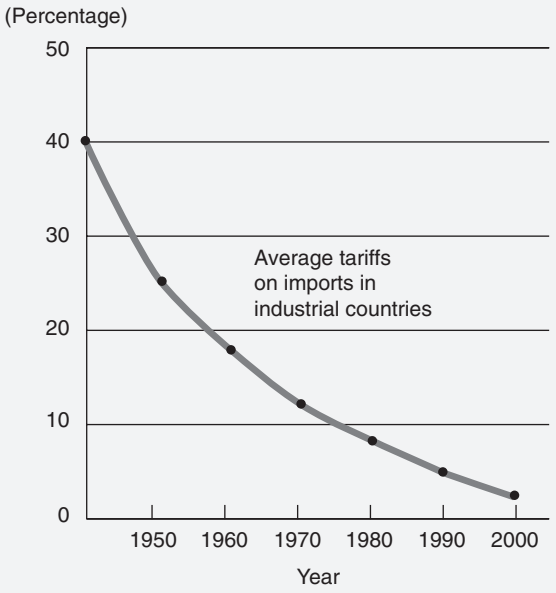


Figure 2.3 Progress on tariffs

Source: John D. Daniels and Lee H. Radebaugh, *International Business*, New York: Addison-Wesley, 2002, p. 263.

The general trend around the world since World War II has been to reduce obvious trade barriers, such as tariffs. Tariff reductions through several rounds of trade negotiations are an indication not only that countries are committed to working jointly toward freer trade but also that tariffs are the easiest trade barrier to tackle. In addition, negotiating rounds have dealt with the increasingly important and complex nontariff issues. Nevertheless, many governments have replaced obvious trade barriers with less obvious forms of protection. A growing number of nontariff barriers, such as those shown in figure 2.4 and others, threaten to undo the good work.

The biggest change to emerge from the Uruguay Round of trade negotiations (1986–93) was the agreement to replace the GATT with the World Trade Organization (WTO). Under the WTO, there is a clearly defined dispute-settlement mechanism. This dispute-settlement system allows small and developing countries to have an influence for the first time in dealing with trade practices in other countries. Further, by bringing cases to the panel, accused countries may agree to settle before a ruling is made. Consequently, the WTO's settlement body has had a much heavier caseload than existed under the old GATT system. China joined the WTO in 2001, thereby further legitimizing the idea of free trade. As of January 2003, the WTO consisted of 144 countries and 34 observer countries, all of which are in the process of applying for membership. Based in Geneva, Switzerland, the WTO has a staff of 550 individuals

Reduced tariff rates lowered trade barriers and helped stimulate economic growth in recent decades. A growing number of nontariff barriers, however, threaten to undo the good. Voluntary export restraints; antidumping laws; government subsidies; licensing, labeling and packaging restrictions; domestic-content laws and others have emerged as the new enemies of free trade.

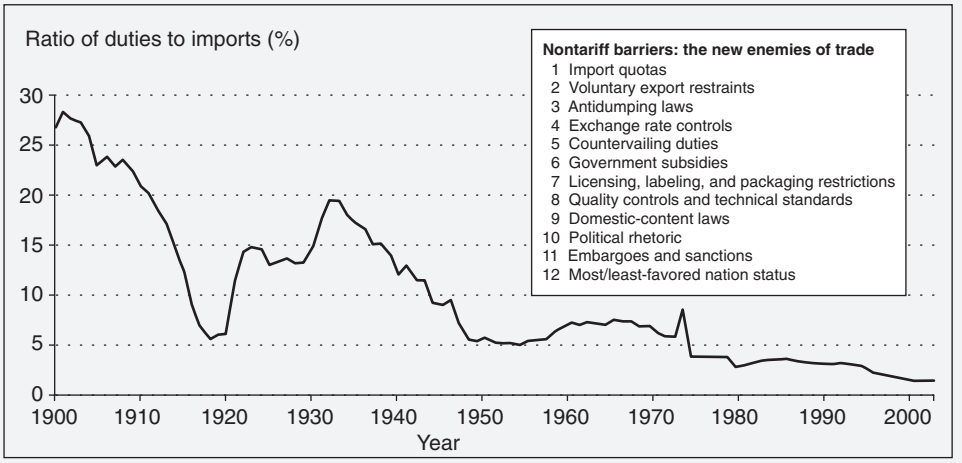


Figure 2.4 The tax on trade

from 60 different countries and a budget of 143 million Swiss francs. Today, WTO members account for 97 percent of world trade.

The WTO is a consensus-based organization: decisions are made by the entire membership. A majority vote is also possible, but it has never been used in the WTO and was extremely rare under the WTO's predecessor, GATT. The WTO's agreements have been ratified in all of the members' legislative bodies. As shown in figure 2.5, the WTO's top-level decision-making body is the Ministerial Conference, which meets at least once every two years. There have been five WTO Ministerial Conferences so far, held in Cancun, Mexico (November 2003), Doha, Qatar (November 2001), Seattle, Washington (November 1999), Geneva, Switzerland (May 1998), and Singapore (December 1996).

Below the Ministerial Conference is the General Council, which meets several times a year in the Geneva headquarters. The General Council also meets as the Trade Policy Review Body and the Dispute Settlement Body. At the next level, the Goods Council, the Services Council, and the Intellectual Property Council report to the General Council and meet frequently. At the last level, numerous specialized committees, working groups, and working parties deal with the individual agreements and other areas such as the environment, development, membership applications, and regional trade agreements.

The WTO Secretariat, with offices only in Geneva, is headed by a Director-General. Because decisions are only made by members, the Secretariat has no decision-making powers. Its main

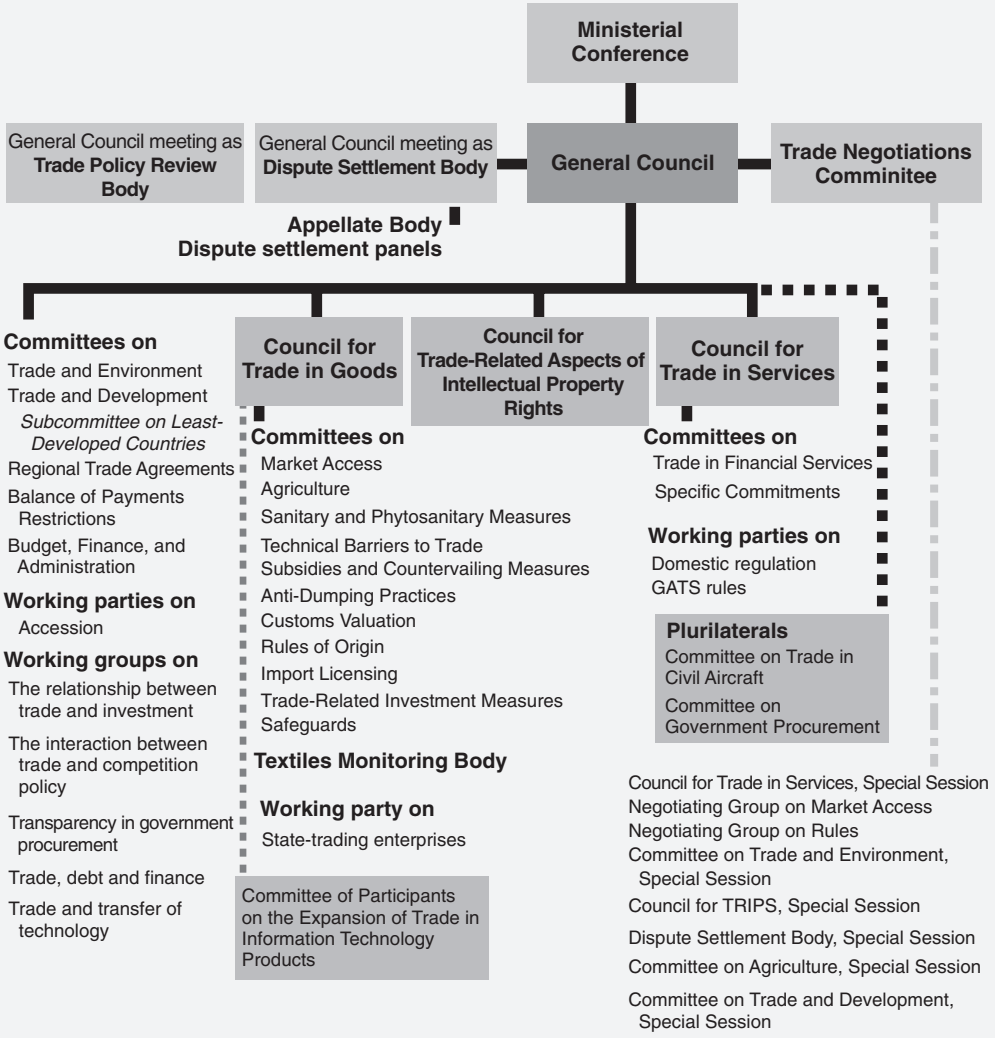


Figure 2.5 An organizational chart of the World Trade Organization

duties are to supply technical and professional support for the various councils and committees, to provide technical assistance for developing countries, to monitor and analyze developments in world trade, to provide information to the public and the media, and to organize the ministerial conferences. The Secretariat also provides some forms of legal assistance in the dispute settlement process and advises governments wishing to become Members of the WTO.

Case Questions

1 What are the main responsibilities of the WTO and what enforcement powers does it have?
2 What are the reasons for protectionism? Would the World Trade Organization consider any of them justified?
3 Many countries have begun to use less obvious trade barriers as a form of protection. What are these different approaches and how do they make the WTO's ability to monitor trade more difficult?
4 Free trade is a highly political issue. Why do you think this is? What steps can be taken to unpoliticize this issue?
5 During the past decade, the WTO has been subject to fierce criticism and attention-grabbing protests from a variety of political and social groups. Complete some independent research on these protests. What are the main criticisms of the WTO that these groups have? Do you think they are justified?
6 The website of the World Trade Organization, www.wto.org, contains a range of information about WTO activities. Use this website to find out what steps the WTO has taken to respond to the protests and criticism. Do you think that these steps are effective?

Sources: Don Ball and Wendell McCulloch, *International Business*, New York: Irwin/McGraw-Hill, 2002, ch. 3; Cletus C. Coughlin, "The Controversy Over Free Trade: The Gap Between Economists and the General Public," *Review*, Federal Reserve Bank of St. Louis, Jan./Feb. 2002, pp. 1–21; John D. Daniels, Lee H. Radebaugh, and Daniel P. Sullivan, *International Business: Environments and Operations*, New York: Addison-Wesley, 2002, ch. 6; and Robert D. McTeer, Jr, *The Fruits of Free Trade: 2002 Annual Report*, Federal Reserve Bank of Dallas, 2002.

CHAPTER 3

The Balance of Payments

Opening Case 3: Opportunity Cost and Comparative Advantage

Let's assume that with a fixed investment of $1 million, the United Kingdom produces more computers than Australia, while Australia produces more coal than the UK. This means that neither the UK nor Australia has an absolute advantage in producing both products. Consequently, the UK and Australia are better off if each country specializes in what it produces best and then trades with the other. Does this mean that specialization and trade provide no benefits for a country that produces more in both products than another country with a given amount of investment? Let's say that Lisa Smith, a great trial lawyer, happens to be a very good typist – so good that she is somewhat faster than her secretary, Jack Lee. But just because Lisa can type faster than Jack, does this mean that she should? To answer this question, you can use the concepts of opportunity cost and comparative advantage. Assume that Lisa can type a legal document in 2 hours. In that 2 hours, she could defend her client in the court and earn $1,000. By contrast, Jack can type the same legal document in 3 hours. In that same 3 hours, he could work at McDonald's and earn $30.

In this example, Lisa's opportunity cost of typing the document is $1,000 and Jack's opportunity cost is $30. Lisa has an absolute advantage in typing the document because she can type it in less time. Yet Jack has a comparative advantage in typing the document because he has the lower opportunity cost. The gains from trade in this example are tremendous. Rather than typing the document, Lisa should defend her client and let Jack type the document. As long as she pays him more than $30 and less than $1,000, both of them are better off.

The original eighteenth-century model of international trade, known as the theory of comparative advantage, assumes complementary trade. Some countries can

produce some goods more efficiently than other countries. Therefore, all countries benefit if they specialize in producing goods that they can produce more efficiently than others and if they buy those goods that other countries can produce more efficiently. There are no losers in complementary trade. In other words, differences in opportunity cost and comparative advantage create the gains from specialization and trade. When each country specializes in producing the good for which it has a comparative advantage, total production in the world economy rises. And this increase in the size of the economic pie can be used to make every country around the world better off.

Since the middle of the nineteenth century, the growth sector in the international economy has been competitive trade between developed countries. Under competitive trade, two countries buy from each other similar goods that both can produce almost equally efficiently. In this type of trade, some countries may lose, although most will gain.

Source: N. Gregory Mankiw, *Principles of Economics*, New York: The Dryden Press, 1997, ch. 45.

A country's **balance of payments** is commonly defined as the record of transactions between its residents and foreign residents over a specified period. These transactions include exports and imports of goods and services, cash receipts and payments, gifts, loans, and investments. Residents may include business firms, individuals, and government agencies.

The balance of payments helps business managers and government officials to analyze a country's competitive position and to forecast the direction of pressure on exchange rates. The ability of multinational companies (MNCs) to move money across national boundaries is critical. MNCs depend on this ability for exports, imports, payment of foreign debts, and dividend remittances. Many factors affect a firm's ability to move funds from one country to another. In particular, a country's balance of payments affects the value of its currency, its ability to obtain currencies of other countries, and its policy toward foreign investment.

This chapter has three objectives: (1) to define the balance-of-payments accounts, (2) to discuss the actual balance of payments, and (3) to explain the means for correcting a balance-of-payments deficit.

3.1 An Overview of the Balance of Payments

3.1.1 Sources and uses of funds

The balance of payments is a sources-and-uses-of-funds statement reflecting changes in assets, liabilities, and net worth during a specified period. Transactions between domestic and foreign residents are entered in the balance of payments either as debits or credits. In other words, balance-of-payments statistics are gathered on a single-entry basis.

In dealing with the rest of the world, a country earns foreign exchange on some transactions and expends foreign exchange on others. Transactions that earn foreign exchange are often called

credit transactions and represent sources of funds. These transactions are recorded in the balance of payments as credits and are marked by plus signs (+). The following transactions represent credit transactions:

1 Exports of goods and services.
2 Investment and interest earnings.
3 Transfer receipts from foreign residents.
4 Investments and loans from foreign residents.

Transactions that expend foreign exchange are sometimes called debit transactions and represent uses of funds. These transactions are recorded in the balance of payments as debits and are marked by minus signs (–). The following transactions represent debit transactions:

1 Imports of goods and services.
2 Dividends and interest paid to foreign residents.
3 Transfer payments abroad.
4 Investments and loans to foreigners.

We can apply these elementary principles to the recording of transactions in the balance of payments. Some hypothetical transactions may illustrate this single-entry approach.

Example 3.1

(a) An American company sells $30,000 worth of machinery to a British company (earn foreign exchange); (b) an American woman visits her husband in Japan. She cashes $5,000 worth of US traveler's checks at a Japanese hotel and spends the $5,000 in Japan before returning to the United States (expend foreign exchange); (c) the US Red Cross sends $20,000 worth of flood-relief goods to Chile (expend foreign exchange); (d) an American purchases $5,000 worth of French bonds (expend foreign exchange); and (e) a US bank lends $10,000 to a Canadian firm for 90 days (expend foreign exchange).

3.1.2 The balance of payments as a whole

A country incurs a "surplus" in its balance of payments if credit transactions exceed debit transactions or if it earns more abroad than it spends. On the other hand, a country incurs a "deficit" in its balance of payments if debit transactions are greater than credit transactions or if it spends more abroad than it earns.

Essentially, analysts focus on those transactions that occur because of self-interests. These so-called autonomous transactions include exports, imports, unilateral transfers, and investments. The arithmetic sum of these autonomous transactions, sometimes called "above-the-line items," represents the balance-of-payments surplus or deficit. A balance-of-payments surplus occurs when

autonomous receipts exceed autonomous payments. By the same token, a balance-of-payments deficit takes place when autonomous payments exceed autonomous receipts. On the other hand, compensating transactions occur to account or compensate for differences between international payments and receipts. These compensating items, called "below-the-line items," are used to eliminate international disequilibrium.

Surpluses and deficits in the balance of payments are of considerable interest to banks, companies, portfolio managers, and governments. They are used to:

1 Predict pressures on foreign-exchange rates.
2 Anticipate government policy actions.
3 Assess a country's credit and political risks.
4 Evaluate a country's economic health.

The transactions of cases (a)–(e) in example 3.1 represent autonomous transactions. In case (a), the export of US machinery earns a foreign exchange of $30,000 and is thus a credit. Transactions of cases (b)–(e) cause the USA to expend a foreign exchange of $40,000 and are therefore debits. Consequently, the USA has an overall deficit of $10,000 in its balance of payments and must undertake $10,000 worth of compensating transactions to make up the difference. In this case, the compensating transactions of the USA involve sales of its gold, reductions in its balance of convertible foreign currencies, or increases in the balance of the US dollars held by other nations.

Now, for a moment, suppose that the USA has a surplus in its balance of payments rather than a deficit. To account for this surplus in the US balance of payments, US reserves, such as gold and convertible foreign currencies, would increase by $10,000, or the balance of the US dollars held by other nations would decrease by $10,000. These transactions, designed to account for the surplus in the balance of payments, are also called compensating transactions.

3.2 Balance-of-Payments Accounts

The balance of payments identifies transactions along functional lines. The International Monetary Fund (IMF) classifies balance-of-payments transactions into five major groups:

A The current account: merchandise, services, income, and current transfers.
B The capital account: capital transfers, nonproduced assets, and nonfinancial assets.
C The financial account: direct investments, portfolio investments, and other investments.
D Net errors and omissions.
E Reserves and related items.

We can classify balance-of-payments transactions into several different groups. However, it is important to note that a country interacts with other countries in two ways. First, it buys and sells goods and services in world product markets. Second, it buys and sells financial assets in world financial markets. You could use your $3,000 to buy a personal computer from Toshiba, but instead you could use that money to buy stock in the Toshiba Corporation. The first transaction would represent a flow of goods, while the second would represent a flow of financial assets. Here we discuss these two activities and the close relationship between them.

The IMF format in table 3.1 below is regarded as useful for analyzing balance-of-payments developments in a uniform manner. In other words, the format facilitates a variety of analytic perspectives. Each of the five major data categories has a name and a particular analytic use. Table 3.1 also shows data codes, which are used by the IMF and other international organizations to facilitate international data reporting.

3.2.1 The current account – group A

BALANCE ON GOODS Balance on goods refers to the balance between exports and imports of physical goods such as automobiles, machinery, and farm products. Merchandise exports and imports are the largest single components of total international payments for most countries. In each year from 1995 to 2002, the USA ran a deficit on its trade balance. In 2002, the USA exported $685 billion of merchandise and imported $1,165 billion for a balance on goods of $479 billion. The minus sign for a balance indicates a deficit.

SERVICES International trade involves exports and imports of both goods and services. Services include such invisible items as insurance and financial services, travel and transportation, computer and information services, plus fees and royalties. A country's purchases of services represent imports with debits recorded. A country's sales of these services to foreigners represent exports with credits recorded. The balance between exports and imports of goods and services is called the balance on goods and services.

These services represent a significant portion of the overall balance of payments for many industrial countries. For example, table 3.1 shows that US exports of services have consistently exceeded US imports of services by an appreciable margin. In fact, service transactions have played a crucial role in lowering the US trade deficit, but this has tended to escape our attention for several reasons. First, some service-trade categories reflect transactions that rarely come to mind when the topic is trade. Second, service items have remained a relatively minor part of the overall trade volume. Third, international trade negotiations have tended to focus on barriers to merchandise trade.

INCOME Income on investments includes interest, dividends, and compensation of employees. Investment income represents the flow of earnings from foreign direct and portfolio investments made in prior years. For example, the income that US investors currently earn on their previous foreign investments falls into the income balance. The initial foreign investment of capital, however, was a capital outflow recorded in either the capital account or the financial account during the year when it was originally made. The balance of exports and imports between goods, services, and investment income is known as the balance on goods, services, and income. In 2002, the USA earned $256 billion in income while paying out $260 billion.

CURRENT TRANSFERS All transfers that are not transfers of capital are **current transfers**; they directly affect the level of disposable income and should influence the current consumption of goods and services. Current transfers include gifts and grants by both private parties and governments. Private gifts and grants include personal gifts of all kinds, philanthropic activities, and shipments by relief organizations. For example, money sent by immigrants to their families in their

native countries represents private transfers. Government transfers include money, goods, and services given as aids to other countries. For instance, goods and services provided by the US government to other countries as part of a drought relief program represent government transfers.

THE CURRENT ACCOUNT The **current account** includes merchandise exports and imports, earnings and expenditures for invisible trade items (services), income on investments, and current transfers. Entries in this account are "current" in nature because they do not give rise to future claims. The balance of payments on the current account is the broadest measure of a country's international trade because it includes investment income as well as trade in goods and services. A surplus on the current account represents an inflow of funds, while a deficit represents an outflow of funds.

The first line in table 3.1 shows that the US deficit on current account reached a peak of $481 billion in 2002. In 1991, the USA enjoyed a rare surplus of $4 billion in its balance on current account (table 3.1 does not show this figure). Analysts view the actual balance on current account as a deficit of approximately $39 billion, because $43 billion of US receipts in 1991 were current transfers from Gulf War (Desert Storm) allies.

3.2.2 The capital account – group B

The **capital account** consists of capital transfers and the acquisition or disposal of nonproduced, nonfinancial assets. The major types of capital transfers include the transfer of title to fixed assets, the transfer of funds linked to the sale or acquisition of fixed assets, debt forgiveness by creditors, and migrants' transfers of goods and financial assets as they leave or enter the country. Nonproduced, nonfinancial assets include the sale or purchases of nonproduced assets (i.e., the rights to natural resources) and the sale or purchases of intangible assets (i.e., patents, copyrights, trademarks, and leases). Though conceptually important, capital-account transactions are generally small in most countries.

3.2.3 The financial account – group C

The **financial account** consists of foreign direct investments, foreign portfolio investments, and other investments. **Foreign direct investments (FDIs)** are equity investments such as purchases of stocks, the acquisition of entire firms, or the establishment of new subsidiaries. The US Department of Commerce defines FDI as investments in either real capital assets or financial assets with a minimum of 10 percent ownership in a foreign firm. If McDonald's opens up a fast-food outlet in Germany, that is an example of foreign direct investment.

Up to 1995, the USA ran a huge deficit in its FDI flows, which means that Americans invested more abroad than did foreigners in the USA. The US deficit in FDI flows, however, has declined rapidly in recent years; in 1997, foreigners invested more in the USA than did US residents in foreign countries. Some of this change in directions was caused by the strong economic performance of the USA during the late 1990s; prospects for the US economy had been sufficiently bright for Americans and foreigners to make investment in the USA more attractive than investment elsewhere. FDI inflows into the USA have dropped since 2000, as the boom in the US economy and its stock market ended in March 2000.

Table 3.1 The US balance of payments (billions of US dollars)

	Code	1995	1996	1997	1998	1999	2000	2001	2002
A. Current account*	4993 Z.	**–105.19**	**–117.16**	**–127.68**	**–204.67**	**–290.87**	**–411.46**	**–393.74**	**–480.86**
Goods: exports f.o.b	2100 . .	577.04	614.01	680.33	672.38	686.27	774.63	721.84	685.38
Goods: imports f.o.b	3100 . .	–749.37	–803.11	–876.51	–917.12	–1,029.99	–1,224.43	–1,145.95	–1,164.76
Balance on goods	4100 . .	*–172.33*	*–189.10*	*–196.18*	*–244.74*	*–343.72*	*–449.79*	*–424.11*	*–479.38*
Services: credit	2200 . .	216.69	236.89	253.55	260.19	279.20	295.42	285.74	288.72
Services: debit	3200 . .	–139.43	–150.63	–164.44	–178.59	–196.70	–221.01	–219.44	–227.38
Balance on goods and services	4991 . .	*–95.07*	*–102.84*	*–107.06*	*–163.14*	*–261.23*	*–375.38*	*–357.82*	*–418.04*
Income: credit	2300 . .	211.96	226.28	261.05	258.66	290.20	346.86	277.36	255.54
Income: debit	3300 . .	–186.89	–201.74	–240.37	–251.74	–273.09	–327.25	–266.67	–259.51
Balance on goods, services, and income	4992 . .	*–70.00*	*–78.30*	*–86.38*	*–156.23*	*–244.12*	*–355.78*	*–347.13*	*–422.01*
Current transfers: credit	2379 Z.	8.64	10.39	9.86	9.64	8.85	10.78	8.56	11.50
Current transfers: debit	3379 . .	–43.82	–49.25	–51.16	–58.07	–55.60	–66.46	–55.18	–70.35
B. Capital account*	4994 Z.	**–.93**	**–.65**	**–1.04**	**–.74**	**–4.84**	**–.80**	**–1.06**	**–1.29**
Capital account: credit	2994 Z.	1.03	.89	.83	.93	1.08	1.08	1.05	1.11
Capital account: debit	3994 . .	–1.96	–1.55	–1.87	–1.67	–5.92	–1.87	–2.11	–2.39
Total, groups A plus B	4981 . .	*–106.12*	*–117.81*	*–128.72*	*–205.41*	*–295.71*	*–412.26*	*–394.80*	*–482.14*
C. Financial account*	4995 W.	**95.91**	**130.54**	**220.18**	**82.51**	**227.82**	**456.63**	**420.50**	**531.68**
Direct investment abroad	4505 . .	–98.78	–91.88	–104.82	–142.64	–224.93	–159.21	–119.96	–137.84
Direct investment in United States	4555 Z.	57.80	86.52	105.59	179.03	289.44	321.27	151.58	39.63
Portfolio investment assets	4602 . .	–122.51	–149.83	–118.98	–124.20	–116.24	–121.91	–84.64	15.80
Equity securities	4610 . .	–65.41	–82.85	–57.58	–101.36	–114.31	–106.71	–109.10	–17.68
Debt securities	4619 . .	–57.10	–66.98	–61.40	–22.84	–1.93	–15.19	24.47	33.48
Portfolio investment liabilities	4652 Z.	210.35	332.78	333.11	187.56	285.60	420.00	425.08	421.44
Equity securities	4660 . .	16.52	11.06	67.03	41.96	112.29	193.60	121.42	53.20
Debt securities	4669 Z.	193.83	321.72	266.08	145.61	173.31	226.40	303.66	368.24
Financial derivatives	4910 . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Financial derivatives assets	4900 . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Financial derivatives liabilities	4905 . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Other investment assets	4703 . .	–121.38	–178.87	–262.82	–74.20	–171.22	–288.39	–140.43	–53.27
Monetary authorities	4701 . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
General government	4704 . .	–.98	–.99	.07	–.42	2.75	–.94	–.49	–.03
Banks	4705 . . .	–75.11	–91.56	–141.12	–35.57	–76.26	–148.66	–134.95	–21.36
Other sectors	4728 . .	–45.29	–86.33	–121.77	–38.20	–97.70	–138.79	–5.00	–31.88
Other investment liabilities	4753 W.	170.43	131.82	268.09	56.96	165.17	284.86	188.87	245.91
Monetary authorities	4753 WA	46.72	56.88	–18.85	6.88	24.59	–6.70	35.29	64.91
General government	4753 ZB	.90	.73	–2.70	–3.25	–.98	–.39	–4.78	2.66
Banks	4753 ZC	64.18	22.18	171.31	30.27	67.20	122.72	88.40	108.72
Other sectors	4753 ZD	58.63	52.03	118.33	23.07	74.37	169.24	69.96	69.62
Total, groups A through C	4983 . .	*–10.21*	*12.73*	*91.46*	*–122.89*	*–67.89*	*44.37*	*25.70*	*49.54*
D. Net errors and omissions	4998 . .	**19.96**	**–19.39**	**–90.45**	**129.63**	**59.16**	**–44.08**	**–20.77**	**–45.84**
Total, groups A through D	4984 . .	*9.75*	*–6.67*	*1.01*	*6.73*	*–8.73*	*.29*	*4.93*	*3.69*
E. Reserves and related items	4802 A.	**–9.75**	**6.67**	**–1.01**	**–6.73**	**8.73**	**–.29**	**–4.93**	**–3.69**
Reserve assets	4802 . .	–9.75	6.67	–1.01	–6.73	8.73	–.29	–4.93	–3.69
Use of Fund credit and loans	4766 . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Exceptional financing	4920 . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .

*Excludes components that have been classified in the categories of Group E.

Source: The International Monetary Fund, *Balance of Payments and Statistics Yearbook*, 2003, p. 957.

Foreign portfolio investments are purchases of foreign bonds, stocks, financial derivatives, or other financial assets without a significant degree of management control. Desires for return, safety, and liquidity in investments are the same for international and domestic portfolio investors. However, international portfolio investments have additional risks such as changes in exchange rates, wars and revolutions, and expropriations. Portfolio investments in utilities, governments, and government agencies are active because the risk of loss in these fields is less than in other fields. If an American buys bonds in the Volkswagen Corporation of Germany, that is an example of foreign portfolio investment. In each year from 1995 to 2002, the USA ran a huge surplus in its balance on financial account, which means that foreigners purchased US securities more than did Americans foreign securities.

Other investments include changes in trade credit, loans, currency, and deposits. Both portfolio investment and other investments consist of short-term capital flows and long-term capital flows. Some short-term capital flows occur due to changes in the current account or changes in long-term investment. More specifically, these changes may take place because of merchandise trade, service trade, current transfers, and investments. Short-term capital movements induced by such transactions are sometimes called compensating or accommodating adjustments. These compensating accounts change only for one reason – to finance other items in the balance of payments. In contrast, other short-term flows are attributable to differences in interest rates among nations and to expected changes in foreign-exchange rates. Short-term capital movements caused by such changes are frequently called autonomous adjustments. These autonomous accounts change for purely economic reasons.

3.2.4 Net errors and omissions – group D

In theory, the balance of payments should always actually balance, because all debits are offset by credits and vice versa. But it rarely does balance in practice, for a number of reasons. Balance-of-payments data gathered from many different sources are incomplete and may be interpreted differently by individuals and agencies. Many transactions are not recorded but are known to have occurred because other components of the balance of payments reveal an imbalance. Thus, the debits and credits may not balance at the end of a year. This is why the net errors and omissions are treated as a "plug" item to keep the balance-of-payments accounts in balance.

Net errors and omissions occur for several reasons. First, they may be due to unreported foreign funds coming to a country for investment in some form of asset. Second, increased trading in foreign currencies, in combination with the flexible exchange system, undoubtedly introduces large errors in payments figures. Third, because most data on the balance of payments depend on personnel in banks and other business offices completing federal forms, these people sometimes make multimillion-dollar mistakes.

TOTAL – GROUPS A–D Usually known as the overall balance of payments or above-the-line items, this balance is the net result of trading, capital, and financial activities. It constitutes the sum of all autonomous transactions that must be financed by the use of official reserves. The overall balance of payments is often used to evaluate a country's competitive position in terms of all private transactions with the rest of the world. Table 3.1 shows that the overall balance of the USA has been relatively small in recent years.

Table 3.2 The US dollar as a fraction of government reserves around the world

Year	*Dollar as percent of total reserves*	*Year*	*Dollar as percent of total reserves*
1987	56.1%	1995	57.0%
1988	55.3%	1996	60.3%
1989	52.0%	1997	62.4%
1990	50.1%	1998	65.9%
1991	51.3%	1999	68.4%
1992	55.3%	2000	68.2%
1993	56.7%	2001	68.3%
1994	56.6%	2002	68.6%

Source: The International Monetary Fund, Washington, DC.

3.2.5 Reserves and related items – group E

Group E consists of official reserve assets, the use of IMF credit and loans, and exceptional financing. These categories represent only purchases and sales by official monetary authorities, such as the Federal Reserve System of the USA or the Bank of England. Changes in reserves and related items are necessary to account for the deficit or surplus in the balance of payments.

Reserve assets are government-owned assets. They include monetary gold, convertible foreign currencies, deposits, and securities. For most countries, the principal convertible currencies are the US dollar, the British pound, the euro, and the Japanese yen. Credit and loans from the IMF are usually denominated in special drawing rights. **Special drawing rights (SDRs)**, sometimes called "paper gold," are rights to draw on the IMF. SDRs can be used as means of international payment. Exceptional financing is financing mobilized by a country's monetary authorities that is not regarded as official reserves. Examples of this account include postponing the repayment of foreign-currency debt and drawing on private bank loans to finance transactions that would otherwise deplete the country's reserve assets.

The reserve account of a country also includes its liabilities to foreign official holders, which constitute foreign authorities' reserves. A country's liabilities to foreign official holders are sometimes called its foreign reserve assets. For example, US liabilities to foreign official holders, such as the European Central Bank or the Bank of Japan, refer to foreign official deposits with US banks and official holdings of US Treasury securities. Foreign governments frequently wish to hold such assets in the USA because of their interest earnings.

Foreign currencies account for approximately 90 percent of the total reserve assets held by IMF member countries. Among foreign exchanges, the US dollar has been, and still is, the most important asset. Table 3.2 shows that the dollar share of world foreign-exchange reserves declined from 1987 to 1990, increased from 1993 to 1998, and has been relatively flat at around 68 percent since 1998.

Some economists forecast that the dollar, which represented 76 percent of world reserves in 1976, will lose market share in the years ahead. Because Europe created its new single currency, known as the euro (€), on January 1, 1999, some governments and many private investors are likely to switch some of their reserves out of dollars and into euros. The creation of the euro is regarded as the most important development in the international monetary system since the end

of the Bretton Woods Agreement in 1973. In addition, many governments desire to diversify their reserve portfolios.

The net result of all activities in groups A–D in table 3.1 must be financed by changes in reserves and related items. Thus, these two items – "Total, groups A–D" and "Group E" – are identical except that the sign is reversed. In other words, the net result of all activities in groups A–D was financed by various accounts in group E.

ACCOUNTING TREATMENT OF THE RESERVE ACCOUNT The reserve account presents a great difficulty when one tries to classify its transactions either as debits or credits. On the one hand, an increase in any of the reserve assets represents a use of funds or a debit entry (–) in the balance of payments. On the other hand, a decrease in any reserve asset indicates a source of funds or a credit entry (+). By the same token, a decrease in any official liability is entered as a debit, and an increase in any official liability is recorded as a credit. In other words, any transaction that finances the balance-of-payments surplus should be recorded as a debit (increase in reserve assets and decrease in official liability); any transaction that finances the balance-of-payments deficit should be recorded as a credit (decrease in reserve assets and increase in official liability).

3.2.6 *The balance-of-payments identity*

We have seen that a country interacts with the rest of the world in two ways: world markets for goods and services (the current account) and world markets for financial assets (net foreign investment = capital account, financial account, net errors and omissions, plus reserves and related items). The current account and net foreign investment each measure a type of imbalance in these markets. The current account measures an imbalance between a country's exports and imports. Net foreign investment measures an imbalance between the amount of foreign assets bought by domestic residents and the amount of domestic assets bought by foreigners.

The **balance-of-payments identity** states that the combined balance of the current account (CuA), the capital account (CaA), the financial account (FiA), net errors and omissions (NEO), and reserves and related items (RR) must be zero:

$$\mathrm{CuA} + \mathrm{CaA} + \mathrm{FiA} + \mathrm{NEO} + \mathrm{RR} = 0 \tag{3.1}$$

In other words, current-account deficits or surpluses are offset by corresponding net foreign-investment surpluses or deficits. An important fact of accounting states that for an economy as a whole, these two imbalances must offset each other. Under this assumption, current account is equal in size, but opposite in sign, to net foreign investment. Thus, equation 3.1 is the balance-of-payments identity that must hold.

3.3 The Actual Balance of Payments

3.3.1 *Major-country balances on current and financial accounts*

Table 3.3 shows the current-account balances of China, Germany, Japan, the UK, and the USA from 1994 to 2001. Several inferences may be drawn from the table. First, the two largest

Table 3.3 Major-country balances on current account (billions of US dollars)

Country	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
China	7	2	7	37	31	21	21	17	32
Germany	–21	–19	–8	–3	–6	–19	–20	2	46
Japan	130	114	66	97	119	115	120	87	112
UK	–10	–14	–13	–3	–8	–32	–29	–29	–14
USA	–118	–106	–118	–128	–204	–293	–410	–393	–480

Source: The International Monetary Fund, *Balance of Payments Statistics Yearbook*, 2002 and 2003, various pages.

Table 3.4 Major-country balances on financial account (billions of US dollars)

Country	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
China	2	16	8	–14	–13	–3	–9	–12	–42
Germany	32	37	5	5	4	16	41	–21	–75
Japan	–110	–123	–63	–127	–106	–115	–127	–89	–109
UK	3	8	9	–8	0	32	21	28	12
USA	130	86	137	219	64	265	409	382	527

Source: The International Monetary Fund, *Balance of Payments Statistics Yearbook*, 2002 and 2003, various pages.

economies in the world – the USA and Japan – have incurred massive current-account imbalances since 1994. Second, the British current-account balance has been in large deficit since 1999. Third, the Chinese current-account balance has increased sharply since 1994.

The current-account balances of China, Japan, and the USA since 1995 largely reflect the Asian financial crisis of 1997–8. Several factors have been singled out as leading causes of a huge rise in the US deficit for current-account balance from 1998 to 2002: faster economic growth in the USA than in its major trading partners, the strong US dollar, and reduced US exports to those Asian countries hit hard by the Asian crisis.

Table 3.4 shows the financial-account balances of China, Germany, Japan, the UK, and the USA from 1994 to 2002. Apparently, the US current-account deficit was largely offset by massive inflows of capital (the financial account). On the other hand, the financial account of Japan, which reflects the net financial outflow from the trade surplus, has been systematically negative. China had mostly maintained surpluses in both the current account and the financial account until 1996, thereby increasing its reserve assets. After 1996, however, China's current-account surplus declined until 2001 and its financial-account balance had reversed as it entered the WTO in 2001.

3.3.2 The world balance of payments

Table 3.5 shows that the expansion of world trade averaged 6.4 percent per year between 1991 and 1999, while the growth of global output averaged only 2.4 percent per year during the same

Table 3.5 World merchandise trade

Year(s)	*World trade growth*	*World output growth*
1991–9	6.4%	2.4%
2000	13.1%	3.8%
2001	0.4%	1.2%
2002	3.0%	1.7%
2003[f]	6.2%	2.3%
2004[f]	8.1%	3.2%
2005[f]	8.1%	3.1%

Note: f = forecast.
Sources: The World Bank, *Global Development Finance*, Washington, DC, 2000, 2003, and 2004, various pages.

period. As a result of the 1997–8 Asian crisis, world output grew 1.9 percent in 1998 and 2.9 percent in 1999. With such a slow output growth, world trade growth fell from 1997's exceptional 9.5 percent, but maintained a 4–5 percent pace in 1998 and 1999. These statistics indicate that the share of production traded increased substantially during the 1990s; this reflects the relative openness of markets and the ongoing integration of the global economy.

The value of world merchandise trade reached a new record of $6 trillion in 2002. Table 3.5 shows that world trade had grown about 2.7 times as fast as world output in the 1990s. In 2001, world merchandise grew slower than world output for the first time in modern history, perhaps due to the September 11, 2001, attacks. However, the World Bank forecasts that world merchandise trade will grow two or three times as fast as world output from 2002 through 2005 again. It seems that the excess of trade over output in the twenty-first century will be as great as that in the 1990s. The head of economic research at the World Trade Organization has said that the gap between exports and output "is the handiest practical measurement of the pace of globalization" of manufacturing.

Globalization represents a huge opportunity for countries at all levels of development. The rapid increase in trade volume over the past 30 years has been one of the most important factors in the rise of living standards across the globe. Because a fresh wave of market-opening initiatives alters economies, many forecasts predict an annual global-trade growth of 10 percent for the next two decades.

3.3.3 The international investment position

Trade balance is a flow concept because it measures the economic activities of a country over a 1-year period. The **international investment position** is a stock concept because it summarizes a country's assets and liabilities on a given date. Tables 3.6 and 3.7 show the international investment position of the USA and of Japan from 1994 to 2002.

These two tables reveal striking differences in the international investment position between the two countries. First, the USA is the largest net debtor nation in the world, while Japan is the largest net creditor nation. For the USA and Japan over the same period, a largely reciprocal rela-

Table 3.6 The international investment position of the USA (billions of US dollars)

Type of investment	*1994*	*1996*	*1998*	*1999*	*2000*	*2001*	*2002*
US assets	**3,327**	**4,631**	**6,174**	**7,387**	**7,351**	**6,863**	**6,473**
Direct investment	1,115	1,608	2,280	2,805	2,674	2,289	2,036
Portfolio investment	949	1,468	2,053	2,583	2,389	2,111	1,847
Other investment	1,100	1,394	1,695	1,863	2,160	2,333	2,432
Reserve assets	163	161	146	136	128	130	159
US liabilities	**3,450**	**5,018**	**7,269**	**8,441**	**8,934**	**9,172**	**9,079**
FDI	758	1,229	2,179	2,798	2,766	2,527	2,007
Portfolio investment	1,414	2,291	3,217	3,605	3,866	4,132	4,339
Other investment	1,278	1,498	1,873	2,038	2,302	2,513	2,733
Net position	**–123**	**–387**	**–1,095**	**–1,583**	**–1,583**	**–2,309**	**–2,605**

Sources: The International Monetary Fund, *Balance of Payments Statistics Yearbook*, 2002 and 2003, various pages.

Table 3.7 The international investment position of Japan (billions of US dollars)

Type of investment	*1994*	*1996*	*1998*	*1999*	*2000*	*2001*	*2002*
Japanese assets	**2,424**	**2,653**	**2,986**	**3,013**	**2,970**	**2,882**	**3,052**
Direct investment	276	259	270	249	278	300	304
Portfolio investment	859	933	1,056	1,242	1,306	1,290	1,394
Other investment	1,162	1,243	1,444	1,234	1,025	892	882
Reserve assets	127	218	216	288	361	400	468
Japanese liabilities	**1,734**	**1,762**	**1,833**	**2,185**	**1,812**	**1,521**	**1,590**
Direct investment	19	30	26	46	50	50	78
Portfolio investment	631	556	633	1,165	884	666	610
Other investment	1,084	1,176	1,174	974	878	805	898
Net position	**690**	**891**	**1,153**	**858**	**1,158**	**1,361**	**1,462**

Sources: The International Monetary Fund, *Balance of Payments Statistics Yearbook*, 2002 and 2003, various pages.

tionship is evident. Growth in the net international investment position of the USA coincided with the rapid increase of Japan's net investment position during the 1990s. The US net overseas investment evolved steadily from $6 billion in 1919 to $358 billion in 1983. This long-term increase in the US net investment position has decreased dramatically since 1983. In 1987, the USA became a net debtor nation for the first time since World War I. As shown in table 3.7, its foreign debt reached $2.6 trillion in 2002. This is about 60 percent of the combined total debt of some 140 developing countries. Huge trade and budget deficits, caused by major shifts in macroeconomic policy in the first half of the 1980s, turned the USA from creditor to debtor. Persistent trade and budget deficits, along with more foreign acquisitions of US assets than US acquisitions of foreign assets, caused US foreign debt to grow continually.

Second, FDI in the US accounts for approximately 35 percent of foreign assets in the USA, but FDI in Japan amounts to about 10 percent of foreign assets in Japan. Critics charge that Japanese firms participate in keiretsu to insulate themselves from outside competitors in all aspects

of operations. In Japanese, the word "keiretsu" stands for large, financially linked groups of companies, but foreign critics translate it as meaning something else – an "economic barrier to non-Japanese companies." They wag their fingers at keiretsu as barriers to everything: trade, FDI in Japan, and financing for Japanese firms in the USA. The relatively small amount of FDI in Japan indicates that Japanese firms are more sheltered from foreign competition in their home market than firms in other industrial countries.

Third, the USA's other investment abroad accounts for nearly 30 percent of its total foreign assets, while Japan's amounts to more than 45 percent. Most of the other investments are short-term capital flows such as trade credit, short-term bank loans, and currency. Moreover, portfolio investments also include short-term capital flows such as short-term government securities and money market funds. Apparently, Japan keeps most of its foreign assets in short-term capital as compared with the USA and other industrial countries, which do not. No wonder, then, so many Japanese banks are still suffering from bad short-term loans that they have made abroad in the past.

Net international investment positions themselves are not particularly meaningful. This is why many economists look at three broad categories of the international investment position: direct investment, portfolio investment, and other investment. In other words, analysts break down international investment holdings into several categories so that they can draw policy implications from each category about the liquidity status of a country.

Short-term foreign assets in the USA, such as bank deposits and government securities, are meaningful because foreigners can withdraw these holdings on very short notice. For example, if they fear capital losses from further depreciation of the dollar, or if interest rates decline, foreign investors may turn away from dollar-denominated short-term assets. Such actions by foreign investors may endanger the stability of the US financial system. Foreign official assets in the USA are also significant. If foreign monetary authorities decide to liquidate their holdings of US government securities, the financial strength of the dollar will fall. Long-term investments, such as long-term corporate securities and direct investment, are less important because they respond to basic economic trends and are not subject to erratic withdrawals.

Global Finance in Action 3.1

Is there Another Wave of American Decline?

The collapse of the Soviet Union in 1991, along with the unusually strong performance of both the US economy and its stock market during the 1990s, elevated the USA to unsurpassed economic, militarily, and cultural power. However, in the early 2000s, the USA faced another wave of decline since the 1950s, a phenomenon largely triggered by its economic problems. Every single empire and great nation of history has been destroyed or has greatly diminished in world influence. Why should we assume that the USA, today's great nation, could prevail over the pattern of history? If we assume for the moment American decline, the European Union or China seems likely to emerge as a great power, which might end the dominance of the USA in the

game of influence on world affairs. We can base the current wave of decline on three bodies of evidence: (1) mounting US budget and trade deficits; (2) continuing declines in the US economy and its stock market; and (3) a growing European Union's resistance to American unilateral actions.

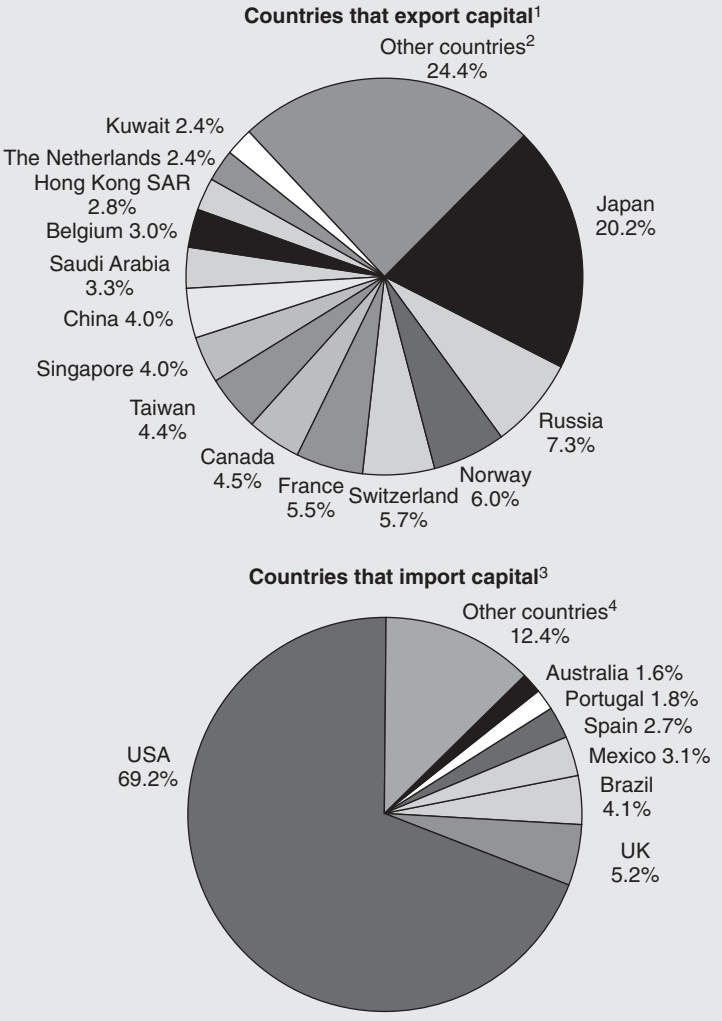
A massive tax cut of $1.7 trillion and a military buildup larger than during the Cold War shifted the government budget from a record surplus of $387 billion predicted for 2004 a few years beforehand to a record deficit of $500 in 2004 itself. Observers believe that this huge budget deficit is unsustainable and thus will eventually ruin the US economy.

It is no secret that US economic expansion in the 1990s had been sustained with money borrowed abroad. American companies accrued huge debts, often to buy back company shares. American consumer debt is enormous and continues to grow, with no end in sight. In addition, the spending boom has generated record trade deficits, including $500 billion in 2002. To finance current-account deficits, the USA has been forced to borrow approximately $2 billion every working day, most of which comes from foreign investors. Japanese and other foreign investors continue to fund the US economy even today (see figure 3.1), but the boom in the US economy and its stock market ended in 2000. In addition, nobody thinks that this kind of inflow can be sustained indefinitely as war and terrorism fears mount, a change that may boost the inflation rate and hurt corporate profits, the US dollar, and investment returns. The financial reversal would also bring about the collapse of US security policy and of its calculated strategy of world pacification.

When President George W. Bush took office on January 25, 2000, his aides assured allies that America was a team player and would practice "multilateralism." However, Bush opposed a considerable number of multilateral treaties and agreements within 6 months of taking office. Consequently, Bush encountered hostility from US allies in Europe, Asia, and other parts of the world, as the USA shifted its foreign policy from multilateralism under the Clinton Administration to unilateralism under the Bush Administration. Critics charge that international crises, such as arms conflicts in Iraq and North Korea, simultaneously are "the natural consequences of Bush's unilateralism, his militaristic new doctrine of preemption, and his insistence on expanding a justified war against al Qaeda to a misconstrued axis of evil."

The weak performance of both the US economy and its stock market in the past few years, the sinking confidence of American people in their government's ability to govern, and a growing anti-Americanism around the world indicate a possible decline of US power economically and militarily. A decline in American hegemony may play itself out over this decade and the next. In turn, the USA could lose interest in playing the role of global protector, as the European Union becomes a new center of global power and renews competition for international dominance. If the USA is compelled to give away its global power to a more dangerous environment, the chief threat may come not from the likes of Osama bin Laden, but from the return of traditional geopolitical rivalry.

Source: S. H. Kim, *North Korea at a Crossroads*, Jefferson, NC: McFarland, 2003, ch. 9.



Source: International Monetary Fund, *World Economic Outlook* database.
[1]As measured by countries' current (capital) account surplus (deficit).
[2]Other countries include all countries with shares of total surplus less than 2.4%.
[3]As measured by countries' current (capital) account deficit (surplus).
[4]Other countries include all countries with shares of total deficit less than 1.6%.

Figure 3.1 Global capital flows: sources and uses of global capital in 2001

Source: The International Monetary Fund, *Global Financial Stability Report*, Washington, DC, 2004, p. 105.

3.4 How to Reduce a Trade Deficit

Some countries have had trade deficits for many years. But compensating transactions cannot be maintained indefinitely. Therefore, some adjustments must be made to correct trade deficits. A trade deficit may be reduced in several ways: by deflating the economy, by devaluing the currency, and by establishing public control.

3.4.1 Deflating the economy

If a country adopts tight monetary and fiscal policies, its inflation and income decrease. Lower inflation and income are expected to increase exports and reduce imports, thus improving the trade balance. To reduce its trade deficit, therefore, a country should control government budget deficits, reduce growth of money supply, and institute price and wage controls. On the other hand, these policies may slow the economy.

3.4.2 Devaluing the currency

A country may reduce its trade deficit by devaluating its currency against the currencies of major trading partners. A currency devaluation may improve the trade balance because a weak currency makes imported goods more expensive and exported goods less expensive. However, currency devaluation might not correct a trade deficit: (1) if foreign markets do not buy more goods in response to lower prices; (2) if domestic companies do not have the capacity to produce more goods for export; (3) if domestic residents continue to import foreign goods regardless of their higher prices; and (4) if middlemen do not pass on changes in prices to their customers.

3.4.3 Establishing public control

In general, there are two types of public controls: foreign-exchange controls and trade controls. Think, for a moment, of a case in which increased Mexican imports create a shortage in its foreign exchange. Under exchange controls, the Mexican government would force its exporters and other recipients to sell their foreign exchange to the government or to designated banks. Then, the government would allocate this foreign exchange among the various users of foreign exchange. In this way, the Mexican government could restrict Mexican imports to a certain amount of foreign exchange earned by Mexican exports. Thus, imports under exchange controls would be less than they would be under free market conditions.

When governments are faced with a serious payment deficit, they may manipulate exports and imports through tariffs, quotas, and subsidies. High tariffs on imported goods and import quotas by Mexico would reduce Mexican imports. On the other hand, the Mexican government might subsidize certain Mexican exports to make them competitive in world markets and to increase the volume of exports. Special taxes on foreign direct investments by Mexican firms would tend to reduce Mexican capital outflows. However, these protectionist policies might increase inflation, erode purchasing power, and lower the standard of living.

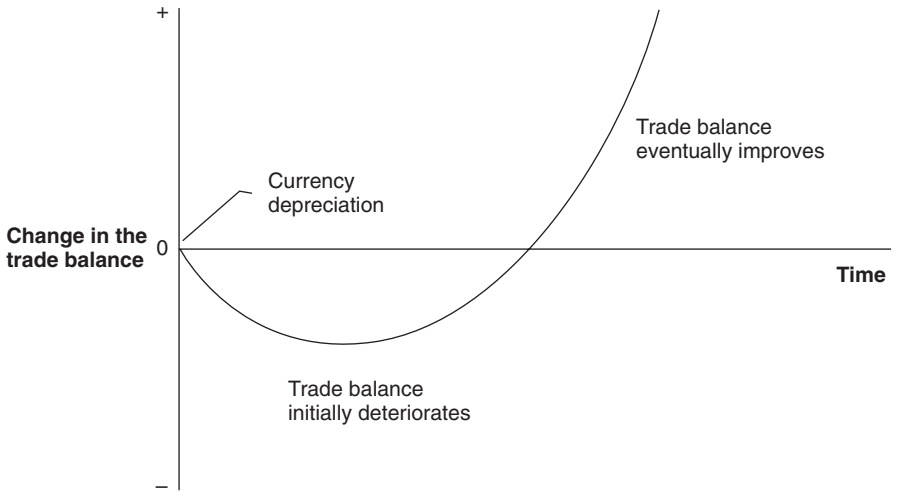


Figure 3.2 The J-curve effect

3.4.4 The J-curve

There are a variety of reasons why currency depreciation will not necessarily improve the balance of trade. One possible reason why a weak currency will not always reduce the trade deficit has to do with the J-curve effect. The **J-curve** is the term most commonly used by economists to describe the relationship between the trade balance and currency devaluation. As illustrated in figure 3.2, the J-curve effect holds that a country's currency depreciation causes its trade balance to deteriorate for a short time, followed by a flattening-out period, and then a significant improvement occurs for an extended period. When a country's currency depreciates against the currencies of major trading partners, the country's exports tend to rise and imports fall, which improves the trade balance. In the short run, however, a country's trade deficit may deteriorate just after its currency depreciates, because the higher cost of imports will more than offset the reduced volume of imports.

This J-curve effect received wide attention in the mid-1980s when the US dollar plunged in the foreign-exchange market, while the US trade deficit hit new peaks (Forsyth 1986). Specifically, the US dollar began to decline after reaching its peak in March 1985, but the US trade deficit hit a new record each year from 1985 through 1987. The US trade deficit began to fall with the rapid expansion of American exports in 1988. Economists estimate that trade patterns typically lag currency changes by at least 18 months. Edwards (1989) and Oskooee and Malixi (1992) examined various cases of devaluations carried out by developing countries in the 1960s through the 1980s. Their studies confirmed the existence of the J-curve effect in about 40 percent of the cases.

SUMMARY

The balance of payments summarizes all international transactions between residents of a country and residents of foreign countries during a specified period. The systematic record of these international transactions requires preestablished principles. These principles include rules or procedures, such as debits and credits, and definitions of terminology, such as the current account.

The balance of payments is neither an income statement nor a balance sheet. The balance of payments is a sources-and-uses-of-funds statement reflecting changes in assets, liabilities, and net worth during a specified period. Increases in assets and decreases in liabilities or net worth constitute debits (uses of funds). On the other hand, decreases in assets and increases in liabilities or net worth represent credits (sources of funds). Some international transactions, such as exports or imports, occur due to purely economic reasons. These transactions are called autonomous transactions. Such transactions as sales of gold or increases in foreign debt take place to account for differences between international payments and receipts. These transactions are often called compensating transactions.

Some countries have had deficits for many years. These deficits cannot be financed indefinitely by compensating transactions. The balance-of-payments deficit can be corrected by deflating the economy, devaluing the currency, and establishing public control. The first two methods are supposed to correct international disequilibrium through changes in prices, income, and interest rates. Government controls, such as exchange and trade controls, can be used to alleviate or correct the balance-of-payments deficit.

Questions

1 What are the four major components of the current account?
2 Briefly describe the financial account.
3 If a country has a deficit on its current account, what are the consequences for the country's balance of payments on financial account? Assume that the country practices a flexible exchange rate system.
4 What is the role of net errors and omissions in the balance of payments? What are the major causes of the net errors and omissions?
5 Most developing countries (excluding oil-exporting countries) have incurred huge balance-of-payments deficits for many years. What alternatives are available to these countries for dealing with their balance-of-payments problems?
6 The US current-account trade deficit has risen sharply since 1997. Discuss some reasons for such a dramatic increase.
7 What is the major difference between the balance of payments and the international investment position? When did the USA become a net debtor nation for the first time since World War I? Explain why the USA became a net debtor nation.
8 What is the balance-of-payments identity?

9 What is adversarial trade? Why do both sides (the buyer and the seller) lose in adversarial trade?
10 Explain why a currency depreciation will not necessarily improve the balance of trade.
11 What is the J-curve?

Problems

1 Answer questions 1(a) through 1(c) using example 3.1.
   (a) Prepare the balance of payments in a good form.
   (b) Does the country have a balance-of-payments deficit or surplus?
   (c) How can the country account for this payments imbalance?
2 Assume that a country has a current-account deficit of $10,000 and a financial-account surplus of $12,000. Assume that the capital account and net errors and omissions are negligible.
   (a) Does the country have a balance-of-payments deficit or surplus?
   (b) What will happen to the country's official reserve account?
3 A country has a merchandise trade surplus of $5,000, an income balance of zero, a current transfer surplus of $3,000, and a current-account deficit of $4,000. What is the service trade balance?
4 Assume that: (1) a country has a current-account surplus of $10,000; (2) its financial account has a deficit of $15,000; and (3) its other two accounts – the capital account and net errors and omissions – are negligible. What is the balance of the country's reserve account? How can the country eliminate the $5,000 imbalance on its balance of payments?

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Case Problem 3: USA–China Trade Relations

The history of Chinese trade is long and distinct, with the twentieth century being marked by large shifts in policy. A focus on the history of trade between the USA and China helps to reveal some of the fundamental moments in the history of Chinese trade. In 1936, the USA accounted for 22 percent of China's exports and 20 percent of its imports. In 1949, the Chinese Communist Party seized control of China and, after decades of struggle, founded the People's Republic of China. Under this new regime, the economy was completely state controlled. These changes, the Korean War from 1950 to 1953, and the subsequent embargo toward China caused a sharp decline in USA–China trade relations. In 1972, the American share of China's total trade accounted for only 1.6 percent.

In 1978, under the new leadership of Deng Xiaoping, China began the long process of economic reform. Initially focused on just agricultural reform, these economic reforms eventually became a transition to a capitalist and globally integrated economy. Focused on the four modernizations – the modernization of industry, agriculture, science and technology, and national defense – these reforms represented a deep-seated shift in policy and helped to spur a steady growth of USA–China trade. Between 1990 and 2000, total trade rose from $20 million to over $116 billion. By 2000, America had become China's second-largest trade partner and China was the USA's fourth-largest importer, supplying a wide variety of goods. Moreover, investors poured money into China, with $400 billion invested in 2001, $28.5 billion of this coming from the USA alone. It is estimated that by 2010, China's total imports will reach three trillion dollars, a large share of which will come from the USA.

For 13 years, China had applied for WTO membership, but this effort had not been successful, mainly due to US opposition. This opposition was based on a laundry list of economic and political issues, including concerns with human rights, tension between Taiwan and China, China's nuclear arsenal, objections from labor unions in the USA, and the use of protectionist policies by China. "As bad as our trade deficit with China is today, it will grow even worse if we approve a permanent trade deal," said House Minority Whip David Bonior (D., Mich.) back in October 1999. Even with this opposition, on November 15, 1999, an historic agreement was reached between Chinese and American trade negotiators, which set the stage for China's formal entry into the WTO.

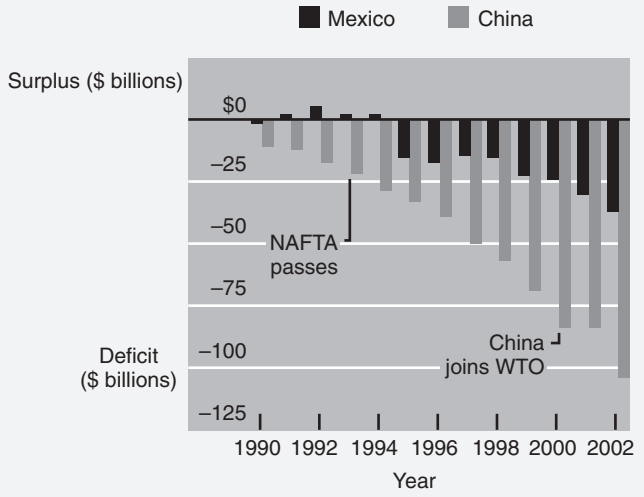

Figure 3.3 US trade balances with Mexico and China
Source: *The Wall Street Journal*, Aug. 4, 2003, p. A4.

One of the major worries by those who opposed the normalization of trade relations with China was concern about a growing trade imbalance between the two countries. According to US trade data, the trade deficit with China was $69 billion in 1999, $83 billion in 2000, $85 billion in 2001, and $103 billion in 2002 (see figure 3.3). Many believed that this growing deficit was due to China's high tariffs and numerous restrictions on American exports. In joining the WTO on December 11, 2001, China agreed to lower its average tariff from 16.7 percent in 2000 to 10 percent in 2005, and to reduce the number of items under import license and quota from approximately 300 to zero in the next 5 years. In addition, China agreed to liberalize foreign investment in banking, insurance, financial services, wholesale/retail trade, and telecommunications. All these industries had been under tight government control until recently.

In return, the USA granted China permanent normalized trade relations status. Without this legislation, China's trade status would be open to yearly debate, as it had been in the past. Additionally, China, as a member of the WTO, now enjoys open markets with all other WTO members, including the USA. One area in which this has provided a great advantage for China's exports is in its textile industry. Textiles have been one of the Chinese major export items but, for years, the USA had imposed a quota on them. With the removal of these tariffs, the Chinese textile industry has boomed and it grew by 27 percent in 2001.

Many US multinational companies are in the midst of an unprecedented wave of shifting capital and technology to plants in China and other low-cost locales. This wave pulls away vast chunks of business that formerly filtered down through the intricate networks of suppliers and producers inside the USA. While the tension is most acute in trade associations and other industry groups, it has recently gained political momentum that threatens to spill over into political debates. To be sure, there are some things that all manufacturers can rally

around, such as the broad push to get China to stop pegging the value of the yuan to the dollar at what many believe is an artificially low level. Some economists believe that the Chinese currency is undervalued by as much as 40 percent, which gives Chinese goods a built-in advantage against identical US products. Even with the unanimity, the Bush Administration does not appear eager to get involved.

In dollar terms, China's economy is about 10 percent of the US economy and 20 percent of Japan's. After adjusting for differences in the cost of living (purchasing power parity), however, China's economy is more than half as large as the US economy and surpassed Japan to become the world's second-largest economy; in 2002, the gross domestic product was $10.1 trillion for the USA, $6 trillion for China, and $3.6 for Japan. It grew 7.3 percent in 2001 and an average of about 9 percent annually between 1980 and 2000. China expects its economy to grow at an annual rate of 6–7 percent over the next 10 years. China's membership of the WTO represents another great step as it continues to move toward a more capitalistic economy. It will increase the opportunities for Chinese growth and will help China play an increasingly large role in the global economy. All of these trends together point to the emergence of China as a dominant, if not the dominant, economic power for the coming century.

China's first manned space shot – the blastoff of a rivalry with the USA and Russia in civil space exploration and military innovation – happened in a flash but reflects the long, methodical effort of a serious program. The Shenzhou V spacecraft, launched on October 15, 2003, circled Earth 14 times before safely parachuting onto the grasslands of Inner Mongolia. The Shenzhou's progress heightened already strong public enthusiasm for the 11-year-old manned program as a symbol of China's rising economic and technical prowess.

Case Questions

1 What are some of the sources of trade friction between China and the USA? Why do some scholars view this friction as a positive sign?
2 What is managed trade and how does it apply to China and the USA?
3 Discuss what steps the USA can take to reduce its trade deficit with China. Mention the deflation of economies, devaluation of the currency, and the establishment of public control.
4 Suppose that the value of the US dollar sharply depreciates. Under these conditions, how would the J-curve discussed in this chapter apply to the trade relationship between China and the USA?
5 Discuss in broad terms the major changes since World War II in the trade relations between China and the USA in terms of actual balance of payments and foreign direct investment.
6 The website of the US Central Intelligence Agency, www.cia.gov, and the website of the US Census Bureau, www.census.gov, both contain economic data and statistics on trade.

Use specific numbers from these two sites to support some of your claims in the answer to question 5.

Sources: Anonymous, "American Firms Rushing to Build in China," *USA Today*, Aug. 2002; anonymous, "Competing with China," *Business Mexico*, July 2002; T. Aeppel, "US–China Trade Becomes a Delicate Issue of Turf," *The Wall Street Journal*, July 23, 2003; F. M. Armbrecht, Jr, "WTO Entry, Government's Welcome Could Spur Foreign R&D in China," *Research Technology Management,* Sept./Oct. 2002; S. Brown and P. Caputo, "China's Growing Economic Influence in East Asia After WTO," *Southwest Economy*, Federal Reserve Bank of Dallas, May/June 2002, pp. 13–15; C. Y. Cheng, "The future prospects of US–China economic relations," *USA Today*, Sept. 2002; H. Cooper, "Trade Gap Sets Record for March – Oil's Rise is Cited; Debate Now Focuses on Status of China," *The Wall Street Journal*, May 22, 2000; and P. Wonacott and G. Winestock, "A Global Journal Report: China and US Make Progress on Trade Rifts," *The Wall Street Journal*, Sept. 26, 2002.

CHAPTER 4

The International Monetary System

Opening Case 4: The Euro – A Story of Change

On January 1, 2002, the euro (€) officially became the national currency for 300 million people in 12 countries – Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, and the Netherlands. This move constituted a major change in the region and has resulted in many fundamental changes. In this case, the broad changes will be discussed, and then some of the specifics of the process will be explored by focusing on Italy's transition from the lira to the euro.

The euro was first used by monetary authorities and businesses on January 1, 1999. On July 1, 2002, euro coins and notes officially replaced the national coins and notes of the 12 Euroland countries. In recent years, the euro has been associated with deeper capital markets and increasing demands by shareholders for better corporate governance. Steps have also been taken to pool economic data and to better coordinate banking oversight across national boundaries. And the euro has helped drive long overdue industry consolidations, from telecommunications to airlines. Overall, the euro has become the world's second-largest currency in terms of gross domestic product and has assisted in the recent trend of slow but sure market-opening liberalization in Europe.

The euro has also resulted in positive daily life benefits for European citizens. For example, when these citizens travel to other euro countries, they can more easily compare prices, and they will not have to stop at a foreign-exchange window and hand over a foreign-exchange commission. Consumers are already gaining from their new ability to compare prices in one currency. In 2001, the website of the French national railway system started quoting a single, euro-denominated price, instead of 12 different prices; the result was consumer savings of as much as 20 percent. In short,

economic life in Europe has become simpler, and this is generally good for both consumers and businesses.

To help further examine the impact of the currency change, the history of the euro in one nation, Italy, will be discussed. Like most of its European Union (EU) partners, Italy opted to phase in the euro gradually over 2 months. The lira, which traces its origins back to AD 794 and Charlemagne's libra, ran alongside the new currency from January 2002 until the end of February 2002, before it was officially decommissioned on March 1, 2002 (although it is still possible to exchange lira for euros at the Bank of Italy for another 10 years).

This transition period was not easy for Italy. According to the retailers' association Confcommercio, only 37 percent of Italians were aware that checks must be written in euros as of January 1, 2002, while about 80 percent believed that the lira would continue to circulate after February 28, 2002. Furthermore, a survey conducted in July 2001 by a public think tank showed that 30 percent of Italians were still not sure what the euro was, about 43 percent were unaware of the timetable for the changeover, and only 21 percent knew how much a euro would actually be worth (1,936.27 lira).

Beyond these public knowledge problems, the transition was not free. It is estimated that the total changeover cost approximately 5 trillion lira ($2.3 billion). Much of this expense fell on the business sector, which carried the overall costs of training and upgrading equipment, estimated at $934 million. Confcommercio figured that big retailers spent some 0.3 percent of yearly sales preparing for the euro, while small shopkeepers ended up investing as much as 2 percent of their revenues.

To combat these problems, the Italian government took some preventive steps. First, shops and supermarkets were required to offer euro–lira calculators at checkout points, and special toll-free numbers were created to help customers to report irregularities. Second, little yellow and blue euro converters were sent to every Italian home. In the end though, after the anxieties of the first few days of the changeover had passed, Italians decided that the gadget really was not very useful and became comfortable with the new currency.

There were also some practical changes that came with the new currency. The single euro is a coin and the bills are larger than the lira bills. Therefore, the biggest Christmas present in Italy in 2001 was a euro-sized wallet. Also, vending machines, which are ubiquitous in Italy, had to be refitted for the euro. This often resulted in pricing changes. In one humorous example, access to the only public toilet in Voghera, a small town in northern Italy, now costs almost twice as much as it did before the changeover. "It is all a question of coins," the local administrators replied. "It is too complicated to modify the token dispenser."

This example also illustrates the single biggest problem Italy has had with the transition – inflation. Before the euro was implemented, prices for goods could vary by as much as 50 percent between nations. The transition therefore resulted in price fluctuations to correct these differences; and it was southern countries such as Italy in particular, which are poorer than their northern neighbors, that felt the impact of these fluctuations. Additionally, there was suspicion in Italy, as in other countries, that prices were raised due to opportunistic rounding during the changeover. With an

official exchange rate fixed at 1,936.27 lira per euro, opportunistic round-number readjustments were inevitable.

Therefore, the changeover to the euro resulted in inflation, especially for the small things that people buy every day – food, coffee, and haircuts. Higher-priced items, such as cars and computers, have held steady or even in some cases declined in price due to increased competition across the European Union. As the economist Katinka Barish of the Centre for European Reform noted, "You might have competition on a Euro-wide basis for cars, but you cannot do that on things like kebabs." For example, prices in cafés and restaurants rose 4.3 percent in 2002 – nearly double the general inflation rate. Importantly, this is the inflation that people notice most, resulting in a large difference between perceived inflation and actual inflation.

Italian consumers have been particularly indignant about price increases and some groups have led strikes in which consumers vowed to stop buying things for a day. One consumer, Jose Elorrieta, a Milan engineer and university professor with two young daughters, says that the price of the high-end cured ham his family buys for Christmas nearly doubled in 2002, to 60 euros a kilogram, or about $28 a pound, compared with 36 euros a kilogram, or $16.80 a pound, at the end of 2001. "It is the same story with clothes, with shoes – everything has gone up brutally, and it is almost exclusively due to the introduction of the euro," complains Mr Elorrieta, who says he has cut back on holiday spending as a result.

The government has taken steps to combat inflation. The prime minister's mother complained that pasta prices had trebled since the euro's launch and, in response, he took action. To combat Italy's fast-rising prices, he called for a 3-month freeze on electric, gas, and postal prices. Even with these initial hiccups, however, the introduction of the euro should be positive for both Italy and the continent. The move to a standardized system, cooperation, and more accountability should result in economic growth for the region. As the examination of Italy's process shows, the change has not been completely smooth, but overall it has been positive.

Sources: Anonymous, "Happy New Euro," *The Wall Street Journal*, Dec., 2001; J. Casison, "Currency Conversion: The Euro Becomes a Reality," *Incentive*, Jan. 2002; N. D'Aquino, "Rome: Berlusconi Gets Popular Points for Euro Converter," *Europe*, Apr. 2002; A. Galloni, "Euro's First Noel Hits Sour Notes With Shoppers," *The Wall Street Journal*, Dec., 2002; S. Jewkes, "Arrivederci Lira," *Europe*, Dec./Jan. 2002; G. Winestock and G. T. Sims, "What the Euro Has Been Up To for the Past Three Years – Tuesday is Debut of Cash, but Common Currency Already Has Made a Mark," *The Wall Street Journal*, Dec., 2001; and T. Vlahou and C. Power, "Europe's Gouging Gap; Created to Unite the Continent, the Euro has Inspired Fury over Price Rises, Particularly in the Poorer South," *Newsweek*, Oct. 2002.

The **international monetary system** consists of laws, rules, institutions, instruments, and procedures, which involve international transfers of money. These elements affect foreign-exchange rates, international trade and capital flows, and balance-of-payments adjustments. Foreign-exchange rates determine prices of goods and services across national boundaries. These exchange rates also affect international loans and foreign investment. Hence the international monetary

system plays a critical role in the financial management of multinational business and economic policies of individual countries.

This chapter has five major sections. The first section provides an overview of a successful foreign-exchange system. The second section presents a history of the international monetary system, from the gold standard of the late nineteenth century to the hybrid exchange system that prevails today. The third section describes the International Monetary Fund and special drawing rights. The fourth section discusses the European Monetary System. The fifth section examines proposals for further international monetary reform.

4.1 A Successful Foreign-Exchange System

A multinational company's access to international capital markets and its freedom to move funds across national boundaries are subject to a variety of national constraints. These constraints are frequently imposed to meet international monetary agreements on determining exchange rates. Constraints may also be imposed to correct the balance-of-payments deficit or to promote national economic goals.

A successful exchange system is necessary to stabilize the international payment system. To be successful, an exchange system should meet three conditions:

1 Balance-of-payments deficits or surpluses by individual countries should not be too large or prolonged.
2 Such deficits or surpluses should be corrected in ways that do not cause unacceptable inflation or physical restrictions on trade and payments for either individual countries or the whole world.
3 The maximum sustainable expansion of trade and other international economic activities should be facilitated.

Theoretically, continuous balance-of-payments deficits and surpluses cannot exist around the world. Under a system of freely flexible exchange rates, a foreign-exchange market clears itself in the same way a competitive market for goods does. Just like every commodity price, each exchange rate moves to a level at which demand and supply are equal. Under a system of fixed exchange rates, central banks or other designated agencies buy and sell on the open market to absorb surpluses and to eliminate deficiencies of foreign currencies at the fixed exchange rates.

4.1.1 Currency values and terminology

A **foreign-exchange rate** is the price of one currency expressed in terms of another currency. A **fixed exchange rate** is an exchange rate that does not fluctuate or that changes within a predetermined band. The rate at which the currency is fixed or pegged is called the "**par value**." A floating or **flexible exchange rate** is an exchange rate that fluctuates according to market forces.

Although governments do not attempt to prevent fundamental changes in the exchange rate between their own currency and other currency, they typically attempt to maintain orderly trading conditions in the market. A flexible exchange system has a number of advantages:

1 Countries can maintain independent monetary and fiscal policies.
2 Flexible exchange rates permit a smooth adjustment to external shocks.
3 Central banks do not need to maintain large international reserves to defend a fixed exchange rate.

However, a flexible exchange system has several disadvantages. First, exchange rates under a pure version of this system are highly unstable, thereby discouraging the flow of world trade and investment. Second, flexible exchange rates are inherently inflationary, because they remove the external discipline on government economic policy.

A system of fixed exchange rates provides the stability of exchange rates, but it has some disadvantages:

1 The stability of exchange rates may be too rigid to take care of major upheavals such as wars, revolutions, and widespread disasters.
2 Central banks need to maintain large international reserves to defend a fixed exchange rate.
3 Fixed exchange rates may result in destabilizing speculation that causes the exchange rate to "overshoot" its natural equilibrium level. Overshoot (beyond fair value) is natural after devaluation. For example, all three developing-country financial crises since 1980 – the Latin American crisis of the 1980s, the Mexican peso crisis of 1994, and the Asian crisis of 1997–8 – occurred under fixed exchange rate regimes.

Four concepts – appreciation, depreciation, revaluation (upvaluation), and devaluation – are all related to changing the value of a currency. An **appreciation** is a rise in the value of a currency against other currencies under a floating-rate system. A **depreciation** is a decrease in the value of a currency against other currencies under a floating-rate system. Under a system of floating rates, a country's exchange rate will appreciate if it raises interest rates to attract capital. Similarly, its exchange rate will "depreciate" if it reduces interest rates.

A **revaluation** is an official increase in the value of a currency by the government of that currency under a fixed-rate system. A **devaluation** is an official reduction in the par value of a currency by the government of that currency under a fixed-rate system. Under a system of fixed rates, a country may "devalue" its exchange rate by setting a lower intervention price at which it will intervene in the foreign-exchange market. It may "revalue" or "upvalue" its exchange rate by setting a higher intervention price.

4.1.2 Currency boards

A **currency board** is a monetary institution that only issues currency to the extent that it is fully backed by foreign reserves. In other words, a currency board is an extreme form of the fixed exchange rate regime under which local currency is fully backed by the US dollar or any other chosen currency. Its major attributes include:

1 An exchange rate that is fixed not just by policy, but by law.
2 A reserve requirement to the extent that a country's reserves are equal to 100 percent of its notes and coins in circulation.
3 A self-correcting balance-of-payments mechanism, where a payments deficit automatically contracts the money supply and thus the amount of spending as well.
4 No central bank under a currency board system.

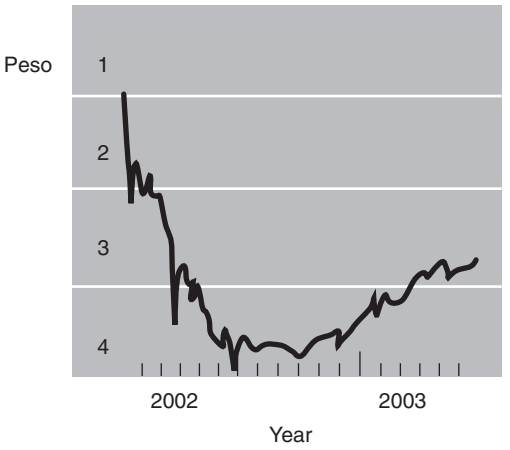

Figure 4.1 Argentine pesos per US dollar (inverted scale)
Source: *The Wall Street Journal*, July 2, 2003, p. A6.

Thus, in addition to promoting price stability, a currency board also compels the government to follow a responsible fiscal policy.

The first currency board was established in Mauritius, which was then a colony of Great Britain, in 1849. The use of currency boards eventually spread to 70 British colonies. The introduction of currency board like arrangements in Hong Kong (1983), Estonia (1990), Argentina (1991), Lithuania (1994), Bulgaria (1997), and Bosnia (1998) constitutes a small resurgence in their use worldwide.

Characteristics of countries that are candidates for currency boards include: a small, open economy; a desire for further close integration with a particular neighbor or trading partner; a strong need to import momentary stability; and a well-regulated financial system. During the Asian financial crisis of 1997–8, advocates of currency boards had pushed for their wider use – in particular, for Indonesia, Russia, and the Ukraine. A currency board, however, is unlikely to be successful without the solid fundamentals of adequate reserves, fiscal discipline, and a well-supervised financial system, in addition to the rule of law.

A recent episode with the Argentine peso shows that even a currency board arrangement cannot be completely safe from a possible collapse. The currency board structure fixed the peso–dollar exchange rate at parity through much of the 1990s by requiring that every peso in circulation be backed by either gold or the US dollar. Argentina's adoption of a currency board system in 1991 curtailed its chronic inflation dramatically and attracted a substantial amount of foreign investment for the first few years. However, a strong dollar eventually hurt exports from Argentina and caused a protracted economic downturn. Argentina abandoned the peso–dollar parity in January 2002 by first devaluing the peso to Ps1.40 per dollar and then floating it completely. As shown in figure 4.1, daily peso changes have become a way of life since then.

Perhaps the most prominent form of a rigidly fixed system is dollarization, the use of the US dollar as the official currency of the country. Several countries have adopted the US dollar as their official currency because they have suffered currency devaluation for many years. Panama has used the dollar as its official currency since 1907. Ecuador adopted the dollar as its official

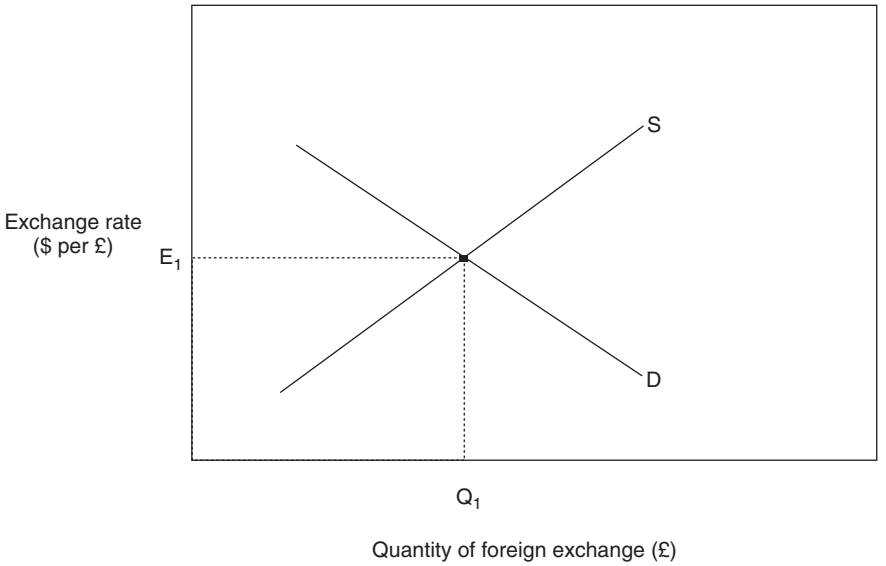

Figure 4.2 Market determination of exchange rates

currency in January 2000. In January 2001, El Salvador became the third country south of the Rio Grande to abandon its domestic currency in favor of the dollar. A country that dollarizes removes any currency volatility, thereby eliminating the possibility of future currency crises. One major argument against dollarization has to do with the loss of sovereignty over monetary policy.

4.1.3 Market equilibrium

Demand for foreign exchange comes from debit items in the balance of payments, such as imports and capital outflows. As the foreign-exchange rate falls, the corresponding quantity of the foreign exchange demanded rises. Alternatively, as the exchange rate increases, the corresponding quantity demanded falls. In short, there is an inverse relationship between the exchange rate and the quantity demanded. This inverse relationship explains why the demand curve for foreign exchange is downward sloping.

The supply of foreign exchange comes from credit items in the balance of payments, such as exports and capital inflows. As the foreign-exchange rate falls, the corresponding quantity of foreign exchange supplied also falls. As the exchange rate increases, the corresponding quantity supplied also increases. This direct relationship between exchange rate and quantity supplied explains why the supply curve for foreign exchange is upward sloping.

Figure 4.2 shows the downward-sloping demand curve D and the upward-sloping supply curve S. The intersection of these two curves indicates the equilibrium exchange rate (E_1) and quantity (Q_1). If the actual exchange rate is below the equilibrium point E_1, the rate will eventually rise because demand exceeds supply. If the actual exchange rate is above point E_1, the rate will eventually fall because supply exceeds demand.

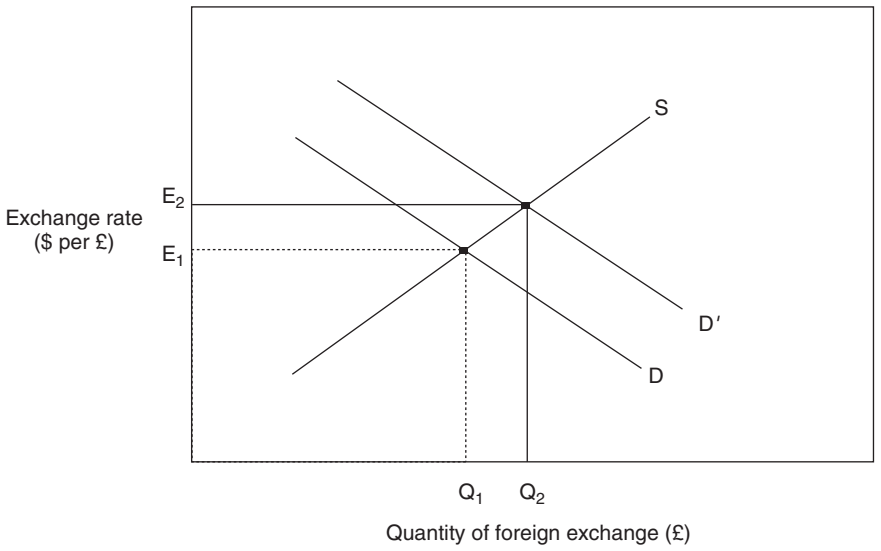

Figure 4.3 How an increase in demand for pounds affects the equilibrium

Demand and supply for foreign exchange could change over time. These changes cause demand and supply schedules to shift upward or downward. Factors that cause demand and supply schedules to shift include relative inflation rates, relative interest rates, relative income levels, and government intervention. Determinants of currency demand and supply are discussed with the aid of a two-country model consisting of the United States and the United Kingdom. Because the UK has not adopted the euro as its currency, it continues to use the pound as its currency. Here, we assume that the US dollar is the domestic currency and that the British pound is the foreign exchange.

SHIFT OF THE DEMAND CURVE An upward shift of the pound demand schedule could be caused by a higher inflation rate in the USA, lower interest rates in the USA, an increase in the US income level, and/or the US government purchase of the pound. Figure 4.3 shows that these factors cause a shift in the demand curve for pounds to the right (from D to D′). If the demand curve shifts from D to D′, the equilibrium exchange rate rises to E_2. Remember that domestic residents, such as Americans, who want British goods, services, and financial assets, create demand for pounds. These factors raise the US demand for pounds in the following ways:

1 If the USA has a higher inflation rate than the UK, then the US demand for cheaper British goods rises and thus causes the US demand for pounds to rise.
2 If the USA has lower interest rates than the UK, then the US demand for pounds increases because capital funds would move from the USA to the UK to capture higher interest.
3 If US income increases faster than British income, the US demand for British goods rises and thus the US demand for pounds also increases.
4 If the US government buys pounds to increase dollars in the currency market, then the US demand for pounds increases.

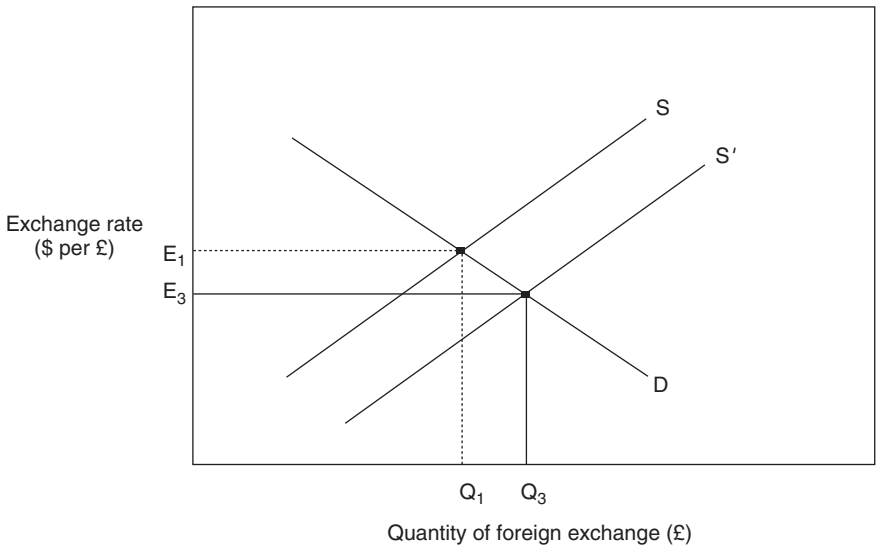

Figure 4.4 How an increase in supply of pounds affects the equilibrium

You now know why these four events could increase the US demand for pounds. Because the quantity of pounds demanded at any exchange rate is higher, the demand curve shifts to the right. That is why the equilibrium exchange rate appreciates (or rises) from E_1 to E_2.

SHIFT OF THE SUPPLY CURVE A downward shift of the pound supply schedule could be caused by a higher inflation rate in the UK, lower interest rates in the UK, an increase in the UK income level, and/or the UK government purchase of the dollar. Figure 4.4 shows that these factors cause a shift in the supply curve for pounds to the right (from S to S′). If the supply curve shifts from S to S′, the equilibrium exchange rate falls from E_1 to E_3. Remember that non-US residents, such as British people, who want American goods, services, and financial assets, determine the supply of pounds. These factors raise the supply of pounds in the following ways:

1 If the UK has a higher inflation rate than the USA, then the supply of pounds rises because British people will convert pounds to dollars to buy more US goods.
2 If the UK has lower interest rates than the USA, then capital funds will move from the UK to the USA and thus the supply of pounds rises.
3 If UK income rises faster than US income, then the supply of pounds increases because British people will buy more US goods.
4 If the UK government buys dollars to release more pounds in the currency market, then the supply of pounds increases.

You should now understand why these four events could increase the supply of pounds. Because the quantity of pounds supplied at any exchange rate is higher, the supply curve shifts to the right. This is why the equilibrium exchange rate depreciates (falls) from E_1 to E_3.

4.1.4 Prevailing exchange rate arrangements

As part of a move to greater flexibility since 1976, the International Monetary Fund (IMF) has allowed member countries to have an exchange rate arrangement of their choice, as long as they properly communicate their arrangement to the IMF. Each year, the IMF receives information from its member countries and classifies each country into one of eight categories. Each of these regimes is explained below. The numbers in parentheses indicate the number of countries that employed each exchange rate arrangement as of January 31, 2003:

- *Exchange arrangements with no separate legal tender* (40). The currency of another country circulates as the sole legal tender, or the member belongs to a monetary or currency union in which the members of the union share the same legal tender.
- *Currency board arrangements* (8). A monetary regime based on an implicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate, combined with restrictions on the issuing authority to ensure the fulfillment of its legal obligation.
- *Other conventional fixed-peg arrangements* (40). The country pegs its currency (formally or *de facto*) at a fixed rate to a major currency or a basket of currencies, where the exchange rates fluctuate within a narrow margin of at most ±1 percent around a central rate.
- *Pegged exchange rates within horizontal bands* (5). The value of the currency is maintained within margins of fluctuations around a formal or *de facto* fixed peg that are wider than ±1 percent around a central rate.
- *Crawling pegs* (4). The currency is adjusted periodically in small amounts at a fixed, pre-announced rate or in response to changes in selective quantitative indicators.
- *Exchange rates within crawling bands* (6). The currency is maintained within certain fluctuation margins around a central rate that is adjusted periodically at a fixed pre-announced rate, or in response to changes in selective quantitative indicators.
- *Managed floating with no pre-announced path for the exchange rate* (42). The monetary authority influences the movements of the exchange rate through active intervention in the foreign-exchange markets, without specifying or pre-committing to a pre-announced path for the exchange rate.
- *Independent floating* (41). The exchange rate is market determined, with any foreign-exchange intervention aimed at moderating the rate of change and preventing undue fluctuations in the exchange rate, rather than at establishing a level for it.

4.2 A Brief History of the International Monetary System

4.2.1 The pre-1914 gold standard: a fixed exchange system

In the pre-1914 era, most of the major trading nations accepted and participated in an international monetary system called the gold standard. Under the **gold standard**, countries used gold as a medium of exchange and a store of value. The gold standard had a stable exchange rate. During this period before World War I, a nation's monetary unit was defined as a certain weight of gold.

The gold standard as an international monetary system worked adequately before World War I because of London's dominance in international finance. The keystone of the system was confidence in the stability of the British financial system. London was the financial center for almost 90 percent of world trade, which was organized around sterling as the sole reserve currency. Commercial transactions such as factoring receivables and discounting bills from all corners of the world took place in London. Sterling was convenient because it was universally used and convertible into gold at the Bank of England. Trade and loans were denominated in sterling rather than gold.

The Bank of England backed sterling with an unbelievably small amount of gold reserve, estimated at 2 or 3 percent of the total money supply. The Bank of England maintained this small gold reserve because it manipulated the bank rate to safeguard the gold stock. The bank rate was the rate at which the Bank of England rediscounted commercial paper. Gold outflows increased the bank rate, thus attracting short-term deposits into London. Gold inflows were met by decreases in the bank rate. Such manipulations produced unmatched stability in the capital markets.

4.2.2 Monetary disorder: 1914–45: a flexible exchange system

The gold standard, as an international monetary system, worked well until World War I interrupted trade patterns and ended the stability of exchange rates for currencies of major industrial countries. The value of currencies fluctuated fairly widely in terms of gold during World War I and in the early 1920s. After World War I, the UK was not the world's only major creditor nation; the USA started to emerge as a leading creditor too.

Several attempts were made to restore the gold standard during the 1920s. The USA returned to the gold standard in 1919, the UK in 1925, and France in 1928. However, these attempts failed, mainly because of the Great Depression of 1929–32 and the international financial crisis of 1931. In other words, country after country devalued its currency to stimulate its exports. Governments also resorted to exchange controls in an attempt to manipulate their net exports. Of course, with the onslaught of World War II, hostile countries used foreign-exchange controls to finance their war effort.

4.2.3 Fixed exchange rates: 1945–73

The international monetary disorder of the 1930s justified the relative rigidity of the postwar par value system designed at Bretton Woods in 1944. The **Bretton Woods Agreement** was signed by representatives of 44 countries at Bretton Woods, New Hampshire, in 1944, to establish a system of fixed exchange rates. Under this system, each currency was fixed by government action within a narrow range of values relative to gold or some currency of reference. The US dollar was used most frequently as a reference currency to establish the relative prices of all other currencies.

At the end of World War II, the leading nations of the free world recognized that the reconstruction of the world economy would depend on establishing a workable international monetary system. At the international conference held at Bretton Woods, they agreed to establish a new monetary order, which centered on the IMF and the International Bank for Reconstruction

and Development (the World Bank). The IMF provides short-term balance-of-payments adjustment loans, while the World Bank makes long-term development and reconstruction loans. The basic purpose of this new monetary system was to facilitate the expansion of world trade and to use the US dollar as a standard of value.

The Bretton Woods Agreement emphasized the stability of exchange rates by adopting the concept of fixed but adjustable rates. The keystones of the system were that no provision was made for the USA to change the value of gold at $35 per ounce and that each country was obligated to define its monetary unit in terms of gold or dollars. While other currencies were not required to exchange their currencies for gold, US dollars remained convertible into gold at $35 per ounce. Thus, each country established par rates of exchange between its currency and the currencies of all other countries. Each currency was permitted to fluctuate within ±1 percent of par value by buying or selling foreign exchange and gold as needed. However, if a country's currency became too weak to maintain par value, it could devalue its currency up to 10 percent without formal approval by the IMF.

4.2.4 *The breakdown of the Bretton Woods system*

Depreciation and appreciation occurred rarely before 1971, thanks to the fixed exchange rate system administered by the IMF. The key elements of the Bretton Woods system were the stable value of the US dollar in terms of gold and its convertibility into gold at least for foreign central banks. The late 1940s marked the beginning of large deficits in the US balance of payments. By 1971, the US payments deficit exploded. America's chronic payments deficits turned into a spectacular dilution of US gold and other reserves during the 1960s and early 1970s. Hence many people were not surprised to observe that the dollar had to be devalued in 1971 and again in 1973. Moreover, on August 15, 1971, President Nixon, in a famous speech designed to deal with US inflation and international monetary problems, stated that the USA had decided to:

1 Suspend the conversion of dollars into gold.
2 Permit the dollar to float in relation to other currencies.
3 Impose a 10 percent surcharge on most imports.
4 Impose direct controls on wages and prices.

All of these actions were taken without prior consultation with the IMF.

THE SMITHSONIAN AGREEMENT From August to December 1971, most major currencies were permitted to fluctuate. US dollars fell in value against a number of major currencies. Several countries caused major concern by imposing some trade and exchange controls. It was feared that such protective measures might become sufficiently widespread to curtail international commerce. In order to solve these problems, the world's leading trading countries, called the "Group of Ten," produced the Smithsonian Agreement on December 18, 1971. This "Group of Ten" consisted of the USA, Belgium, England, France, West Germany, Italy, Japan, the Netherlands, Sweden, and Switzerland.

The USA agreed to devalue the dollar from $35 per ounce of gold to $38 (an 8.57 percent devaluation). In return, the other countries agreed to revalue their currencies against the dollar. Actual revaluations ranged from 7.4 percent by Canada to 16.9 percent by Japan. Finally, these

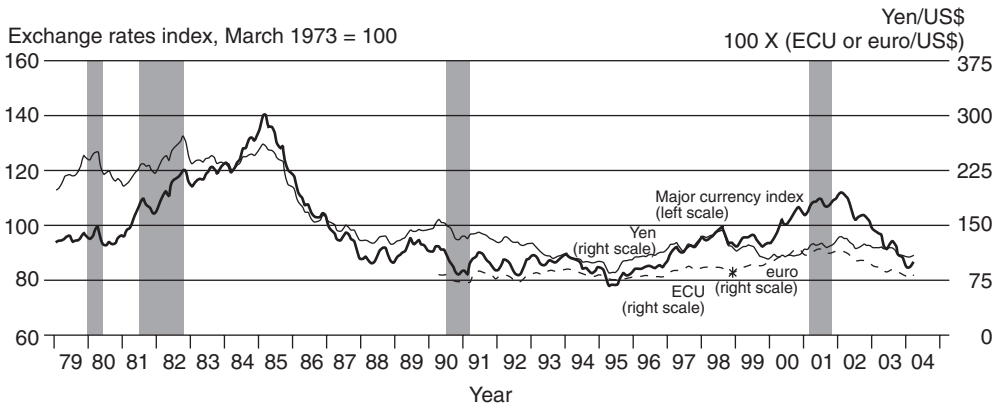

Figure 4.5 The US dollar under floating exchange rates

Source: *National Economic Trends*, Federal Reserve Bank of St. Louis, May 2004, p. 18.

10 countries agreed to expand the trading band from 1 percent to 2.25 percent in either direction.

The Smithsonian Agreement was a historical event in international monetary affairs, but it failed to reduce speculation. Government controls on foreign exchange, likewise, did not decrease. For all practical purposes, the Agreement came to an end in March 1973, because most "Group of Ten" countries allowed their currencies to float according to market forces. Thus, the system of pegged but adjustable rates, based on the 1944 Bretton Woods Agreement, collapsed.

4.2.5 The post-1973 dirty floating system

Figure 4.5 shows the nominal exchange rate index of the US dollar from 1978 to 2004, along with two other exchange rates: the dollar–euro rate and the dollar–yen rate. This index is an indicator how the external value of the US dollar has moved relative to other industrial-country currencies.

As shown in figure 4.5, daily exchange rate changes have become a way of life since 1973, when the Bretton Woods Agreement collapsed. Moreover, since then, exchange rates have become much more volatile and less predictable due to a number of unexpected events affecting international monetary order. The most important events include the oil crisis of late 1973, loss of confidence in the US dollar between 1977 and 1978, the second oil crisis in 1978, the formation of the European Monetary System in 1979, diversification of monetary reserves by central banks after 1979, the surprising strength of the US dollar between 1981 and 1985, the sinking US dollar between February 1985 and 1988, the surprising strength of the US dollar between January and June 1989, the end of the Marxist revolution in 1990, the dissolution of the Soviet Union in December 1991, European currency crises in September 1992 and in July 1993, the creation of a single European market in 1993, a 40 percent depreciation of the Mexican peso between December 1994 and January 1995, the Asian financial crisis in 1997–8, other emerg-

ing market currency crises (such as Russia in 1998, Brazil in 1999, Turkey in 2001, and Argentina and Venezuela in 2002), and the replacement of eurozone currencies with the euro in 2002.

From the end of World War II to 1973, international business and multinational corporations operated under a fixed exchange system. Since 1973, most industrial and many developing countries have permitted their currencies to float, with frequent government intervention in the exchange market. This monetary system is known by various terms, such as free float, managed float, dirty float, partial float, and others on a primarily market-determined exchange rate. Governments have frequently intervened to maintain orderly markets and to keep their average exchange rate at a level desirable for their economic policy.

4.2.6 *The Jamaica Agreement of January 1976*

Because the Bretton Woods Agreement was based on the system of fixed exchange rates, the IMF had to change its Articles of Agreement in order to permit floating exchange rates. The Jamaica Agreement of 1976 formalized the existing system of floating exchange rates. Important IMF member countries held a series of negotiations during 1973–6, which led to an agreement to change some aspects of the Bretton Woods system. The Board of Governors of the IMF approved these changes in April 1976, and they came into effect 2 years later. This amendment legalized the existing system of floating exchange rates and permitted each member to peg or to float the value of its currency. The amendment also terminated the par value system based on gold. Thus, the fixed exchange system based on the Bretton Woods Agreement officially ended in 1976, although, practically speaking, it had died in 1973.

4.2.7 *The Plaza Agreement and the Louvre Accord*

As shown in figure 4.5, the dollar's spectacular rise in the period 1980–5 and its equally spectacular fall in the period 1985–8 deserve some discussion. The US dollar peaked in March 1985 and then began a long downhill slide. The slide is largely attributable to the Plaza Agreement of September 1985. In late September 1985, leaders of the Group of Five (the USA, France, Japan, the UK, and West Germany) met at the Plaza Hotel in New York and reached the so-called "Plaza Agreement." They announced that it would be desirable for major currencies to appreciate against the US dollar and they pledged to intervene in exchange markets to achieve this objective.

This coordinated program to bring down the value of the US dollar worked too well. In February 1987, major industrial countries reconvened at the Louvre, in Paris, and reached a new agreement known as the "Louvre Accord." They agreed that exchange rates had been realigned sufficiently and pledged to support stability of exchange rates around their current levels. The Plaza Agreement and the Louvre Accord ended the dollar's dramatic rise and fall during the period from 1980 to 1987.

4.2.8 *The September 1992 currency crisis in Europe*

The Maastricht Treaty, named after the provincial Dutch town that hosted the EEC summit in mid-December 1991, signaled to many a no-turning-back on the road to European unity.

However, Europe's plans for economic union experienced a setback in September 1992, because turbulent trading amid the chaos surrounding an apparent breakdown of the European Monetary System (EMS) racked world currency markets. Although the roots of the currency crisis lay in Germany's high interest rates, the UK took center stage. The crisis began when Norman Lamont, Chancellor of the Exchequer, announced on September 16 that the UK would withdraw from the EMS.

Pressures leading to this turmoil had built up for several months since the Danes, in a referendum in May 1992, narrowly opposed ratification of the Maastricht Treaty. Europe's once-solid monetary system was suddenly plunged into turmoil. On September 17, 1992, the UK and Italy both suspended their currencies from the EMS, after the values of the pound and the lira fell below the floor set by that system. The UK, Italy, and Spain then devalued their currencies. Ireland, Spain, and Portugal reimposed limited controls on capital flows. European currency fluctuations against the US dollar from September 11 to September 18 ranged from as little as 4 percent for the Belgian franc to as much as 12 percent for the Italian lira. Sweden, not an EMS member, increased its key lending rate to 500 percent to defend the informal link between its krona and the mark.

Currency traders and analysts estimate that Europe's major central banks lost $6 billion in their futile attempts to support weak currencies in September 1992. British, French, German, Italian, and Spanish central banks together spent approximately $150 billion to assist the pound, franc, lira, peseta, and krona. Even with an affirmative French vote on the Maastricht Treaty in the referendum of September 20, many analysts doubted whether the movement toward monetary, economic, and political union would continue.

THE CAUSES OF THE CRISIS At the center of this turmoil in currency markets was Germany's Bundesbank. To control inflation caused by Germany's own reunification, the German central bank raised interest rates. Germany's problems can be dated to mid-1990, when West Germany handed East Germans one powerful Western mark for each Eastern mark. This action was followed by commitments from Bonn to invest heavily in the rehabilitation of East Germany and to finance the withdrawal of Russian troops from Germany.

These events resulted in an inflation rate of almost 4 percent – high by German standards. The German Bundesbank sought to control the inflation with a single instrument: short-term interest rates pegged between 8 and 9 percent. In other words, Germany's tight money policy posed enormous problems for Europe's weaker economies, none of which would have imposed their high interest rates had their currencies not been tied to the mark by the exchange rate system. The governments of countries such as the UK, Italy, and Spain then faced a difficult choice: either raise interest rates or spend the huge sums of money required to boost their currencies to the agreed-upon levels. In fact, these countries had used both approaches for some time, but they were too little and too late to save the EMS.

4.2.9 The July 1993 currency crisis in Europe

On July 1, 1993, wave after wave of currency selling by investors forced European governments to all but abandon their system of managing exchange rates. The economics ministers of the EU rushed off to the EU headquarters in Brussels that weekend, scrambling to save the EMS. This crisis had been triggered by the German central bank's decision not to lower its discount rate. The ministers debated all manner of possible solutions, including devaluing most of the curren-

cies, or even removing the mark from the EMS. By July 4 (Monday), they finally agreed to drastically widen the bands within which member currencies could fluctuate against other member currencies, to 15 percent of a central value, from ±2.25 percent, in most cases. The net effect of their decision was essentially a free float that meant that European central banks were no longer forced to prop up their currencies every time speculators pushed a currency to the limits of the narrower fluctuation band.

Pundits assumed that governments would abandon their commitment to a stable monetary policy and their dedication to the anti-inflation fight. However, the wider band had worked pretty well. The unsettling results on European currencies from the July actions uncovered fundamental weaknesses in the plan for a united Europe, but they also increased the chances of stability and growth. The July currency crisis has actually imposed a discipline on governments and central banks. Most EU countries have made progress on reducing their total debt as a percentage of GDP. Despite more generous central-bank credit policies, consumer prices have increased at a moderate rate across the continent. At the same time, the central banks have lowered key interest rates to help lift their economies out of recession. These salutary effects have occurred because most European countries had high interest rates and low inflation. Since then, there have been multiple expansions in European markets due to interest rate reductions and expectations of improved earnings. This chaos actually improved the possibility of the formation of the EU's monetary union on January 1, 1999.

4.2.10 The Mexican peso crisis of December 1994

In December 1994, Mexico faced a balance-of-payments crisis. Investors lost confidence in Mexico's ability to maintain the exchange rate of the peso within its trading band. Intense pressure on the peso in foreign-exchange markets threatened to exhaust Mexico's international reserves.

On December 20, the Mexican government announced its decision to devalue the peso against the dollar by 14 percent. This decision, however, touched off a panic situation to sell pesos. As a result, on December 22, the peso fell against the dollar by as much as 40 percent, compelling the Mexican government to float the peso. A rash of speculative attacks against other Latin American currencies – Argentina (peso), Brazil (real), Peru (new sol), and Venezuela (bolivar) – broke out immediately through what became known as the "tequila" effect. Several countries that are not part of Latin America – Thailand, Hong Kong, the Philippines, and Hungary – also suffered brief speculative attacks. However, only few countries actually devalued their currencies. Argentina was the only other country that suffered a sharp recession as a result of the Mexican peso crisis.

On January 31, 1995, the IMF and the US government put together a $50 billion package to bail out Mexico. We discuss this peso crisis in detail through two mini-cases: one at the end of this chapter and another at the end of chapter 9.

4.2.11 The Asian financial crisis of 1997–8

For three decades, East Asian countries were held up as economic icons. Their typical blend of high savings and investment rates, autocratic political systems, export-oriented businesses, restricted domestic markets, government capital allocation, and controlled financial systems were

hailed as ideal ingredients for strong economic growth for developing countries. Well, such a government-directed economic strategy turned out to be outdated in the late 1990s, as global economic integration began to advance amid intensified international competition. As a result, in July 1997, currency turmoil erupted in Thailand, spreading to other Asian countries, then to Russia, and ultimately to Latin America. In fact, this crisis, the worst since the 1980s debt crisis, had pushed one third of the globe into recession during 1998.

During the second half of 1997, currencies and stock markets plunged across East Asia, while hundreds of banks, builders, and manufacturers went bankrupt. In the fourth quarter of 1997, the IMF arranged emergency rescue packages of $18 billion for Thailand, $43 billion for Indonesia, and $58 billion for Korea. By the end of 1998, the Asian crisis of 1997 had spread to Russia, Brazil, and many other countries. Again, the IMF arranged bailout packages of $23 billion for Russia in July 1998 and $42 for Brazil in November 1998. This means that from late 1997 to late 1998, IMF-led rescue packages for Asia, Russia, and Brazil racked up some $184 billion to keep world markets safe. We will discuss this crisis in detail in chapter 11. Table 4.1 shows major currency events from 1914 to 2002.

4.3 The International Monetary Fund

The **International Monetary Fund (IMF)** was created at the Bretton Woods conference as a weak kind of central banks' central bank, to make the new monetary system feasible and workable. Its major purpose was to assist members that would have structural trade problems or currencies that were highly unstable in value. The IMF permitted its deficit members to buy with their local currencies some of its own holdings of convertible currencies. These deficit countries were expected to buy back, with gold or other convertible currencies, the local currencies they had sold to the IMF after they had improved their balance of payments. Thus, the IMF's major weapon is the power to declare its members ineligible to utilize its holdings of international reserves.

The IMF was created in 1944 by 30 countries, but today it consists of some 180 member countries. Article I of the IMF Articles of Agreement clearly set forth its objectives as follows:

1 To promote international monetary cooperation.
2 To facilitate the balanced growth of international trade.
3 To promote exchange stability.
4 To eliminate exchange restrictions.
5 To create standby reserves.

The IMF established rules and procedures to keep participating countries from going too deeply into balance-of-payments deficits. Those countries with short-term payments difficulties could draw upon their reserves. The amount of such reserves is defined in relation to each member's quota. This quota is determined on the basis of such factors as trade, national income, and international payments. Each member is required to contribute 75 percent of its quota in its own currency and 25 percent in special drawing rights or convertible currencies.

These quotas for IMF members are reviewed at least every 5 years, to determine whether quotas should be increased to accommodate the growth of the world economy. Germany and Japan share second place in terms of quota size after the USA, followed by France and the UK,

Table 4.1 The history of the international monetary system

1914	The breakdown of the gold standard; monetary disorder began
1934	The US dollar pegged at $35 per ounce of gold
1944	The conference at Bretton Woods, New Hampshire, established a fixed exchange system based on the US dollar; the IMF and the World Bank created
1958	The European Economic Community established
1963	The USA levied "Interest Equalization Tax" on foreign borrowings in US capital markets
1963	The USA imposed voluntary controls on capital outflows from US banks and companies
1968	The USA imposed mandatory controls on foreign investment by US companies
1970	Special drawing rights created
1971	On August 15, the US dollar floated; the convertibility of the US dollar eliminated; an import surcharge imposed
	On December 17, the Smithsonian Agreement reached; the US dollar devalued from $35 per ounce of gold to $38
1972	A snake (2.25%) within a tunnel (4.5%) established
1973	The US dollar devalued from $38 to $42.22 in March
1973	The Organization for Petroleum Exporting Countries (OPEC) imposed an oil embargo, eventually quadrupling world prices of oil
1976	An IMF meeting in Jamaica, known as the "Jamaica Agreement," legalized the existing floating system
1978	The EEC established the European Monetary System (EMS), which officially replaced a snake within a tunnel; this was a joint floating system
1982	The Latin American debt crisis
1985	The "Group of Five" countries reached the Plaza Agreement, to reduce the value of the US dollar
1987	The major industrialized countries reached the Louvre Accord, to support stability and exchange rates around their current levels
1992	High German interest rates caused the "September 1992 currency crisis in Europe"; Italy and the UK withdrew from the EMS
1993	The July 1993 currency crisis in Europe forced the EEC to widen the allowable deviation band to ±15%
1993	A single European Community was created; the name of the EEC was changed to the European Union (EU)
1994	The Mexican peso suffered major devaluation (40%) and began to float
1997	In July, currency turmoil erupted in Thailand and spread to Indonesia, South Korea, and other South Asian countries
1999	On January 1, 11 European countries launched a single European currency called the euro, with a common monetary policy established by an independent European Central Bank
2001	On January 1, Greece adopted the euro
2001	On January 8, the Argentine peso, whose value had been fixed to the US dollar at parity since 1991 through a currency board, was first devalued to Ps1.4 per dollar and then floated
2002	On January 1, the euro began public circulation and was traded alongside the national currencies; on March 1, the euro replaced the national currencies of eurozone countries
2004	On May 1, the EU accepted 10 new members

which have equal quotas. The voting power of the members is determined by 250 "basic votes," plus one vote for each SDR 100,000 of quota. Because of its large quota, the USA still holds close to 20 percent of the total votes.

IMF members borrow by exchanging their own currencies for convertible currencies of other member countries. A member country may draw, virtually at will, 100 percent of its quota from the IMF at any time; the 100 percent of its quota is called the reserve tranche. A country could borrow beyond this amount up to an additional 100 percent of its quota; this 100 percent is called the credit tranche. Thus, a member country could conceivably borrow 200 percent of its quota in convertible currencies. But in order to borrow more than 100 percent of its quota, a member must accept restrictions imposed by the IMF to ensure that steps are being taken to correct the borrower's currency problems.

Global Finance in Action 4.1

The Case for an Asian Monetary Fund

Between 1990 and 1996, capital inflows to emerging market countries rose from $60 billion to $194 billion. No one carefully monitored these capital flows. When problems developed in Asia in 1997, neither the IMF nor the private lenders knew the true magnitude of the debts of some of these countries. The provision of the IMF Articles of Agreement requiring surveillance and the decision to strengthen surveillance following the 1995 Mexican crisis had proved to be of little use.

In exchange for the IMF emergency aid package of $119 billion, Korea, Indonesia, and Thailand agreed to adopt contractional macroeconomic policies and to undergo structural economic reforms. However, the IMF quickly lifted these traditional contractional measures, because these three countries had relatively small amounts of foreign debt and current-account deficits. This policy mistake on the part of the IMF prompted the East Asian economies to revive the idea of creating an Asian Monetary Fund (AMF). In September 1997, Japan surprised the international community by offering $100 billion as initial capital for creating the AMF, to stabilize the exchange rates in the region. A Japanese version of the AMF did not materialize because of pressure from the IMF and the USA, but the concept has continued to persist.

Some economists hold that there are at least four rationales for a regional monetary fund. First, a regional monetary fund is needed because any IMF support package is not sufficient in a case of currency crisis for middle-income countries, such as the East Asian countries. Second, the East Asian countries are underrepresented in the quota formula of the IMF. Third, contagions of currency crisis tend to be geographically concentrated, as demonstrated in the 1997–8 Asian crisis. Fourth, both regional surveillance and peer pressures are important in an attempt to prevent a currency crisis.

Sources: S. H. Kim and M. Haque, "The Asian Financial Crisis of 1997: Causes and Consequences," *Multinational Business Review*, Spring 2002, pp. 37–44; Youn Suk Kim, "Rationale for An Asian Monetary Fund," *The Journal of Korean Economy*, Fall 2001, pp. 229–48; and Allen H. Metzer, "Asian Problems and the IMF," *The Cato Journal*, Winter 1998, pp. 267–8.

Table 4.2 The composition of the special drawing rights

Currency	*1981–5*	*1986–90*	*1991–5*	*1996–2000*	*2001–5*
US dollar	42%	42%	40%	39%	41%
Euro	–	–	–	–	33%
German mark	19%	19%	21%	21%	–
Japanese yen	13%	15%	17%	18%	15%
British pound	13%	12%	11%	11%	11%
French franc	13%	12%	11%	11%	–

Source: The International Monetary Fund, Washington, DC.

4.3.1 Special drawing rights

The IMF had been concerned about the lack of growth in gold holdings and about the consequent lack of growth in international reserves, which was slower than the growth in world trade. To solve these problems, the IMF created **special drawing rights (SDRs)** as an artificial international reserve in 1970.

The IMF uses a simplified basket of several major currencies to determine its daily valuation. The weight for each currency is changed periodically. As shown in table 4.2, the current percentage weights for these currencies are 45 percent for the US dollar, 29 percent for the euro, 15 percent for the Japanese yen, and 11 percent for the British pound. The weight reflects the relative importance of each country in world trade and the amount of the currency held as reserves by members of the IMF.

THE USE OF SPECIAL DRAWING RIGHTS The IMF has the authority to extend the range of official holders of SDRs beyond its member countries and the IMF's General Resources Account. It has designated about 20 organizations as prescribed holders. Each of these institutions can acquire and use SDRs in transactions and operations with other prescribed holders and with any of the IMF's member countries. Prescribed holders have the same degree of freedom as IMF members to use SDRs for a variety of international transactions.

IMF members may also use SDRs in a variety of voluntary transactions and operations by agreement among themselves and with prescribed holders. More specifically, IMF members and prescribed holders buy and sell SDRs both spot and forward; borrow, lend, or pledge SDRs; use SDRs in swaps and in settlement of financial obligations; or make donations (grants) using SDRs.

The SDR is an international reserve asset created by the IMF in 1970 and allocated to its members to supplement existing reserve assets. All member countries of the IMF are eligible to receive allocation of SDRs and may use SDRs in transactions and operations among themselves, with prescribed holders, and with the IMF itself.

The SDR is used as a unit of account, or as a basis for the unit of account, by a number of international and regional organizations. The SDR has also been used to denominate private financial instruments. The use of the SDR as a unit of account is explained, in part, by the fact that the value of the SDR tends to be more stable than that of any single currency in the basket, since it is a weighted average of the exchange rates of the four major currencies in which the prices of goods and services in international trade are denominated.

4.4 The European Monetary Union

Many attempts to establish monetary unions across national borders have failed, but a few successful unions still exist today. For example, member countries of the Central African Franc Zone and the Eastern Caribbean Currency Union use the franc and the Eastern Caribbean dollar as their respective single common currencies. A **monetary union** is a formal arrangement in which two or more independent countries agree to fix their exchange rates or to employ only one currency to carry out all transactions. One of the most ambitious efforts to date has to do with the EU, which has strived toward a European Monetary Union (EMU) since 1957. Full union was achieved on January 1, 2002, which enabled participating member countries to carry out transactions with one currency through one central bank, under one monetary policy. This section presents a history of the European monetary system (EMS), from the snake within a tunnel of the 1970s to the EU's recent moves in the direction of monetary union.

4.4.1 The snake within a tunnel

In May 1972, the EEC agreed to allow its currencies to fluctuate a maximum of 2.25 percent against one another, while permitting a 4.5 percent fluctuation against other currencies. This system became known as a "snake within a tunnel." The "snake" was the narrower band of 2.25 percent permitted among the EEC countries and the "tunnel" was the wider band of 4.5 percent allowed by the Smithsonian Agreement.

The UK, Ireland, and Denmark joined the EEC in 1973. This was followed by a series of international monetary crises, such as the devaluation of the US dollar in February. In mid-March, the values of all major currencies were permitted to fluctuate according to market forces. Thus, the tunnel was gone in March 1973, but EEC countries had tried to maintain the snake. Some of these attempts were short-lived. For instance, France, after withdrawing from the snake and rejoining it several times, finally abandoned the snake in March 1976. Many causes of conflict between domestic economic goals and exchange stability intensified domestic pressures on many other participating countries to abandon the snake. The number of participating countries in the snake fell to six by late 1978: the German mark, the Dutch guilder, the Norwegian krone, the Belgian franc, the Danish krone, and the Luxembourg franc. The three main initial members of the snake – the UK, France, and Italy – had abandoned it some years earlier.

4.4.2 The European Currency Unit

Serious problems had raised questions about the snake's survival. The sharp decline in the exchange rate of the US dollar during the second half of 1978 further bolstered the desire of European countries for exchange stability. On December 5, 1978, the EEC adopted a resolution to establish the EMS, which came into effect on March 13, 1979. The EMS was a complex exchange rate and intervention system combined with large credit facilities. The institutional arrangements of the EMS included (1) a currency basket, (2) an exchange rate mechanism with rules of intervention, and (3) several credit facilities.

First, the European Currency Unit (ECU) was the cornerstone of the EMS. The ECU was used as the denominator for the exchange rate mechanism; that is, as the basis for a "divergence

indicator" to show when one currency diverges from the average of the other participating currencies. The ECU was also used as the denominator for operations under both the intervention and credit mechanisms. The value of an ECU was a weighted average value of a basket of all EEC currencies. Each currency's weight was decided by the relative importance of that country's economy in the total EEC output and the overall share of that country's trade in the total intra-EC trade. Weights were normally revised every 5 years.

Second, the ECU was based on a fixed, but adjustable, exchange rate system. Each participating currency has a central rate in terms of ECUs. These central rates determined a grid of bilateral central rates. Participating currencies were allowed to fluctuate within a margin of ±2.25 percent (±6 percent for Italy and Spain) from their bilateral central rates. Italy and Spain were allowed to fluctuate their currency up to 6 percent on either side of their bilateral central rates. However, a number of currency crises in recent years forced EU governments to drastically widen the band after July 1993.

Third, to facilitate compulsory intervention, EMS participants created short-term and medium-term financing facilities. A short-term facility provides short-term financing for temporary balance-of-payments deficits. A medium-term facility was also available for balance-of-payments assistance, but its use was subject to certain conditions.

4.4.3 From the European Currency Unit to the euro

The EU's decision to switch their monetary union from the ECU to the euro came about in December 1991, when EU leaders met at Maastricht, in the Netherlands, and signed the Maastricht Treaty. The Maastricht Treaty specified a timetable for the creation of a monetary union. Under their accord, EU leaders agreed to establish a single European currency, called the euro, by January 1, 1999, with a common monetary policy established by an independent European Central Bank.

Since the crises of September 1992 and July 1993, EU countries had repeatedly affirmed their intent to continue the process of economic and financial integration. In order to join the monetary union, European countries were required to meet the five convergence criteria:

1 An inflation rate that is no more than 1.5 percentage points above the average of the three lowest-inflation countries.
2 A long-term government bond rate that is no more than 2 percentage points above the average bond rate of the three lowest-inflation countries.
3 A deficit that does not exceed 3 percent of gross domestic product (GDP).
4 Government debt that does not exceed 60 percent of GDP.
5 An exchange rate that had remained within the standard bands (±2.25 percent) of the exchange rate mechanism for at least 2 years prior to joining the monetary union.

The eurozone, commonly known as Euroland, came into being on January 1, 1999 with 11 of the EU's 15 members – Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain. The UK, Sweden, and Denmark met the five financial requirements for qualification, but chose not to join the eurozone. Greece was the only country that failed to meet the required economic criteria, but Greece joined the eurozone on January 1, 2001. The EU accepted 10 new members on May 1, 2004: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. Table 4.3 shows that the com-

Table 4.3 How the EU and the USA stack up as of December 2002

Economic variables	*USA*	*European Union*
Population	293 million	452 million
Imports	$1.26 trillion	$2.783 trillion
Exports	$714.5 billion	$2.88 trillion
Foreign-exchange reserves	$83 billion	$520 billion
Total GDP	$10.45 trillion	$11.0 trillion
Unemployment rate	6.2%	8.3%

Sources: *The CIA Factbook*, The Economist Intelligence Unit, London, and the International Monetary Fund, Washington, DC.

bination of 25 European countries and the new currency could create a powerful global trade competitor to the USA and the dollar. The EU will become even stronger for years to come, as there are currently seven other applicants working toward membership: Bulgaria, Turkey, Croatia, the Ukraine, Russia, Georgia, and Switzerland.

THE CREATION OF THE EURO Economists regard the creation of the euro as the most important development in the international monetary system since the Bretton Woods Agreement collapsed in 1973. The **euro** is a new currency unit, which replaced the individual currencies of the participating member countries and the ECU over a 3-year period from 1999 to 2002.

Effective January 1, 1999, the European Central Bank (ECB) began to conduct monetary policy with the euro. For up to 3 years after that date, national governments, many banks, and some businesses conducted transactions in a single currency. New EU bank notes and coins did not reach the person on the street until the start of 2002. On January 1, 2002, euro bank notes and coins were issued. National currencies continued to be accepted in trade for a short transition period, which ended in all participating member countries by the end of February 2002. This means that national notes and coins had coexisted with the euro for 2 months. Consequently, Europe's age-old dream of creating a single unified currency became a reality on January 1, 2002.

The adoption of the euro as a common currency would eliminate exchange rate risk between eurozone countries and facilitate cross-border price comparisons. Lower risk and price transparency would encourage more trade and capital flows across European borders. Another advantage of a single European currency is the elimination of currency costs associated with transactions between European countries. The EU has estimated that businesses in Europe spent $13 billion per year to convert money from one EU currency to another. Thus businesses, along with ordinary citizens, would clearly benefit from the euro through such lower currency conversion costs across European borders. A monetary authority known as the Eurosystem manages the new currency. A European Central Bank (ECB) and the national central banks of participating countries make up the Eurosystem. But the ECB, with a staff of 520, actually sets monetary policy for the 12 nations of the eurozone. It is housed in a silver-colored skyscraper in the heart of Frankfurt, Germany's traditional banking capital.

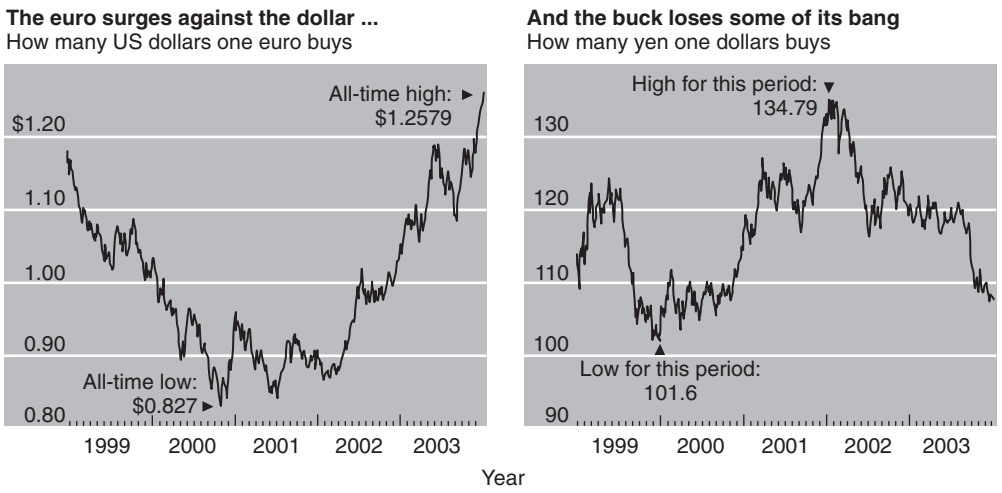

Figure 4.6 The US dollar's doldrums fuel the euro's rise
Source: *The Wall Street Journal*, Jan. 2, 2004, p. R13.

The bank's key aim is to maintain price stability, a mandate written into the 1992 Maastricht Treaty. The bank has so far guarded its independence fiercely, so that it can support the economic policies of EU nations without the expense of price stability. The chiefs of the national central banks travel to Frankfurt twice a month to debate and decide common policies.

Figure 4.6 depicts the euro's percentage change against the dollar since its inception. On December 1, 1999, the euro fell to parity with the US dollar for the first time since its introduction at $1.18 per euro on January 1 of that year. The continuous depreciation of the euro reached a low point of $0.80 per euro in October 2000, which indicates a 32 percent decline of the euro against the dollar for the first 2 years since its inception. The depreciation of the euro during this period reflects the strong performance of the US economy and the large European investment in the USA.

From the start of 2002, however, the euro began to appreciate against the dollar, reached roughly its original exchange rate of $1.18 by the early 2003, and tumbled to $1.2579 on December 31, 2003. "The dollar faces a long-term slow-motion crisis of confidence for several negative factors," said Anne Parker Mills, a foreign-exchange economist at Brown Brothers Harriman & Company in New York (Sesit 2004). These negative factors include the twin deficits in the US federal budget (–$500 billion in 2004) and the US current account (–$500 billion in 2003), continued risks of terrorist attacks against the USA, the resurgence of protectionism, and the possibility that Asian central banks could choose to reduce their huge dollar holdings.

Global Finance in Action 4.2

Europe's Ambitious Bid for a More Perfect Union

At a summit in Greece on June 20, 2003, European heads of state inspected the latest EU draft constitution. The draft aims to emulate the Founding Fathers of the USA. If the draft becomes the legal foundation of Europe, it would create a perfect union of the 25 member states as of 2004. These 25 states have a combined population of 450 million and an economy nearly 90 percent as large as that of the USA.

One of the long-term French goals has been to give the EU a common foreign and defense policy. The draft reflects that goal by proposing a powerful "foreign minister" and requiring that member states unreservedly support the union's policies in "a spirit of loyalty and solidarity." Some heads of member governments suspect that the purpose here is to fulfill the Gaullist dream of Europe becoming a world power that would rival the USA. Their fears were reinforced when France opposed the US invasion of Iraq in early 2003.

Source: George Melloan, "Europe's Ambitious Bid for a More Perfect Union," *The Wall Street Journal*, June 17, 2003, p. A17.

4.5 Proposals for Further International Monetary Reform

The Bretton Woods system had three basic defects: (1) pegged parities, (2) dollar disequilibrium, and (3) inadequate international reserves. Some important reforms introduced to solve these problems include special drawing rights, the Smithsonian Agreement, the snake within a tunnel, and the EMS. Nevertheless, these reforms were inadequate to maintain orderly markets.

4.5.1 Volatile exchange rates

When major industrial countries abandoned the fixed exchange rate system in 1973 in favor of a floating-rate system, they saw their decision as a triumph for the free market. Many economists expected exchange rates to be fairly stable under the flexible exchange rate system. They also expected that the flexible exchange rate system would reduce national trade imbalances. Major exchange rates have been more volatile since 1974. The trade imbalances of many countries have been larger and more persistent since 1974.

In other words, the costs of flexible exchange rates have been greater than expected. Consequently, a consensus has grown that the world should return to stable but flexible policy rules. These and other problems have recently increased the need for further international monetary reform. Proposals for further international monetary reform may be divided into two broad categories: proposals for greater flexibility and other proposals.

4.5.2 Proposals for greater flexibility

A system of additional flexibility, or even a system of freely flexible exchange rates, has been suggested to restructure the current international monetary system so that deficit countries might solve their payments problems. It seems reasonable to assume that fixed exchange rates, which existed under the gold standard before World War I, are now practically impossible. Moreover, fixed but adjustable exchange rates could not accommodate highly diversified modern economies more than one half-century after the Bretton Woods Agreement. Countries differ too much in price levels, wage costs, monetary policies, and international capital flows to keep fixed exchange rates.

A WIDER BAND A wider band has been frequently suggested as an alternative to the present international monetary system. The Bretton Woods Agreement allowed a band of 2.25 percent, and the Smithsonian Agreement approved a band of 4.5 percent. Proponents of this wider band would like to see it expanded further. They argue that a wider band would allow central banks to enjoy freedom to pursue independent monetary policies.

THE CRAWLING PEG The **crawling peg** is a proposal that would provide for regular modification of par value according to an agreed-upon formula. Under this system, a country would permit its currency to appreciate or depreciate slowly, rather than fight to maintain a band of certain percentages around par value. The crawling peg would provide relatively stable exchange rates for those nations, which consider this stability essential for international transactions. Balance-of-payments problems would also be self-adjusted through the international price mechanism rather than through exchange controls, restrictions on the growth of national income and employment, price controls, or other unpopular internal policies.

THE CRAWLING BAND A **crawling band** combines a wider band and a crawling peg. In other words, this proposal is a compromise between the inflexible exchange rates of the gold standard and a system of completely fluctuating exchange rates. Each parity level would be adjusted upward or downward as a moving average of the actual exchange rates that could fluctuate within a wider band: (1) within 1 year, the exchange rate parity would be allowed to move a predetermined maximum – say, 2 percent – and this 2 percent is called the annual crawling peg; (2) this slowly crawling peg would be surrounded by a wider band within which the actual exchange rate could fluctuate.

4.5.3 Other proposals

A number of proposals ask for the creation of a super-central institution that would perform the same function for an international economy as the commercial banking system performs for a domestic economy. John Keynes (Machlup 1964), for instance, proposed the establishment of an International Clearing Union that would create an international currency called the "bancor." Under this system, deficit countries would be able to borrow bancors to finance their deficits.

To illustrate another viewpoint, Robert Triffin (1968) proposed the creation of reserves by an international institution such as the IMF. Under this proposal, surplus countries would be required to deposit a portion of their holdings in key currencies (dollars, special drawing rights,

yen, and pounds) in the IMF instead of holding them as monetary reserves. On the basis of these deposits, the IMF could create necessary international monetary reserves through its loans to deficit countries.

Another proposal calls for enlarging the number of reserve countries. To reduce exchange risk, many central banks have recently diversified their portfolios of reserve assets to include Japanese yen, euros, special drawing rights, and gold. An increased number of reserve countries would spread the reserve-currency burden more evenly than before and leave the monetary system less vulnerable to attack. Freely flexible exchange rates, discussed in the earlier part of this chapter, have been frequently suggested to reform the international monetary system. Completely flexible exchange rates have never been tried. It is unlikely that they ever will be.

SUMMARY

Financial managers must understand the international monetary system if they are to manage multinational businesses efficiently. Foreign-exchange rates determine the prices of goods and services that multinational companies buy and sell across national boundaries. These exchange rates also have an impact on foreign investments.

Considered historically, the international monetary system of the late nineteenth century evolved into the current dirty floating system. The pre-1914 gold standard represents one extreme of the international monetary system. Under this system, the exchange rate for each currency was fixed in terms of gold. The flow of gold restored the balance-of-payments equilibrium. In the case of a deficit, a gold outflow would take place to finance an external deficit. In the case of a surplus, a gold inflow would occur to eliminate an external surplus.

World War I ended the stability of exchange rates for currencies of major trading partners. The world then experienced international monetary disorder from 1914 to 1945. The Great Depression of 1929–32 and the international financial crisis afterwards resulted in international monetary chaos. To summarize the international monetary system from 1914 to 1945, we find a mixture of widely fluctuating exchange rates and controlled exchange rates.

The Bretton Woods Agreement of 1944 marked a new era for the operation of the international monetary system, which was a system of fixed exchange rates based on a revised gold standard, called the gold exchange standard. Each currency was fixed within a narrow range of value in relation to gold or the US dollar. Many member countries were unable or unwilling to abide by the Bretton Woods Agreement, because its provisions were complex and because their interests conflicted. Nevertheless, the Bretton Woods Agreement and the activity of the IMF were the main features of the international monetary system from 1945 to 1973.

Two problems raised serious questions about the function of the Bretton Woods Agreement as the international monetary system. First, the growth of monetary reserves was inadequate. Second, effective balance-of-payments adjustments could not be achieved under the Agreement. Attempts to save the Bretton Woods Agreement through the introduction of SDRs and the Smithsonian Agreement failed when the whole system collapsed in 1973. Since 1973, the international monetary system has been characterized by a confusing mixture of freely floating, managed floating, joint floating, and fixed rates.

Questions

1 Some governments and economists have repeatedly suggested that the international monetary system return to a system of fixed exchange rates. Discuss the pros and cons of the fixed exchange rate system.
2 Why did the US dollar become so weak and the Bretton Woods Agreement fail in 1973?
3 Analysts said that President Nixon's speech delivered on August 15, 1971 was designed to prepare Americans for a multipolar world, because American decline – both economically and militarily – was inevitable. List the decisions announced in this famous speech.
4 List those events that would change a country's demand for and supply of foreign exchange.
5 What are some alternative exchange rate systems?
6 List the objectives of the International Monetary Fund (IMF).
7 What are special drawing rights (SDRs)? How is the value of the SDR determined?
8 What is a currency board? What are the solid fundamentals in order to have a successful currency board? How did the currency board that pegged the Argentinian peso to the US dollar during the 1990s affect Argentina's current account and thus its economy?
9 What is dollarization? What are the arguments for and against dollarization?
10 When do volatile exchange rates exist?
11 The major industrialized countries have practiced the floating exchange rate system since 1973. Under the floating-rate system, economists expected exchange rates to be fairly stable and trade imbalances to fall. Have these two expectations been realized?
12 What are the advantages of a common currency such as the euro?

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Case Problem 4: The Mexican Peso Crisis of December 1994

Before the December 1994 devaluation, the Mexican government had essentially pegged the peso to the US dollar through its exchange rate stabilization program. Mexico permitted its exchange rate to fluctuate within a band of 2 percent. However, in December 1994 Mexico faced a balance-of-payments crisis. Investors lost confidence in Mexico's ability to maintain the exchange rate of the peso within its trading band, in part because of Mexico's large current-account deficit, which had reached almost $28 billion in that year. Intense pressure on the peso in foreign-exchange markets threatened to exhaust Mexico's international reserves. This pressure eventually compelled the Mexican government to float the peso and led to the now-famous peso crisis between December 1994 and early 1995.

Exchange rate stabilization programs by developing countries are very difficult to pursue effectively over protracted periods. In programs such as that of Mexico, devaluation is not unusual, even when care is taken to address the typical problems by using exchange rate pegging as only a part of the overall program. After taking office on December 1, 1988, President Carlos Salinas used "pegging" as an important element of a broader program that included reduced government spending, tax reform, deregulation, privatization, and significant trade liberalization – including rapid reductions in tariffs and quotas through entries into the General Agreement on Tariffs and Trade (GATT), into the North American Free Trade Agreement (NAFTA), and into the Organization for Economic Cooperation and Development (OECD). This broader economic program reduced the number of government-owned enterprises from 1,100 in 1987 to 220 in 1994, decreased inflation from 159 percent in 1987 to 7 percent in 1994, eliminated the nation's budget deficit, increased exports to the USA by 35 percent, and cut wage increases in half between 1987 and 1994. The real sector of the Mexican economy was healthy, not sick.

The key, then, was not to balance the current account with the rest of the world, but to balance trade deficits with voluntary investment inflows. Mexico ran current-account deficits of $25 billion in 1992 and $23 billion in 1993, and during this time not only maintained the peso at around $3.1, but accumulated large foreign reserves. In 1994, the current-account deficit was only slightly higher – $27 billion after 11 months. The problem came with the inflows, as political turmoil shook investor confidence.

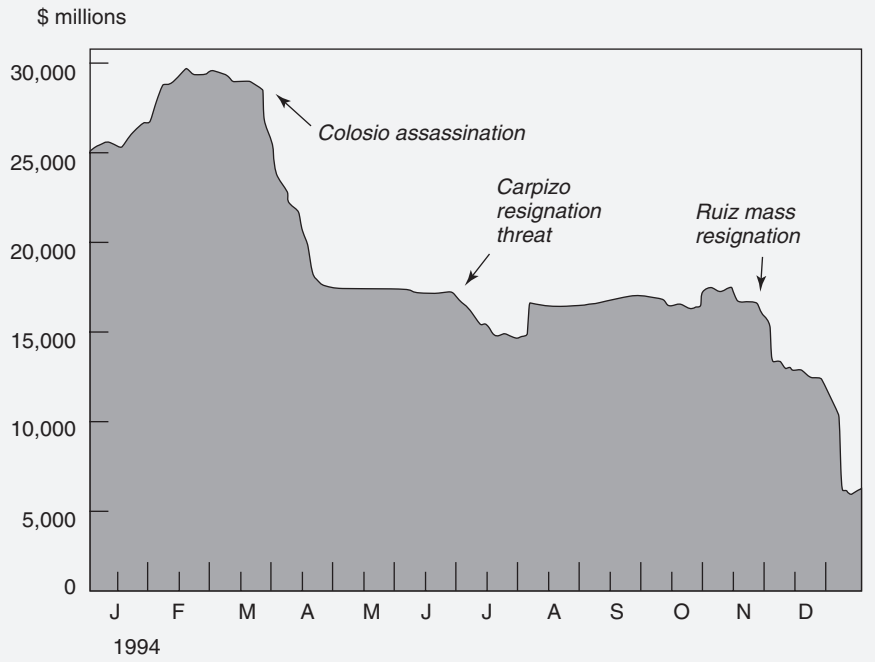

Figure 4.7 Mexican international reserves in 1994

The biggest shock came in March 1994, when presidential candidate Luis Colosio was assassinated. Ernesto Zedillo, who had been Salinas's Planning and Budget Minister, was Colosio's hastily selected replacement; he was elected in August as the new president. Colosio's killing, a year-long peasant rebellion in southern Mexico, and the September 1993 assassination of the ruling party secretary Francisco Ruiz had combined to weaken international investor confidence, while creating an image of Mexico as politically unstable. Consequently, foreign-exchange reserves had fallen from a peak of $30 billion before the Colosio assassination on March 23 to about $12 billion at the Zedillo inauguration on December 1 (see figure 4.7).

Mexico decided to devalue, widening the bands on the exchange rate on December 20 and going to a freely floating rate on December 22. The latter decision was actually forced, because the earlier one collapsed as investor confidence in the peso disappeared. Widening the bands clearly presaged devaluation and led to a massive capital flight from the peso, and loss of $6 billion – or half of the remaining reserves – in one day. Judging by their public economic plans, the Mexican authorities had in mind an exchange rate of 4.07 pesos to the dollar, a 14 percent devaluation from the earlier 3.50 floor. But with confidence imploding, the peso dropped immediately to 5.80, a 40 percent devaluation (see figure 4.8).

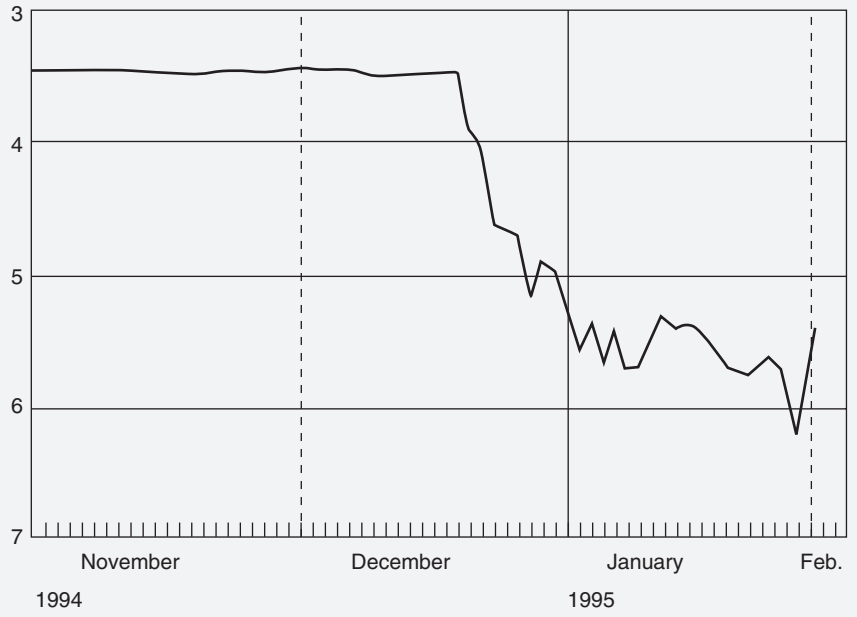

Figure 4.8 Mexican pesos per US dollar (inverted scale)

Case Questions

1 Normally, economists suggest that exchange rate pegging by developing countries such as Mexico ought to be a temporary stabilization tool, ultimately followed by a managed float, a crawling band, or a floating exchange rate system. Briefly define each of these three exchange regimes.
2 Approximately $24 billion had fled Mexico in a run on the peso between April 1 and December 21, 1994. What is capital flight? How does it differ from capital flows? What were the major causes of capital flight in Mexico?
3 Explain the Mexican rescue package of $50 billion arranged by the USA and the International Monetary Fund to avert a broader financial crisis.
4 In making this unusual commitment (a $50 billion rescue package), was the world unintentionally rewarding Mexican mismanagement? What was to keep the same problems from causing another financial crisis that would require another rescue plan in the future?
5 Given all of Mexico's problems, how risky was the US $20 billion aid package?

6 The home page of the International Monetary Fund (IMF), www.imf.org, provides IMF-related news, their contracts, and an update on their most recent activities. Use this web page to find out about current IMF loans to its member countries.

Sources: T. Carrington, "Some Questions and Answers About Clinton's New Plan to Aid Mexico," *The Wall Street Journal*, Feb. 2, 1995, p. A5; T. Carrington, T. D. Rogers, and R. Wartzman, "Clinton Hastily Drops Mexican Rescue Plan, Gives New Aid Instead," *The Wall Street Journal*, Feb. 1, 1995, pp. A1, A6.

PART II

Corporate Foreign-Exchange Risk Management

In 1997, two American finance professors – Robert Merton of Harvard University and Myron Scholes of Stanford University – received the Nobel Prize in economics for their groundbreaking work on option pricing that helped spawn the present $100 trillion derivatives industry. In the early 1970s, Professor Scholes invented an insightful method of pricing options and warrants at a time when investors and traders still relied on educated guesses to determine the value of various stock market products. Professor Merton later demonstrated the broad applicability of this options-pricing formula, which led to the incredible growth in the derivatives market.

Part II (chapters 5–10) explains relationships between exchange rates and economic variables, with an emphasis on foreign-exchange risk management. This part covers not only the spot market but also the derivatives market. Currency derivatives – forwards, futures, options, futures options, and swaps – are contracts whose values are derived from the prices of underlying currencies. They are offered through two channels: organized exchanges and over-the-counter markets. Organized exchanges such as the Chicago Mercantile Exchange and similar exchanges around the world have expanded their menu of products. Over-the-counter (OTC) markets, such as banks and some other financial institutions, also offer and are willing to tailor make these products for their customers. Before we consider currency derivatives separately in coming chapters, we will describe the key derivatives terminology below.

Derivatives and Terminology

cap An option that protects the buyer from a rise in a particular interest rate above a certain level.

collar The simultaneous purchase of a cap and sale of a floor, with the objective of maintaining interest rates within a defined range.

dealer A counterparty that enters into a swap in order to earn fees or trading profits, serving customers as an intermediary.

derivative A contract whose value depends on, or is derived from, the value of an underlying asset.

end-user A counterparty that engages in a swap to manage its interest rate or currency exposure.

exercise (strike) price The price at which some currency underlying a derivative instrument can be purchased or sold on or before the contract's maturity date.

floor An option that protects the buyer from a decline in a particular interest rate below a certain level.

forward An OTC contract obligating a buyer and a seller to trade a fixed amount of a particular asset at a set price on a future date.

future A highly standardized forward contract traded on an exchange.

futures option A contract giving the holder the right, but not the obligation, to buy or sell a futures contract at a set price during a specified period.

hedging The reduction of risk by eliminating the possibilities of foreign-exchange gains or losses.

notional value The principal value upon which interest and other payments in a transaction are based.

option A contract giving the holder the right, but not the obligation, to buy or sell a fixed amount of an asset at a set price during a specified period.

over-the-counter (OTC) market The market in which currency transactions are conducted through a telephone and computer network connecting currency dealers, rather than on the floor of an organized exchange.

swap A forward-type contract in which two parties agree to exchange a series of cash flows in the future according to a predetermined rule.

swaption An option giving the holder the right to enter or cancel a swap transaction.

underlying The asset, reference rate, or index whose price movement determines the value of the derivative.

CHAPTER 5

The Foreign-Exchange Market and Parity Conditions

Opening Case 5: The Volume of Foreign-Exchange Trading

Can you figure out which one is larger: the volume of foreign-exchange trading or the volume of world trade? The single statistic that perhaps best illustrates the dramatic expansion of international financial markets is the volume of trading in the world's 48 foreign-exchange markets. The volume of foreign-exchange trading in these markets in April 2001 was $1.2 trillion per day. In comparison, the global volume of exports of goods and services for all of 2001 was $6 trillion, or about $16.5 billion per day. In other words, foreign-exchange trading was about 73 times as great as trade in goods and services. Derivatives market transactions (67 percent) exceeded spot market transactions (33 percent). The market for foreign exchange is the largest financial market in the world by any standard. It is open somewhere in the world 365 days a year, 24 hours a day.

Interestingly, this number actually represents a drop in overall trading levels. The volume of foreign-exchange trading had grown by 26 percent from 1995 to 1998 and by 46 percent from 1992 to 1995. From 1998 to 2001, however, this trend was reversed and the volume of foreign-exchange trading decreased by 19 percent. The main causes for this decrease were the worldwide economic problems caused by the recession in the United States, the September 11 attacks, and the bursting of the technological stock bubble. Additionally, the switch to the euro lowered the volume of trading, because Europe's common currency eliminates the need to trade one euro-zone currency for another.

Figure 5.1 shows that in 2001, the largest amount of foreign-exchange trading took place in the United Kingdom (33 percent). Indeed, the trading volume in London was so large that a larger share of currency trading in US dollars occurred in the UK

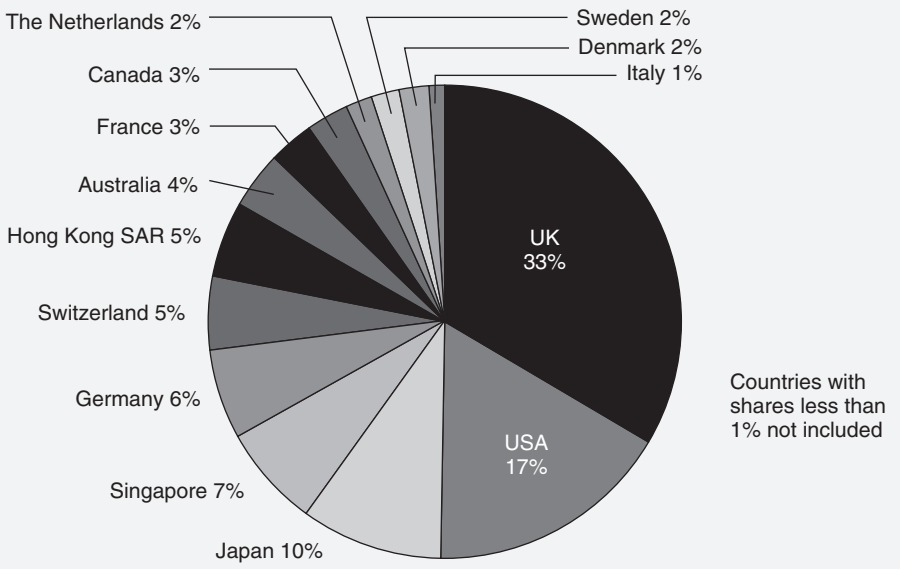

Figure 5.1 Shares of the reported foreign-exchange trading volume, 2001
Source: The Federal Reserve Bank of New York, www.ny.frb.org

than in the USA. The USA had the second-largest exchange market (17 percent), followed by Japan (10 percent) and Singapore (7 percent). This means that 67 percent of all global currency trading occurred in just four countries – the UK, the USA, Japan, and Singapore.

The introduction of the euro affected the major centers for currency trading. While London and New York were by far the most important cities for currency trading, Frankfurt, Germany, closed its gap with Tokyo and Singapore and jumped past Hong Kong, Paris, and Zurich in the volume of foreign-exchange trading. This was largely due to the prominent role that Frankfurt, the host city of the European Central Bank, plays in euro trading.

Sources: www.wto.org and www.bis.org/publ/rpfx02.htm.

The efficient operation of the international monetary system has necessitated the creation of an institutional structure, usually called the foreign-exchange market. This is a market where one country's currency can be exchanged for that of another country. Contrary to what the term might suggest, the foreign-exchange market actually is not a geographical location. It is an informal network of telephone, telex, satellite, facsimile, and computer communications between banks, foreign-exchange dealers, arbitrageurs, and speculators. The market operates simultaneously at three tiers:

1 Individuals and corporations buy and sell foreign exchange through their commercial banks.
2 Commercial banks trade in foreign exchange with other commercial banks in the same financial center.
3 Commercial banks trade in foreign exchange with commercial banks in other financial centers.

The first type of the foreign-exchange market is called the retail market, and the last two are known as the interbank market.

We must first understand the organization and dynamics of the foreign-exchange market in order to understand the complex functions of global finance. This chapter explains the roles of the major participants in the exchange market, describes the spot and forward markets, discusses theories of exchange rate determination (parity conditions), and examines the roles of arbitrageurs.

5.1 Major Participants in the Exchange Market

The foreign-exchange market consists of a spot market and a forward market. In the spot market, foreign currencies are sold and bought for delivery within two business days after the day of a trade. In the forward market, foreign currencies are sold and bought for future delivery.

There are many types of participants in the foreign-exchange market: exporters, governments, importers, multinational companies (MNC), tourists, commercial banks, and central banks. But large commercial banks and central banks are the two major participants in the foreign-exchange market. Most foreign-exchange transactions take place in the commercial banking sector.

5.1.1 Commercial banks

Commercial banks participate in the foreign-exchange market as intermediaries for customers such as MNCs and exporters. These commercial banks also maintain an interbank market. In other words, they accept deposits of foreign banks and maintain deposits in banks abroad. Commercial banks play three key roles in international transactions:

1 They operate the payment mechanism.
2 They extend credit.
3 They help to reduce risk.

OPERATING THE PAYMENT MECHANISM The commercial banking system provides the mechanism by which international payments can be efficiently made. This mechanism is a collection system through which transfers of money by drafts, notes, and other means are made internationally. In order to operate an international payments mechanism, banks maintain deposits in banks abroad and accept deposits of foreign banks. These accounts are debited and credited when payments are made. Banks can make international money transfers very quickly and efficiently by using telegraph, telephones, and computer services.

EXTENDING CREDIT Commercial banks also provide credit for international transactions and for business activity within foreign countries. They make loans to those engaged in international trade and foreign investments on either an unsecured or a secured basis.

REDUCING RISK The letter of credit is used as a major means of reducing risk in international transactions. It is a document issued by a bank at the request of an importer. In the document, the bank agrees to honor a draft drawn on the importer if the draft accompanies specified documents. The letter of credit is advantageous to exporters. Exporters sell their goods abroad against the promise of a bank rather than a commercial firm. Banks are usually larger, better known, and better credit risks than most business firms. Thus, exporters are almost completely assured of payment if they meet specific conditions under letters of credit.

EXCHANGE TRADING BY COMMERCIAL BANKS Most commercial banks provide foreign-exchange services for their customers. For most US banks, however, currency trading is not an important activity and exchange transactions are infrequent. These banks look to correspondents in US money centers to execute their orders.

A relatively small number of money-center banks conduct the bulk of the foreign-exchange transactions in the United States. Virtually all the big New York banks have active currency trading operations. Major banks in Chicago, San Francisco, Los Angeles, Boston, Detroit, and Philadelphia also are active through head office operations as well as affiliates in New York and elsewhere. Thus, all commercial banks in the USA are prepared to buy or sell foreign-currency balances for their commercial customers as well as for the international banking activities of their own institutions.

Bank trading rooms share common physical characteristics. All are equipped with modern communications equipment to keep in touch with other banks, foreign-exchange brokers, and corporate customers around the world. Over 30 US banks have direct telephone lines with the Federal Reserve Bank of New York. Traders subscribe to the major news services to keep current on financial and political developments that might influence exchange trading. In addition, the banks maintain extensive "back office" support staffs to handle routine operations such as confirming exchange contracts, paying and receiving dollars and foreign currencies, and keeping general ledgers. These operations generally are kept separate from the trading room itself to assure proper management and control.

In other important respects, however, no two trading rooms are alike. They differ widely according to the scale of their operations, the roster of their corporate customers, and their overall style of trading. The basic objectives of a bank's foreign-exchange trading policy are set by senior management. That policy depends upon factors such as the size of the bank, the scope of its international banking commitments, the nature of trading activities at its foreign branches, and the availability of resources.

THE GLOBAL MARKET AND NATIONAL MARKETS Banks throughout the world serve as market makers in foreign exchange. They comprise a global market in the sense that a bank in one country can trade with another bank almost anywhere. Banks are linked by telecommunications equipment that allows instantaneous communication and puts this "over-the-counter" market as close as the telephone or the telex machine.

Because foreign exchange is an integral part of the payment mechanism, local banks may benefit from closer access to domestic money markets. They usually have an advantage in trading

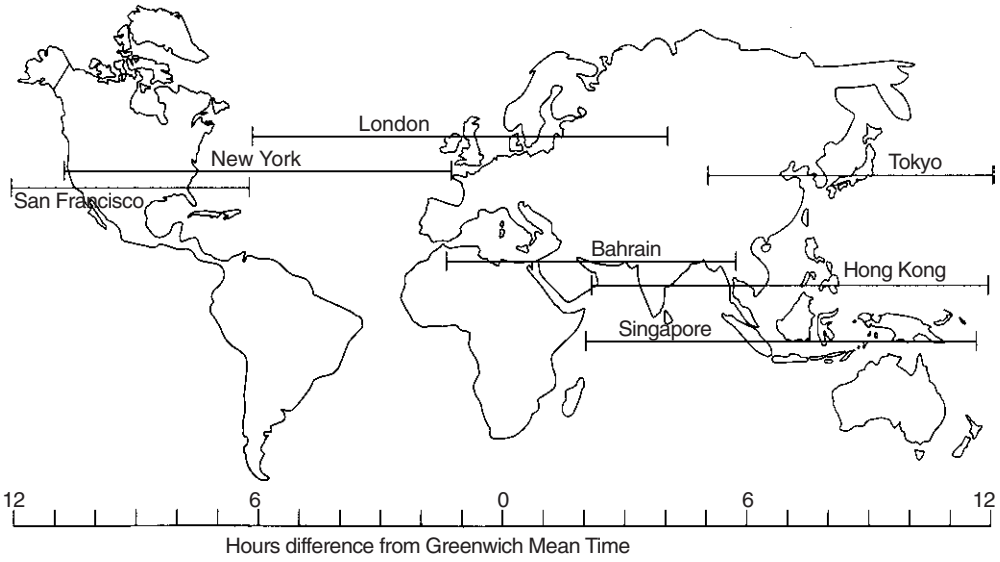

Figure 5.2 A map of major foreign-exchange markets with time zones

their local currency. For instance, the buying and selling of pounds sterling for dollars is most active among the banks in London. Similarly, the major market for Swiss francs is in Zurich; and that for Japanese yen, in Tokyo. But the local advantage is by no means absolute. Hence, dollar–euro trading is active in London and dollar–sterling trading is active in Zurich. Furthermore, New York banks trade just as frequently with London, German, or Swiss banks in all major currencies as they do with other New York banks.

Foreign exchange is traded in a 24-hour market. Somewhere in the world, banks are buying and selling dollars for, say, euros at any time during the day. Figure 5.2 shows a map of major foreign-exchange markets around the globe, with time zones included for each major market. This map should help readers understand the 24-hour operation of major foreign-exchange markets around the world. Banks in Australia and the Far East begin trading in Hong Kong, Singapore, Tokyo, and Sydney at about the time most traders in San Francisco go home for supper. As the Far East closes, trading in Middle Eastern financial centers has been going on for a couple of hours, and the trading day in Europe has just begun. Some of the large New York banks have an early shift to minimize the time difference of 5–6 hours with Europe. By the time New York trading gets going in full force around 8 a.m., it is lunch time in London and Frankfurt. To complete the circle, West Coast banks also extend "normal banking hours" so they can trade with New York or Europe, on one side, and with Hong Kong, Singapore, or Tokyo, on the other.

One implication of a 24-hour currency market is that exchange rates may change at any time. Bank traders must be light sleepers so that they can be ready to respond to a telephone call in the middle of the night, which may alert them to an unusually sharp exchange rate movement on another continent. Many banks permit limited dealing from home by senior traders to contend with just such a circumstance.

5.1.2 Central banks

Central banks, such as the Federal Reserve System of the USA and the Bank of Japan, attempt to control the growth of the money supply within their jurisdictions. They also strive to maintain the value of their own currency against any foreign currency. In other words, central bank operations reflect government transactions, transactions with other central banks and various international organizations, and intervention to influence exchange rate movements.

Central banks serve as their governments' banker for domestic and international payments. They handle most or all foreign-exchange transactions for the government as well as for important public-sector enterprises. They may also pay or receive a foreign currency not usually held in official reserves. For example, the Federal Reserve Bank of New York handles a substantial volume of foreign-exchange transactions for its correspondents who wish to buy or sell dollars for other currencies. Moreover, most central banks frequently enter into exchange transactions with international and regional organizations that need to buy or sell the local currency. The most important role of central banks in exchange market operations is their intervention in the exchange market to influence market conditions or the exchange rate. They carry out intervention operations either on behalf of the country's treasury department or for their own account.

In a system of fixed exchange rates, central banks usually absorb the difference between supply of and demand for foreign exchange in order to maintain the par value system. Under this system, the central banks agree to maintain the value of their currencies within a narrow band of fluctuations. If pressures such as huge trade deficits and high inflation develop, the price of a domestic currency approaches the lower limit of the band. At this point, a central bank is obliged to intervene in the foreign-exchange market. This intervention is designed to counteract the forces prevailing in the market.

In a system of flexible exchange rates, central banks do not attempt to prevent fundamental changes in the rate of exchange between their own currency and any other currency. However, even within the flexible exchange rate system, they intervene in the foreign-exchange market to maintain orderly trading conditions rather than to maintain a specific exchange rate (see Global Finance in Action 5.1).

Global Finance in Action 5.1

Is Official Exchange Intervention Effective?

Many governments have intervened in foreign-exchange markets to try to dampen volatility and to slow or reverse currency movements. Their concern is that excessive short-term volatility and long-term swings in exchange rates may hurt their economy, particularly sectors heavily involved in international trade. And the foreign-exchange market certainly has been volatile recently. For example, one euro cost about $1.15 in January 1999, dropped to only $0.85 by the end of 2000, and climbed to over $1.18 by March 2003. Over this same period, one US dollar bought as much as 133 Japanese yen and as little as ¥102, a 30 percent fluctuation. Many other currencies have also experienced similarly large price swings in recent years.

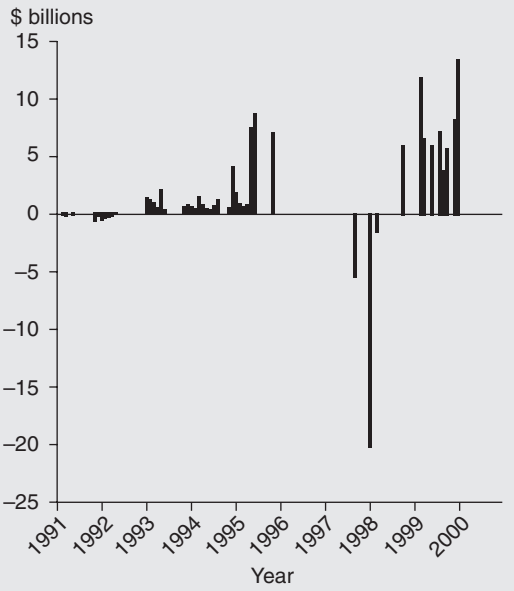

Figure 5.3 Bank of Japan intervention

Conventional academic wisdom holds that "sterilized" interventions have little impact on the exchange rate and are a waste of time and of the government's foreign-exchange reserves. In a sterilized intervention, the central bank offsets the purchase or sale of foreign exchange by selling or purchasing domestic securities to keep the domestic interest rates at its target. Because the domestic interest rate usually is considered the main determinant of the value of the domestic currency, many argue, it must change in order to influence the exchange rate.

Despite academic skepticism, many central banks intervene in foreign-exchange markets. The largest player is Japan (see figure 5.3). Between 1991 and December 2000, for example, the Bank of Japan bought US dollars on 168 occasions for a cumulative amount of $304 billion and sold US dollars on 33 occasions for a cumulative amount of $38 billion. A typical case: on Monday, April 2, 2000, the Bank of Japan purchased $13.2 billion in US dollars in the foreign-exchange market in an attempt to stop the 4 percent depreciation of the dollar against the yen that had occurred during the previous week.

Source: Michael Hutchinson, "Is Official Exchange Rate Intervention Effective?" *FRBSF Economic Letter*, Federal Reserve Bank of San Francisco, July 18, 2003, pp. 1–3.

5.2 Spot Exchange Quotation: The Spot Exchange Rate

The foreign-exchange market employs both spot and forward exchange rates. The **spot rate** is the rate paid for delivery of a currency within two business days after the day of the trade. The forward exchange rate is discussed in the following section.

Practically all major newspapers in the world, such as *The Wall Street Journal* and *The Financial Times* (London) print a daily list of exchange rates. Table 5.1 shows cross rates for seven currencies, spot rates for most currencies, and forward rates for major currencies that appeared in *The Wall Street Journal* on July 1, 2004. These quotes apply to transactions among banks in amounts of $1 million or more. When interbank trades involve dollars, these rates will be expressed in either American terms (dollars per unit of foreign currency) or European terms (units of foreign currency per dollar).

As shown in the bottom half of table 5.1, *The Wall Street Journal* quotes in both American and European terms are listed side by side. Column 2 (or 3) of table 5.1 shows the amount of US dollars required to buy one unit of foreign currency. Given this amount, one can determine the number of foreign currency units required to buy one US dollar. This conversion can be achieved by simply taking the reciprocal of the given quotation. In other words, the relationship between US dollars and British pounds can be expressed in two different ways, but they have the same meaning. Column 4 (or 5) presents the reciprocals of the exchange rates in column 2 (or 3). Column 4 (or 5) equals 1.0 divided by column 2 (or 3).

Some currencies, such as the Uruguayan new peso, have different rates for financial or commercial transactions. For some major currencies, such as the British pound and the Swiss franc, rates also are given for future delivery. Foreign-exchange risk can be minimized by purchasing or selling foreign currency for future delivery at a specified exchange rate. For large amounts, this can be accomplished through banks in what is called the forward market; the 30-, 90-, and 180-day rates in table 5.1 reflect this.

The conversion rate for the SDR near the bottom of table 5.1 represents the rate for special drawing rights, which is a reserve asset created by the International Monetary Fund for settlements among central banks. It is also used as a unit of account in international bond markets and by commercial banks. Based 45 percent on the US dollar, 29 percent on the euro, 15 percent on the Japanese yen, and 11 percent on the British pound, the SDR's value fluctuates less than any single component currency. At the bottom of table 5.1 is the euro, the European common currency that replaced the national currencies of eurozone countries on March 1, 2002.

5.2.1 Direct and indirect quotes for foreign exchange

Foreign-exchange quotes are frequently given as a direct quote or as an indirect quote. In this pair of definitions, the home or reference currency is critical. A **direct quote** is a home currency price per unit of a foreign currency, such as $0.2300 per Saudi Arabian riyal (SR) for a US resident. An **indirect quote** is a foreign-currency price per unit of a home currency, such as SR4.3478 per US dollar for a US resident. In Saudi Arabia, the foreign-exchange quote, "$0.2300," is an indirect quotation, while the foreign-exchange quote, "SR4.3478," is a direct quotation. In the USA, both quotes are reported daily in *The Wall Street Journal* and other financial press.

Table 5.1 Currency cross rates and exchange rates

Key currency cross rates Late New York Trading Friday, July 9, 2004

	Dollar	*Euro*	*Pound*	*SFranc*	*Peso*	*Yen*	*CdnDlr*
Canada	1.3184	1.6364	2.4513	1.0775	.11474	.01217	. . .
Japan	108.33	134.46	201.42	88.539	9.428	. . .	82.169
Mexico	11.4903	14.2617	21.364	9.3910	. . .	.10607	8.7154
Switzerland	1.2235	1.5187	2.2749	. . .	.10648	.01129	.9281
UK	.53780	.6676	. . .	.4396	.04681	.00496	.40795
Euro	.80570	. . .	1.4980	.65848	.07012	.00744	.61110
USA	. . .	1.2412	1.8593	.81730	.08703	.00923	.75850

Source: Reuters.

Exchange rates July 9, 2004

The foreign exchange mid-range rates below apply to trading among banks in amounts of $1 million and more, as quoted at 4 p.m. Eastern time by Reuters and other sources. Retail transactions provide fewer units of foreign currency per dollar.

	US$ EQUIVALENT		*CURRENCY PER US$*	
Country	*Fri.*	*Thu.*	*Fri.*	*Thu.*
Argentina (Peso)-y	.3390	.3384	2.9499	2.9551
Australia (Dollar)	.7228	.7196	1.3835	1.3897
Bahrain (Dinar)	2.6525	2.6526	.3770	.3770
Brazil (Real)	.3287	.3272	3.0423	3.0562
Canada (Dollar)	.7585	.7595	1.3184	1.3167
1-month forward	.7580	.7590	1.3193	1.3175
3-months forward	.7574	.7584	1.3203	1.3186
6-months forward	.7569	.7579	1.3212	1.3194
Chile (Peso)	.001575	.001575	634.92	634.92
China (Renminbi)	.1208	.1208	8.2781	8.2781
Colombia (Peso)	.0003747	.0003741	2,668.80	2,673.08
Czech. Rep. (Koruna)				
Commercial rate	.03941	.03935	25.374	25.413
Denmark (Krone)	.1669	.1667	5.9916	5.9988
Ecuador (US Dollar)	1.0000	1.0000	1.0000	1.0000
Egypt (Pound)-y	.1604	.1604	6.2364	6.2364
Hong Kong (Dollar)	.1282	.1282	7.8003	7.8003
Hungary (Forint)	.004918	.004937	203.33	202.55
India (Rupee)	.02192	.02188	45.620	45.704
Indonesia (Rupiah)	.0001124	.0001113	8,897	8,985
Israel (Shekel)	.2231	.2229	4.4823	4.4863
Japan (Yen)	.009231	.009191	108.33	108.80
1-month forward	.009241	.009202	108.21	108.67
3-months forward	.009268	.009229	107.90	108.35
6-months forward	.009317	.009290	107.33	107.64
Jordan (Dinar)	1.4104	1.4104	.7090	.7090
Kuwait (Dinar)	3.3920	3.3921	.2948	.2948
Lebanon (Pound)	.0006627	.0006614	1,508.98	1,511.94
Malaysia (Ringgit)-b	.2632	.2632	3.7994	3.7994
Malta (Lira)	2.9097	2.9031	.3437	.3445
Mexico (Peso)				
Floating rate	.0870	.0868	11.4903	11.5221
New Zealand (Dollar)	.6579	.6557	1.5200	1.5251
Norway (Krone)	.1466	.1463	6.8213	6.8353
Pakistan (Rupee)	.01718	.01718	58.207	58.207
Peru (new Sol)	.2898	.2893	3.4507	3.4566
Philippines (Peso)	.01792	.01789	55.804	55.897
Poland (Zloty)	.2743	.2740	3.6456	3.6496
Russia (Ruble)-a	.03435	.03436	29.112	29.104
Saudi Arabia (Riyal)	.2666	.2667	3.7509	3.7495
Singapore (Dollar)	.5875	.5862	1.7021	1.7059
Slovak Rep. (Koruna)	.03111	.03103	32.144	32.227
South Africa (Rand)	.1643	.1657	6.0864	6.0350
South Korea (Won)	.0008700	.0008692	1,149.43	1,150.48
Sweden (Krona)	.1350	.1349	7.4074	7.4129
Switzerland (Franc)	.8173	.8166	1.2235	1.2246
1-month forward	.8180	.8173	1.2225	1.2235
3-months forward	.8196	.8188	1.2201	1.2213
6-months forward	.8220	.8213	1.2165	1.2176
Taiwan (Dollar)	.02982	.02980	33.535	33.557
Thailand (Baht)	.02455	.02451	40.733	40.800
Turkey (Lira)	.00000069	.00000069	1,449,275	1,449,275
UK (Pound)	1.8593	1.8494	.5378	.5407
1-month forward	1.8542	1.8443	.5393	.5422
3-months forward	1.8445	1.8345	.5422	.5451
6-months forward	1.8308	1.8235	.5462	.5484
United Arab (Dirham)	.2723	.2723	3.6724	3.6724
Uruguay (Peso)				
Financial	.03400	.03400	29.412	29.412
Venezuela (Bolivar)	.000521	.000521	1,919.39	1,919.39
SDR	1.4810	1.4780	.6752	.6766
Euro	1.2412	1.2393	.8057	.8069

Special Drawing Rights (SDR) are based on exchange rates for the US, British, and Japanese currencies. Source: International Monetary Fund.
a, Russian Central Bank rate; b, government rate; y, floating rate.

Source: *The Wall Street Journal*, July 12, 2004, p. C13.

5.2.2 Cross rates

A **cross rate** is an exchange rate between two nonhome currencies. In just about every country, foreign currencies are quoted against the home currency, but there are instances in which MNCs should know the exchange rate between two nonhome currencies. For example, a US company may want to know the exchange rate between the Mexican peso and the British pound. Because foreign currencies are quoted against the dollar in the USA, their exchange rate is determined through their relationship to the US dollar. The type of exchange rate desired here is known as the cross rate because it reflects the value of one foreign currency against another foreign currency.

Once we understand how two currencies in an exchange quote can be converted into each other, we can learn how the relationships among three or more currencies are reflected in exchange quotes. For example, if the Australian dollar (A$) is selling for $0.60 and the buying rate for the South African rand (R) is $0.15, then the A$ and R cross rate is R4 per A$, and the R and A$ cross rate is A$0.25 per rand.

Example 5.1

A somewhat more complicated cross rate calculation may be necessary for some foreign-exchange users. Let us assume that the dollar price of the British pound is $1.6000 per pound and that the Mexican peso price of the dollar is Mex$4 per dollar.

To determine the price of pounds in terms of Mexican pesos or the price of Mexican pesos in terms of pounds, one must convert both quotations to a common denominator – in other words, the US dollar:

$$£0.6250/\$ = \$1.6000/£: £1/\$1.6000$$
$$\text{Mex}\$4.0000/\$ \text{ (as initially given)}$$

Because the prices of dollars are now quoted in terms of both pounds and pesos, we can obtain the price of pounds in terms of pesos:

$$\text{Mex}\$/£ = \frac{4.0000}{0.6250} = \text{Mex}\$6.4000/£$$

Similarly, we can determine the price of pesos in terms of pounds:

$$£/\text{Mex}\$ = \frac{0.6250}{4.0000} = £0.1563/\text{Mex}\$$$

The exchange rate between two currencies is called the cross rate if it is obtained from the rates of these two currencies in terms of a third currency. The top portion of table 5.1 shows cross rates for seven major currencies that appeared in *The Wall Street Journal* on July 9, 2004.

5.2.3 *Measuring a percentage change in spot rates*

MNCs frequently measure the percentage change in the exchange rate between two specific points in time: for example, the current spot rate and the forecasted spot rate 1 year ahead. For example, if the Australian dollar appreciates from \$0.6400 to \$0.6800 over a 1-year period, US MNCs are likely to raise questions such as: What is the percentage increase in the dollar value of the Australian dollar? What is the percent increase in the dollar value of Australian dollar-denominated accounts receivable or accounts payable held by Americans?

DIRECT QUOTATIONS When the home currency price for a foreign currency (direct quote) is used, the percentage change in the value of the foreign currency is computed by the following formula:

$$\text{percentage change} = \frac{\text{ending rate} - \text{beginning rate}}{\text{beginning rate}} \tag{5.1}$$

Example 5.2

Assume that the spot rate changes from \$0.6400 per A\$ (Australian dollar) to \$0.6800 per A\$ over a 1-year period. The percentage change in the Australian dollar spot rate using direct quotes for a US company is calculated as follows:

$$\text{percentage change} = \frac{\$0.6800 - \$0.6400}{\$0.6400} = 0.0625$$

In this case, the Australian dollar has become 6.25 percent stronger than the US dollar over the 1-year period.

INDIRECT QUOTATIONS When the foreign-currency price of a home currency (indirect quote) is used, the formula to compute the percentage change in the spot rate for a foreign currency becomes:

$$\text{percentage change} = \frac{\text{beginning rate} - \text{ending rate}}{\text{ending rate}} \tag{5.2}$$

Example 5.3

Converting example 5.2 into indirect quotations, we can assume that the Australian dollar appreciates from A$1.5625 per dollar to A$1.4706 per dollar. The percentage change in the Australian dollar spot rate using indirect quotes for a US company is computed as follows:

$$\text{percentage change} = \frac{\text{A\$1.5625} - \text{A\$1.4706}}{\text{A\$1.4706}} = 0.0625$$

In both methods of computation, the Australian dollar has appreciated by 6.25 percent against the US dollar over the 1-year period.

5.2.4 *The bid–ask spread*

Up to this point, we have ignored bid–ask spreads in our discussion of foreign-exchange transactions. International banks serve as foreign-exchange dealers who stand ready to quote bid and ask prices on major currencies for their customers. A bank's **bid price** is the price at which the bank is ready to buy a foreign currency. A bank's **ask price** is the price at which the bank is ready to sell a foreign currency. The **bid–ask spread** is the spread between bid and ask rates for a currency; this spread is the bank's fee for executing the foreign-exchange transaction:

$$\text{bid–ask spread} = \frac{\text{ask price} - \text{bid price}}{\text{ask price}} \tag{5.3}$$

Example 5.4

The bid price is $1.5000 for the British pound and $0.0130 for the Japanese yen. The ask price is $1.6000 for the pound and $0.0140 for the yen.

Applying equation 5.3 to the bid–ask spread for the pound, we obtain:

$$\text{bid–ask spread} = \frac{\$1.6000 - \$1.5000}{\$1.6000} = 0.0625 \text{ or } 6.25\%$$

Applying equation 5.3 to the bid–ask spread for the yen, we obtain:

$$\text{bid–ask spread} = \frac{\$0.0140 - \$0.0130}{\$0.0140} = 0.0714 \text{ or } 7.14\%$$

5.3 Forward Exchange Quotation: The Forward Exchange Rate

The **forward rate** is the rate to be paid for delivery of a currency at some future date. The exchange rate is established at the time the contract is made, but payment and delivery are not required until maturity. Forward rates are usually quoted for fixed periods of 30, 90, or 180 days from the day of the contract. In some instances, actual contracts in major currencies can be arranged for delivery at any specified date up to 1 year.

Table 5.1 shows the forward rates for only four major currencies: British pounds, Canadian dollars, Japanese yen, and Swiss francs. The current spot rate and the forward rate may be the same during a period of foreign-exchange stability. However, there usually is a difference between the spot rate and the forward rate; this difference is known as the spread.

Example 5.5

Forward quotations are made either "outright" or in terms of the spread on the spot rate. Suppose that the 90-day outright forward quotation is \$0.7900 per Can\$ for Canadian dollars and \$0.6000 per SFr for Swiss francs, and that the spot rate is \$0.8000 per Can\$ and \$0.5800 per SFr. The spread between the forward rate and the spot rate is stated in terms of points; one point equals 0.01 percent or \$0.0001. Point quotations for the two 90-day forward rates are determined as follows:

Spot or forward rate	Canadian dollars	Swiss francs
90-day forward rate	\$0.7900	\$0.6000
Less: spot rate	0.8000	0.5800
90-day forward quote in points	–100	+200

In giving a forward quote for the Canadian dollar, a trader might say "minus 100" or "a discount of 100." For the Swiss franc, the trader would say "plus 200" or "a premium of 200." Thus, when the forward rate is less than the spot rate, it is said to be at a discount. When the forward rate is greater than the spot rate, it is said to be at a premium. Outright quotations are normally used for retail customers of the bank, while point quotations are usually employed for traders.

A forward premium or discount is sometimes expressed in terms of the annualized percentage deviation from the spot rate. The premium or discount is computed using the following formula:

$$\text{premium (discount)} = \frac{n\text{-day forward rate} - \text{spot rate}}{\text{spot rate}} \times \frac{360}{n} \tag{5.4}$$

Applying equation 5.4 to the 90-day forward quote for Canadian dollars given in example 5.5, we obtain:

$$\text{forward discount} = \frac{\$0.7900 - \$0.8000}{\$0.8000} \times \frac{360}{90} = -0.05 \text{ or } -5.00\%$$

Applying equation 5.4 to the 90-day forward quote for Swiss francs given in example 5.5, we obtain:

$$\text{forward premium} = \frac{\$0.6000 - \$0.5800}{\$0.5800} \times \frac{360}{90} = +0.1379 \text{ or } +13.79\%$$

5.3.1 *Key reasons for forward exchange transactions*

Actual exchange market participants are banks, companies, individuals, governments, and other financial institutions. However, these participants are called arbitrageurs, traders, hedgers, or speculators, depending on the purpose of their participation in the exchange market. Arbitrageurs seek to earn riskless profits by taking advantage of differences in interest rates among countries. Traders use forward contracts to eliminate possible exchange losses on export or import orders denominated in foreign currencies. Hedgers, mostly MNCs, engage in forward contracts to protect the home-currency value of foreign currency denominated assets and liabilities. Speculators deliberately expose themselves to exchange risk by engaging in forward contracts in order to make a profit from exchange rate fluctuations.

Individuals and corporations buy and sell forward currencies to provide protection against future changes in exchange rates. So long as we do not have a single world currency, some degree of exchange risk exists in any system. We cannot eliminate some possibility of foreign-exchange losses in either the fixed exchange rate system or the flexible exchange rate system.

Example 5.6

Assume that an American firm purchases machinery through its UK branch for £10,000 with terms of 90 days. Let us also assume that the spot rate for pounds is $1.70 per pound and the 90-day forward rate for pounds is $1.80 per pound. Payment should be made in British pounds 90 days from the day of the shipment.

Actually, there are two alternative methods of payment available to the American firm. First, the firm could buy pounds in the spot market 90 days from the day of the shipment to pay the credit. If the spot rate for pounds rises to $2.00 during this time, the American firm should spend $20,000 to buy the sum of £10,000. Second, it could also buy £10,000

in the forward market for $18,000 to pay the credit on the due date. By so doing, the American firm would avoid the risk of a $2,000 loss ($20,000–$18,000). However, if the spot rate for pounds declines to $1.50 during this period, the American firm would lose $3,000 ($15,000–$18,000) under the forward contract.

5.3.2 *Speculation in the foreign-exchange market*

Foreign-exchange markets facilitate both commercial and private transactions such as foreign trade, loans, and investments. In addition, they give rise to exchange speculation. The purpose of speculation in the foreign-exchange market is to make a profit from exchange rate fluctuations by deliberately taking an uncovered position. Speculation can be undertaken in both the spot market and the forward market.

SPECULATING IN THE SPOT MARKET Suppose that a speculator anticipates that the spot rate of the Swiss franc will appreciate in 90 days. The speculator will purchase francs at today's spot rate, will hold them for 90 days, and will resell them at a higher rate.

Example 5.7

The present spot rate for francs is $0.4000 per SFr. A speculator's expectation of the spot rate for francs in 90 days is $0.4500. If the speculator's expectation proves correct, what would be his dollar profit from speculating $10,000 in the spot market?

With $10,000, the speculator could buy SFr25,000 ($10,000/$0.4000) in the spot market, hold them for 90 days, and resell them at $0.4500 per SFr for a gross of $11,250 (SFr25,000 × $0.4500). As a result, the speculator would earn a net profit of $1,250, or 12.50 percent, on the original $10,000 of capital. But spot speculation is risky. If the spot rate were to decline to $0.3500 during this period, the SFr25,000 would have an ending value of $8,750 (SFr25,000 × $0.3500) for a net loss of $1,250. Theoretically speaking, no limit exists to the potential profit, but the maximum loss would be $10,000.

A speculator is not locked into an absolute 90-day terminal date but may simply hold the currency until a date that seems to be most profitable. This is possible because the speculator could close out the position before 90 days or hold it longer than 90 days if his expectation changes after the spot purchase.

SPECULATING IN THE FORWARD MARKET Suppose that a speculator anticipates that the Swiss franc's spot rate in 90 days will exceed its 90-day forward rate as quoted today. The speculator buys francs for 90-day future delivery at today's forward rate, waits for 90 days, and then sells the francs spot to close the position.

Example 5.8

The present 90-day forward rate for francs is $0.4300. A speculator's expectation of the spot rate for francs in 90 days is $0.4500. If the speculator's expectation proves correct, what would be his dollar profit from speculating $10,000 in the forward market?

The speculator could buy SFr23,256 forward for $10,000 at the forward quotation of $0.4300, receive them in 90 days, and then sell them at the spot rate of $0.4500 for a gross of $10,465. Profit would be $465. The profit of $465 in this case cannot be related to any investment base to determine a rate of return, because no capital was invested at the time the contract was entered.

Clearly, there is greater risk for a speculator in forward transaction than in spot transaction. Forward market speculation involves a more remote payment date and a greater chance of unfavorable fluctuations. There are two types of risk here. The first risk is the possibility that foreign-exchange rates will fluctuate. The second risk is the possibility that the forward contract will not be carried out. The first risk will affect the speculator only if he carries an open position in the forward contract. The speculator can eliminate this risk by purchasing an offsetting forward contract. Although the speculator has a net position of zero, he still carries the second risk because he stands in the middle.

5.4 International Parity Conditions

In this section, specific attention is paid to the theory of foreign-exchange rate determination. This theory is based on a relationship between the money market and the foreign-exchange market; this relationship prevails without restrictions imposed by government policy on the extent to which rates can move. Such a free market situation will establish the nature of interrelationships among the money markets and the foreign-exchange markets. In other words, we can postulate a simple set of parity conditions that should hold among inflation rates, interest rates, spot rates, and forward rates. This idea, commonly known as the law of one price, is enforced by arbitrageurs who, by following the famous dictum of "buy low, sell high," prevent all but minor deviations from equality.

There are five major theories of exchange rate determination:

1 The theory of purchasing power parity.
2 The Fisher effect.
3 The international Fisher effect.
4 The theory of interest rate parity.
5 The forward rate as an unbiased predictor of the future spot rate.

It is important to remember that the economic relationships of these five theories result from arbitrage activities.

5.4.1 Efficient exchange markets

Investors make risk–return decisions in the framework of available exchange markets. We will base our discussion of the theories of exchange rate determination on the assumption of efficient exchange markets. **Efficient exchange markets** exist when exchange rates reflect all available information and adjust quickly to new information. Because exchange markets are highly competitive in such a situation, the market participants buy and sell foreign exchange in a way that eliminates all profits in excess of the minimum required to sustain their continued participation. In other words, the concept of efficient exchange markets depends on three hypotheses:

1 Market prices such as product prices, interest rates, spot rates, and forward rates should reflect the market's consensus estimate of the future spot rate.
2 Investors should not earn unusually large profits in forward speculation. Because exchange rate forecasts based on market prices are accurate, publicly available forecasts of the future spot rate do not lead to unusual profits in forward speculation.
3 It is impossible for any market analyst to beat the market consistently.

Certainly, these conditions are not completely met in practice. Thus, exchange markets are assumed efficient if the conditions are only reasonably met. There are many indications that support the efficient market assumption for international money and exchange markets. First, foreign currencies and other financial assets are traded by companies and individuals who have broad market contacts, sophisticated analytic capabilities, and modern communications. Because new information is widely, quickly, and cheaply disseminated to investors, market prices are rapidly adjusted to reflect significant developments. Second, since 1973 the major trading countries of the world have adopted the system of freely floating rates, and their governmental interference in exchange markets has been minimal.

5.4.2 The theory of purchasing power parity

The **theory of purchasing power parity** (PPP) explains why the parity relationship exists between inflation rates and exchange rates. The PPP theory has an absolute version and a relative version. The absolute version of the PPP theory maintains that the equilibrium exchange rate between domestic and foreign currencies equals the ratio between domestic and foreign prices. For example, if one American dollar can buy one bushel of wheat and one British pound can buy two bushels of wheat, the exchange rate between the two currencies is $0.50 per pound.

Specifically, the PPP theory in its simplest form holds that the exchange rate must change in terms of a single currency to equate the prices of goods in both countries. For example, if the prices of British goods rise relative to the prices of US goods, the British pound should depreciate to keep the dollar price of goods in the United Kingdom the same as the dollar prices of identical goods in the United States. Otherwise, arbitrageurs would have an incentive to purchase goods in the USA and sell them in the UK until these prices were again equalized.

Unfortunately for this analysis, the world is more complex than this simple example. The real world is characterized by transportation costs, tariffs, quotas, and all sorts of impediments to the equalization of prices for identical goods worldwide. Thus, it is not difficult to understand why the absolute PPP relationship does not hold very well for any pair of countries.

The relative version of the PPP doctrine states that in the long run, the exchange rate between the home currency and the foreign currency will adjust to reflect changes in the price levels of the two countries. In other words, it relates equilibrium changes in the exchange rate to changes in the ratio of domestic and foreign prices:

$$\frac{e_t}{e_0} = \frac{(1+I_d)^t}{(1+I_f)^t} \tag{5.5}$$

where e_t is the dollar price of one unit of foreign currency in period t, e_0 is the dollar price of one unit of foreign currency in period 0, I_d is the domestic inflation rate, and I_f is the foreign inflation rate. If we solve equation 5.5 for the new exchange rate (e_t), we obtain:

$$e_t = e_0 \times \frac{(1+I_d)^t}{(1+I_f)^t} \tag{5.6}$$

Example 5.9

This time, let us assume that the exchange rate between US dollars and British pounds is \$2 per pound. Let us further accept the fact that the USA will have an inflation rate of 10 percent for the coming year and that the UK will have an inflation rate of 20 percent over the same period.

The new exchange rate of \$1.83 per pound is obtained in this way:

$$e_1 = \$2 \times \frac{(1+0.10)}{(1+0.20)} = \$1.83/£$$

Example 5.9 indicates that the US dollar price of the pound should decrease in value by about 10 percent from \$2 per pound to \$1.83 per pound to equalize the dollar price of goods in two countries. If the exchange rate does not fall by the amount suggested by the PPP theory, then we could say that the US dollar is undervalued or the British pound is overvalued.

The main justification for the PPP theory is that if the exchange rate stays the same at \$2 per pound, British exports of goods and services will become less competitive with comparable products produced in the USA. British imports from the USA will also become more price-competitive with higher-priced British products.

AN APPRAISAL OF THE PPP THEORY The PPP theory not only explains how relative inflation rates between two countries can influence their exchange rate, but it can also be used to forecast exchange rates. It is important to remember that the PPP doctrine is supposed to work well under a freely floating exchange rate system. With the termination of the fixed exchange rate system in 1973, the relative price levels and exchange rates in most industrial countries have fluctuated

widely. The experience of 1975–98 indicates that, while movements in dollar exchange rates for some major currencies reflected differences in inflation rates, that was not the case for sharp short-period fluctuations in these rates. In addition, the PPP theory did not work that well for some other currencies.

There are some obvious weaknesses of the PPP theory. First, it assumes that goods are easily traded. This is not the case for such goods as housing and medical services. The PPP theory, moreover, relies on an index of prices such as the consumer price index. Such an index may be misleading because only traded goods directly affect the balance on goods and services. However, even nontraded goods indirectly affect the price of traded goods through their impact on the overall cost of living and on wage demands.

Second, the PPP theory assumes that tradable goods are identical across countries. However, even tradable goods are not always identical when they are produced in different countries. For example, some Americans prefer Japanese cars, and others prefer American cars. Moreover, customer preferences for automobiles change over time. If Japanese cars suddenly become more popular, the increase in demand will drive up the price of Japanese cars. But despite the price differential between the two markets, there might be no opportunity for profitable arbitrage, because customers do not view the Japanese and American cars as equivalent.

Third, we must compare a similar basket of goods in each country with its trading partners in order to test the PPP theory. If we try to compare the prices of dissimilar goods, we have to rely on price indexes. It then becomes a question of which index is most reflective of goods traded between countries.

Fourth, many other factors influence exchange rates besides relative prices. These include relative interest rates, relative income levels, and government interference in the foreign-exchange market. Thus, it is difficult to measure the precise magnitude of exchange rate movements attributable to differences in inflation rates.

In spite of these limitations, the PPP theory is quite useful and seems to be valid over the long run. If a country's inflation rate remains higher than that of its trading partners for a long period, that country's currency will tend to depreciate in order to prevent the country from being forced out of the export market. According to many empirical studies, this fact exists whether it is caused by the PPP theory alone or by a combination of factors.

5.4.3 *The Fisher effect*

The **Fisher effect**, named after economist Irving Fisher, assumes that the nominal interest rate in each country is equal to a real interest rate plus an expected rate of inflation:

$$\text{nominal rate} = \text{real rate} + \text{inflation} \tag{5.7}$$

The real interest rate is determined by the productivity in an economy and a risk premium commensurate with the risk of a borrower. The nominal interest rate embodies an inflation premium sufficient to compensate lenders or investors for an expected loss of purchasing power. Consequently, nominal interest rates are higher when people expect higher rates of inflation and are lower when people expect lower rates of inflation.

The real interest rate is thought to be relatively stable over time. Moreover, in a free market where investors can buy any interest-bearing securities, real interest rates are identical everywhere,

but nominal interest rates will vary by the difference in expected rates of inflation. The Fisher effect asserts that real interest rates are equalized across countries through arbitrage. For example, if expected real rates of interest were higher in Switzerland than in the USA, capital would flow from the USA to Switzerland. On the other hand, if real rates of interest were higher in the USA than in Switzerland, capital would flow from Switzerland to the USA. This process of arbitrage would continue, in the absence of government intervention, until the expected real rates of interest are equalized in both countries.

AN APPRAISAL OF THE FISHER EFFECT Empirical studies have found that most of the variation in nominal interest rates, particularly for short-term government securities, can be attributed to changing inflationary expectations. The hypothesis of the Fisher effect, based on long-term securities, suffers from an increased financial risk inherent in fluctuations of a bond market value prior to maturity. Comparisons of corporate securities are influenced by unequal creditworthiness of the issuers. In addition, changes in long-term interest rates and changes in inflation rates are not concurrent, because long-term rates relative to short-term rates are not that sensitive to changes in prices. However, the Fisher effect based on long-term maturities has worked fairly well in recent years. First, long-term interest rates, adjusted for inflation, have been relatively stable in most industrial countries since 1980. Second, long-term real rates of interest in most countries have been relatively close together since 1980.

5.4.4 The international Fisher effect

The **international Fisher effect** states that the future spot rate should move in an amount equal to, but in the opposite direction from, the difference in interest rates between two countries. A future spot rate of a currency with a higher interest rate would depreciate in the long run; a future spot rate of a currency with a lower interest rate would appreciate in the long run. For example, if the interest rate over the next year is 4 percent in the USA and 10 percent in Switzerland, the franc would depreciate against the dollar by 6 percent.

When investors purchase the currency of a country to take advantage of higher interest rates abroad, they must also consider any possible losses due to fluctuations in the value of the foreign currency prior to maturity of their investment. To clarify this point, assume that interest rates are higher in Switzerland than in the USA. In this case, US investors in Swiss securities must be rewarded with a higher interest rate to offset the expected depreciation of a spot rate for the franc when they convert the principal and interest into dollars. Swiss investors in US securities must be rewarded with a higher future spot rate for the dollar to offset the lower interest rate in the USA. In other words, the international Fisher effect holds that the interest differential between two countries should be an unbiased predictor of the future change in the spot rate.

SHORT-RUN BEHAVIOR The relationship between interest rates and exchange rates is a complex one, which incorporates numerous behavioral parameters. The short-run behavior of interest and exchange rates, quite contrary to their long-run behavior, shows that a rise in interest rates in a given country is expected to raise the value of that country's currency, and vice versa. In other words, currencies of countries with higher interest rates than the USA tend to appreciate in value against the dollar. Higher interest rates in a given country would raise the value of its currency because higher interest rates could attract capital from investors in other countries. By the same

token, currencies of countries with lower interest rates than the USA tend to depreciate in value against the dollar because investors in other countries would sell their currencies in exchange for the dollar. Hence, the exchange rate moves in the same direction as the difference in interest rates between two countries.

5.4.5 *The theory of interest rate parity*

The movement of short-term funds between two countries to take advantage of interest differentials is a major determinant of the spread between forward and spot rates. According to the interest parity theory, the spread between a forward rate and a spot rate should be equal but opposite in sign to the difference in interest rates between two countries. In a free market, the currency with the higher interest rate would sell at a discount in the forward market, while the currency with the lower interest rate would sell at a premium in the forward market. In fact, the forward discount or premium is closely related to the interest differential between the two currencies.

The interest rate parity theory holds that the difference between a forward rate and a spot rate equals the difference between a domestic interest rate and a foreign interest rate:

$$\frac{n\text{-day } F - S}{S} \times \frac{360}{n} = i_d - i_f \tag{5.8}$$

where n-day F is the n-day forward rate, S is the spot rate, i_d is the domestic interest rate, and i_f is the foreign interest rate.

Example 5.10

Let us assume four things: (1) the Swiss interest rate is 9 percent; (2) the US interest rate is 7 percent; (3) the spot rate for the Swiss franc is \$0.4000; and (4) the 180-day forward rate for the Swiss franc is \$0.3960.

In this case, the percentage discount on the 180-day forward rate is equal to the interest rate differential:

$$\frac{\$0.3960 - \$0.4000}{\$0.4000} \times \frac{360}{180} = 0.07 - 0.09$$
$$-0.02 = -0.02$$

Swiss securities would earn 2 percent more than American securities, but Swiss francs would sell in the forward market at a 2 percent discount.

This outcome is brought about by arbitrageurs who enter into forward contracts to avoid the exchange rate risk. If interest rates are higher in Switzerland than in the USA, arbitrageurs in search of a higher yield could move their funds from the USA to Switzerland. In

order to avoid the exchange rate risk at maturity, the arbitrageurs would sell the francs in exchange for dollars in the forward market. Consequently, the forward rate for the Swiss franc with the higher interest rate would depreciate, while the forward rate for the US dollar with the lower interest rate would appreciate. Such transactions would continue until the interest differential in favor of Switzerland was equal to the forward discount for the Swiss franc. Under this condition, there is no incentive for capital to move in either direction, because the interest differential is offset by the forward discount.

5.4.6 *The forward rate and the future spot rate*

If speculators think that a forward rate is higher than their prediction of a future spot rate, they will sell the foreign currency forward. This speculative transaction will bid down the forward rate until it equals the expected future spot rate. By the same token, if speculators believe that a forward rate is lower than an expected future spot rate, they will buy a foreign currency forward. This speculative transaction will bid up the forward rate until it reaches the expected future spot rate. Under this condition, there is no longer any incentive to buy or sell a foreign currency forward, because forward rates are unbiased predictors of future spot rates.

5.4.7 *A synthesis of international parity conditions*

In the absence of predictable exchange market intervention by central banks, an expected rate of change in a spot rate, differential rates of national inflation and interest, and forward premiums or discounts are all directly proportional to each other. Because money, capital, and exchange markets are efficient, these variables adjust very quickly to changes in any one of them. Consequently, the forward rate is the best possible forecaster of the future spot rate. Example 5.11 and figure 5.4 illustrate all of the fundamental parity relations simultaneously with the aid of a two-currency model: the US dollar and the Swiss franc.

Example 5.11

Let us assume the following:

1 The current spot rate for the Swiss franc: SFr1 = $0.5000.
2 The 1-year forward rate for the Swiss franc: SFr1 = $0.4750.
3 The expected spot rate in 1 year for the Swiss franc: SFr1 = $0.4750.
4 The expected rate of inflation for 1 year: Switzerland = 10 percent; US = 5 percent.
5 Interest rates on 1-year government securities: Switzerland = 12 percent; US = 7 percent.

Discuss international parity relationships among spot rates, forward rates, inflation rates, and interest rates, using these five assumptions.

First, the PPP theory holds that any change in the differential rate of inflation between two countries tends to be offset by an equal but opposite change in the spot rate. A 5 percent higher rate of inflation in Switzerland is offset by a 5 percent depreciation in the spot rate for the franc. This 5 percent depreciation in the spot rate for the franc is computed by equation 5.1:

$$\text{percentage change} = \frac{\text{ending rate} - \text{beginning rate}}{\text{beginning rate}}$$

$$\text{percentage change} = \frac{0.4750 - 0.5000}{0.5000} = -0.05 \text{ or } -5\%$$

Second, the Fisher effect suggests that real interest rates are identical everywhere and that nominal interest rates will vary by the difference in expected rates of inflation. The real inflation-adjusted interest rate in both countries is computed by equation 5.7: nominal rate = real rate + inflation.

$$\text{The US: } 7\% = \text{real rate} + 5\%; \text{ real rate} = 2\%$$

$$\text{Switzerland: } 12\% = \text{real rate} + 10\%; \text{ real rate} = 2\%$$

The nominal interest rate in Switzerland (12 percent) is 5 percent higher than the nominal interest rate in the USA (7 percent). This difference is identical to the 5 percent difference in expected rates of inflation between Switzerland (10 percent) and the USA (5 percent).

Third, the international Fisher effect states that a future spot rate should move in an amount equal to, but in the opposite direction from, the difference in interest rates between two countries. The 5 percent interest differential in favor of Switzerland is equal to the 5 percent depreciation in the future spot rate for the franc (remember that the 5 percent franc depreciation was computed in relation to the PPP theory).

Fourth, the Interest Parity Theory assumes that the spread between the forward rate and the spot rate should be equal but opposite in sign to the difference in interest rates between the two countries. The 5 percent higher rate of interest in Switzerland is consistent with the 5 percent forward discount for the Swiss franc. The 5 percent forward discount for the franc is computed by equation 5.4:

$$\text{premium (discount)} = \frac{n\text{-day forward rate} - \text{spot rate}}{\text{spot rate}} \times \frac{360}{n}$$

$$\text{forward discount} = \frac{0.4750 - 0.5000}{0.5000} = \frac{360}{360} = -0.05 \text{ or } -5\%$$

Finally, under a freely floating exchange rate system, the forward rate is an unbiased predictor of the future spot rate. The 1-year forward rate of \$0.4750 for the franc is identical to the expected spot rate in 1 year of \$0.4750 for the franc. This means that the 5 percent 1-year forward discount for the franc is an unbiased predictor that the franc will depreciate by 5 percent over the next year.

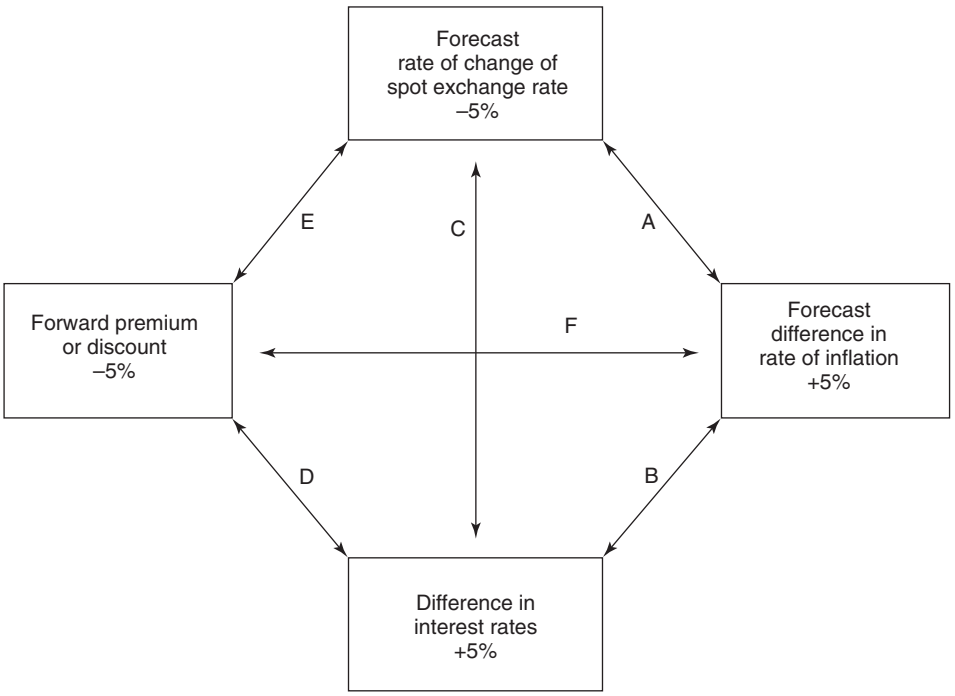

Figure 5.4 Relationships among various financial rates

Figure 5.4 illustrates these five key theories of exchange rate determination and their relationships on the basis of example 5.11: the theory of purchasing power parity (relationship A), the Fisher effect (relationship B), the international Fisher effect (relationship C), the theory of interest rate parity (relationship D), and the forward rate as an unbiased predictor of the future spot rate (relationship E). Relationship F does not represent any particular theory, but it has to be true by definition if relationships A–E are all true. This framework emphasizes the links that exist among spot exchange rates, forward rates, interest rates, and inflation rates.

5.5 Arbitrages

Arbitrage is the purchase of something in one market and its sale in another market to take advantage of a price differential. Professional arbitrageurs quickly transfer funds from one currency to another in order to profit from discrepancies between exchange rates in different markets. The process of arbitrage also works through the foreign-exchange market to bring interest rates in national markets closer together. Even small discrepancies between the exchange rates and interest rates in different markets would motivate enough arbitrage to eliminate these discrepancies quickly.

5.5.1 Geographical arbitrage

In principle, the exchange rate for a given currency should be the same in every geographical market. However, geographical arbitrage could arise when local demand-and-supply conditions might create temporary discrepancies among various markets. Arbitrage specialists would buy the currency in a market where its price is lower and then sell the currency where its price is higher. If the exchange rate differential is larger than the transaction cost, an arbitrage profit would be made.

TWO-POINT ARBITRAGE The arbitrage transaction between two currencies is called a **two-point arbitrage**. Suppose, for example, that the quotes of the South African rand against the US dollar are $0.20 in New York and $0.25 in Johannesburg. The price of rands in terms of dollars is higher in Johannesburg than in New York. An arbitrageur could benefit by buying rands with dollars in New York and then selling the rands in exchange for dollars in Johannesburg. Arbitrage tends to wipe out the exchange rate differential that originally triggered it. The purchase of rands in New York would drive the price of rands against the dollar up toward the Johannesburg rate. The sale of rands in Johannesburg would drive the price of rands against the dollar down toward the New York rate. This arbitrage process would continue until the price of rands in terms of the dollar was the same in both markets.

The basic economic principle of "buy low and sell high" dominates the arbitrage transaction of buying and selling currencies in two national money markets. Exchange rates in two different locations must be stated in a given currency if this principle is to be applied in foreign exchange. Thus, the arbitrage process becomes slightly more difficult to understand if exchange rates are quoted in different currencies. Let us restate our previous example in a slightly different way. The price of rands against the dollar is $0.20 in New York. The price of dollars against the rand is R4 in Johannesburg. The quotes in both locations in terms of $/R are as follows:

New York	*Johannesburg*
$0.20/R (as initially given)	$0.25/R (1 ÷ 4)

The rand enjoys a higher price against the dollar in Johannesburg than in New York. This price differential would lead to the following transactions in each market:

1 In New York, investors would buy rands and sell dollars.
2 In Johannesburg, investors would sell rands and buy dollars.

THREE-POINT ARBITRAGE An arbitrage transaction among three currencies is called a **three-point arbitrage** and is also commonly known as a triangle arbitrage. This type of arbitrage can occur if any of the three cross rates is out of line. Consider the possibility that the cross rates of exchange are Rs60/$, Rs10/HK$, and HK$3/$. An arbitrageur could make a profit of $1. She would buy 60 Indian rupees for $1, then purchase six Hong Kong dollars for 60 Indian rupees, and finally buy $2 for the six Hong Kong dollars. A large volume of such transactions would strengthen the rupee against the dollar, strengthen the Hong Kong dollar against the rupee, and

strengthen the dollar against the Hong Kong dollar. This arbitrage process causes some consistent patterns of rates to emerge at which no further arbitrage would be profitable. In other words, the arbitrage will continue until dollars can no longer be bought more cheaply in one market than the price at which they are sold in another market. Currency cross rates such as those given in table 5.1 can be prepared to ensure that the exchange rates are consistent with each other in all markets.

5.5.2 *Covered-interest arbitrage*

Covered-interest arbitrage is the movement of short-term funds between countries to take advantage of interest differentials with exchange risk covered by forward contracts. When investors purchase the currency of a foreign country to take advantage of higher interest rates abroad, they must also consider any losses or gains. Such losses or gains might occur due to fluctuations in the value of the foreign currency prior to the maturity of their investment. Generally, investors cover against such potential losses by contracting for the future sale or purchase of a foreign currency in the forward market.

Their actions, aimed at profits from interest rate differentials between countries, lead, in equilibrium, to the condition of so-called interest parity. The interest rate parity theory says that any exchange gains or losses incurred by a simultaneous purchase and sale in the spot and forward markets are offset by the interest rate differential on similar assets. Under these conditions, there is no incentive for capital to move in either direction, because the effective returns on foreign and domestic assets have been equalized.

Figure 5.5 presents a graphic representation of the theoretical relationship between the forward premium or discount and the interest rate differential. The vertical axis represents the interest differential in favor of the foreign currency and the horizontal axis shows the forward premium or discount on that currency. The interest parity line shows the equilibrium state. This chapter ignores transaction costs for simplicity. However, it is important to recognize the fact that transaction costs cause the interest parity line to be a band rather than a thin line. Transaction costs include the foreign-exchange brokerage costs on spot and forward contracts as well as the investment brokerage cost on buying and selling securities.

Point A of figure 5.5 shows that the forward discount for foreign exchange is 1 percent and that the foreign interest rate is 2 percent higher than the domestic interest rate. In this case, the arbitrageur could employ the so-called covered-interest arbitrage to make a profit. Specifically, the arbitrageur would earn 2 percent more on her investment in foreign securities and lose 1 percent on the repurchase of the domestic currency in the forward market by taking the following actions: (1) buying spot foreign currency with domestic currency; (2) investing the foreign currency in foreign securities; and (3) selling the foreign currency in the forward market. The net result is that the arbitrageur would make a profit of 1 percent from this covered-interest arbitrage transaction.

The arbitrageur would have to convert the foreign currency to domestic currency at the end of maturity. The exchange rate may fall before the arbitrageur has returned her funds to her home country. For that reason, the arbitrage transaction involves foreign-exchange risks. To avoid these risks, she will cover the transaction by selling forward the same amount of the foreign currency at 1 percent discount. The investment protected by forward sales is called covered-interest arbitrage.

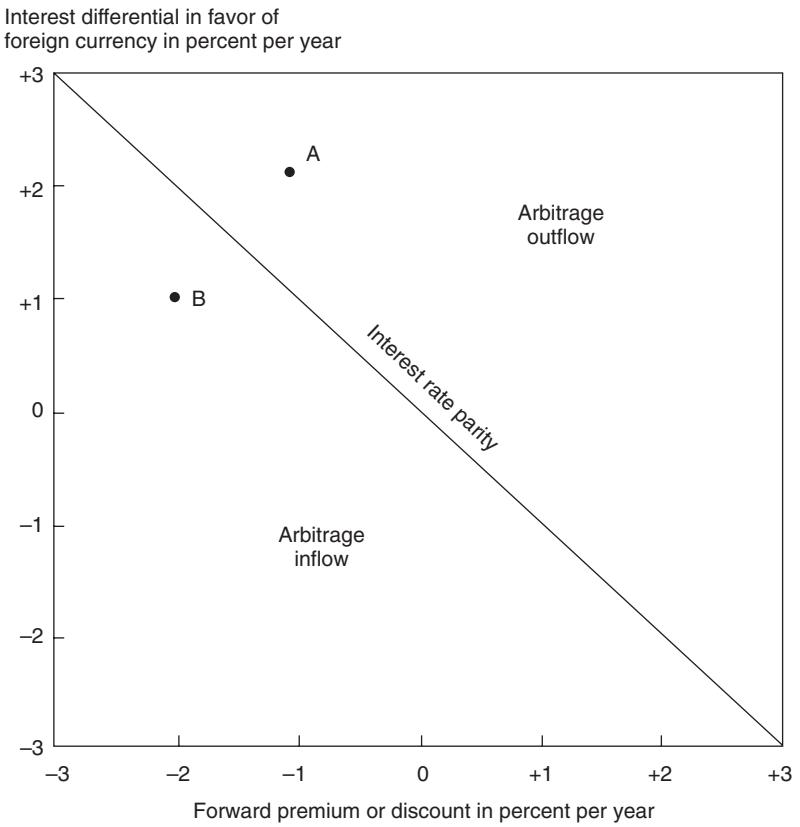

Figure 5.5 Covered-interest arbitrage

Example 5.12

Suppose: (1) the Swiss interest rate is 10 percent; (2) the US interest rate is 8 percent; (3) the spot rate for Swiss francs is \$0.5000; and (4) the 180-day forward rate for Swiss francs is \$0.4975.

The forward discount for the franc is obtained by using equation 5.4:

$$\text{forward discount} = \frac{\$0.4975 - \$0.5000}{\$0.5000} \times \frac{360}{180} = -0.01 \text{ or } -1\%$$

The interest differential is 2 percent (10 percent – 8 percent) in favor of the Swiss franc. The covered-interest arbitrage would work as follows:

1	Borrow dollars in the USA	–8%
	Buy francs spot with the dollars	
2	Invest the francs in Swiss securities	+10%
3	Sell francs forward against dollars at a discount	–1%
	Net profit	+1%

These transactions would cause four tendencies in foreign-exchange markets and money markets:

1 The spot rate of the franc against the dollar would tend to appreciate as investors bought francs against dollars.
2 The forward rate of the franc against the dollar would tend to depreciate as investors sold francs against dollars.
3 The US interest rate would tend to rise as investors borrowed dollars.
4 The Swiss interest rate would tend to fall as investors lent francs.

The first two tendencies would increase the original forward discount of 1 percent toward the initial interest differential of 2 percent. The last two tendencies would reduce the initial interest differential of 2 percent toward the original forward discount of 1 percent. These four tendencies would continue until the forward discount for the franc equaled the interest rate differential in favor of the franc.

At point B of figure 5.5, the foreign interest rate is 1 percent higher than the domestic interest rate. The cost of forward cover (forward discount) is 2 percent. In this case, the arbitrageur would sell the foreign currency for the domestic currency, invest this domestic currency in home-country securities, and repurchase the foreign currency in the forward market at a discount. She would lose 1 percent on this investment in home-country securities, but she would earn 2 percent on the repurchase of the foreign currency. Hence, the arbitrageur would make a profit of 1 percent.

Example 5.13

Suppose: (1) the Canadian interest rate is 10 percent; (2) the US interest rate is 9 percent; (3) the spot rate for Canadian dollars is \$0.8500; and (4) the 180-day forward rate for Canadian dollars is \$0.8415.

The forward discount for the Canadian dollar is obtained by using equation 5.4:

$$\text{forward discount} = \frac{\$0.8415 - \$0.8500}{\$0.8500} \times \frac{360}{180} = -0.02 \text{ or } -2\%$$

The interest differential is 1 percent (10 percent – 9 percent) in favor of the Canadian dollar. The covered-interest arbitrage would work as follows:

1	Borrow Canadian dollars in Canada Buy US dollars with the Canadian dollars	–10%
2	Invest the US dollars in US securities	+9%
3	Sell US dollars forward at a premium	+2%
	Net profit	+1%

These transactions would cause four tendencies in foreign exchange and money markets:

1 The spot rate of the Canadian dollar against the US dollar would tend to depreciate as investors sold Canadian dollars against US dollars.
2 The forward rate of the Canadian dollar against the US dollar would tend to appreciate as investors bought Canadian dollars against US dollars.
3 The US interest rate would tend to fall as investors lent US dollars.
4 The Canadian interest rate would tend to rise as investors borrowed Canadian dollars.

The first two tendencies would reduce the original forward discount of 2 percent toward the initial interest differential of 1 percent. The last two tendencies would increase the initial interest differential of 1 percent toward the original forward discount of 2 percent. These forces would work until the interest rate differential equaled the forward discount.

Any point above the interest parity line, such as point A, has the following two features: (1) the first step of the arbitrage process would be to borrow money in the home country; and (2) funds would move from the home country to the foreign country (arbitrage outflow). Any point below the interest parity line, such as point B, has the following two features: (1) the first step of the arbitrage process would be to borrow money in the foreign country, and (2) funds would move from the foreign country to the home country (arbitrage inflow).

The interest parity line of figure 5.5 identifies the equilibrium position for the relationship between interest rate differentials and forward premiums or discounts. Every point on this line represents a situation in which the interest rate differential equals the forward premium or discount. In this case, arbitrageurs would have no incentive to transfer funds from one country to the other. However, at any point off the line, there should be an incentive to move funds from one country to another. Such transfers of funds would cause interest differentials or forward premiums (discounts) to move toward the interest parity line.

The theoretical equilibrium position exists only under a free market system. Because there are a variety of artificial barriers and intervention by government authorities in both foreign exchange and money markets, this equilibrium condition hardly ever exists in practice.

SUMMARY

Exchange rates represent prices of one currency in terms of another currency. They are determined by the forces of supply and demand under a free market system. The primary function of the foreign-exchange market is to transfer purchasing power denominated in one currency to another, thereby facilitating foreign trade and investment. The foreign-exchange market consists of two tiers: the interbank market, in which banks trade with each other, and the retail market, in which banks deal with their nonbank customers.

A major problem of multinational corporations is the fact that cash flows must cross national boundaries. These flows are subject to various constraints imposed by government authorities and exchange rate fluctuations. Trades in currencies take place in the foreign-exchange markets for immediate delivery (spot market) and future delivery (forward market). The foreign-exchange market is a worldwide network of telephone and computer communications between banks.

The five major theories of exchange rate determination are (1) the theory of purchasing power parity, (2) the Fisher effect, (3) the international Fisher effect, (4) the interest rate parity theory, and (5) the forward rate as an unbiased predictor of the future spot rate. These five theories illustrate the links that exist among spot rates, interest rates, inflation rates, and forward rates. In efficient exchange markets, spot exchange rates are theoretically determined by the interplay of differential national rates of inflation and interest, and the forward premium or discount.

Essentially, the PPP doctrine and the interest parity theory explain why, in the long run, exchange rates move toward positions of equilibrium in which prices in different countries and their interest rates are the same. This is because arbitrageurs buy currencies in one market and sell them in another market in order to take advantage of price or interest differentials prevailing at differential national markets. Thus, the process of arbitrage works through the foreign-exchange market to bring inflation and interest rates in different markets closer together.

Questions

1 What are the major roles that commercial banks play in international transactions?
2 What is the cross rate? Why do we have to compute the cross rate?
3 When will a forward exchange contract backfire?
4 List the hypotheses on which the concept of efficient exchange markets depends.
5 Assume that the inflation rate is higher in the USA than in Japan. How should this affect the US demand for Japanese yen, the supply of the yen for sale, and the equilibrium value of the yen?
6 Discuss some causes of deviations from purchasing power parity.
7 Assume that the interest rate is higher in the UK than in the USA. How should this affect the US demand for British pounds, the supply of pounds for sale, and the equilibrium value of the pound?

8 Under what conditions will a higher inflation rate of a country lead to a corresponding increase of its interest rate for that country?
9 If the US trade balance with the UK is expected to improve next year, what is the likely relationship between the forward rate on the British pound and its current spot rate?
10 Assume that the difference between the US interest rate and the Mexican interest rate is 11 percent in favor of Mexico, but the forward discount rate for the Mexican peso is 20 percent. The discrepancy between the interest differential and the forward discount seem to open incentives for arbitrage. Could it be possible to take advantage of the opportunity for covered-interest arbitrage?

Problems

1 If the Swiss franc is selling for $0.5618 and the Japanese yen is selling for $0.0077, what is the cross rate between these two currencies?
2 (a) If the spot rate changes from $0.11 per peso to $0.10 per peso over a 1-year period, what is the percentage change in the value of the Mexican peso?
(b) If the spot rate changes from Mex$10.00 per dollar to Mex$9.00, what is the percentage change in the value of the Mexican peso?
3 If a bank's bid price is $1.60 for the British pound and its ask price is $1.65, what is the bid–ask spread for the pound?
4 Assume: (1) the spot rate for Canadian dollars is $0.8089; (2) the 180-day forward rate for Canadian dollars is $0.8048; (3) the spot rate for Swiss francs is $0.4285; and (4) the 180-day forward rate for Swiss francs is $0.4407. Determine the 180-day forward discount or premium on both the Canadian dollar and the Swiss franc.
5 Fill in the following blank spaces:

	British pounds	Swiss francs
Direct (outright)		
Spot	$2.0787	$0.4108
30-day forward		0.4120
90-day forward		0.4144
Points (spread)		
30-day forward	–13	
90-day forward	–60	
Percentage discount or premium a year		
30-day forward		
90-day forward		

6 Assume that the current exchange rate is $2.00 per pound, the US inflation rate is 10 percent for the coming year, and the British inflation rate is 5 percent over the same period. What is the best estimate of the pound future spot rate 1 year from now?

7 Assume that you can buy a particular basket of goods for $108 in the USA and ¥14,000 in Japan.
   (a) What should the ¥/$ exchange rate be according to the absolute purchasing power parity?
   (b) If the actual exchange rate were ¥120 per dollar, would the dollar be considered undervalued or overvalued?

8 The following quotations and expectations exist for the Swiss franc:

Present spot rate	$0.5000
90-day forward rate	0.5200
Your expectation of the spot rate in 90 days	0.5500

   (a) What is the premium or discount on the forward Swiss franc?
   (b) If your expectation proves correct, what would be your dollar profit or loss from investing $4,000 in the spot market? How much capital would you need now to carry out this operation? What are the major risks associated with this speculation?
   (c) If your expectation proves correct, what would be your dollar profit or loss from investing $4,000 in the forward market? How much capital would you need now to speculate in the forward market? What are the major risks associated with the speculation?

9 An American firm purchases $4,000 worth of perfume (Mex$20,000) from a Mexican firm. The American distributor must make the payment in 90 days, in Mexican pesos. The following quotations and expectations exist for the Mexican peso:

Present spot rate	$0.2000
90-day forward rate	0.2200
Your expectation of the spot rate in 90 days	0.2500
US interest rate	15%
Mexican interest rate	10%

   (a) What is the premium or discount on the forward Mexican peso? What is the interest differential between the USA and Mexico? Is there an incentive for covered-interest arbitrage?
   (b) If there is an incentive for covered-interest arbitrage, how can an arbitrageur take advantage of the situation? Assume: (1) the arbitrageur is willing to borrow $4,000 or Mex$20,000; and (2) there are no transaction costs.
   (c) If transaction costs are $100, would an opportunity still exist for covered-interest arbitrage?
   (d) What alternatives are open to the importer if she wants to cover her transaction against the foreign-exchange risk?

(e) Assume that your expectation proves correct and that the importer decides to cover this transaction. What would be the opportunity cost of each alternative? Which alternative is more attractive and why?
(f) Would you advise the American firm to cover its foreign transaction? Why or why not?

10 You must make a $100,000 domestic payment in Los Angeles in 90 days. You have $100,000 now and decide to invest it for 90 days either in the USA or in the UK. Assume that the following quotations and expectations exist:

Present spot rate per pound	$1.8000
90-day forward rate per pound	$1.7800
US interest rate	8%
UK interest rate	10%

(a) Where should you invest your $100,000 to maximize your yield with no risk?
(b) Given the US interest rate, the UK interest rate, and the spot rate, what would be an equilibrium forward exchange quotation? This equilibrium situation should provide you with no advantage or disadvantage associated with investing in one country or the other.
(c) Given the spot rate, the forward rate, and the US interest rate, what is the equilibrium UK interest rate?

11 Assume that ¥1 = $0.0077 in New York, $1 = SKr2.00 in London, and SKr1 = ¥65 in Tokyo.
(a) If you have ¥10,000 on hand, how could you use a triangle arbitrage to earn a profit?
(b) If you ignore transaction costs, what is the arbitrage profit per yen initially traded?

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Case Problem 5: The Big Mac Hamburger Standard: February 2003

The theory of purchasing power parity (PPP) is one of the oldest theories in international economics. The theory states that, in the long run, the exchange rates between two currencies should move toward the rate that would equalize the prices of an identical basket of goods and services in the two countries. As a theoretical proposition, it serves as a solid foundation for thinking about the conditions under which prices in international markets adjust to attain long-term equilibrium. As a practical matter, however, PPP has been a more puzzling concept.

The Economist, a monthly business publication, has established another, yet somewhat more recent, tradition: the Big Mac PPP. Since 1986, *The Economist* has evaluated prevailing exchange rates on the basis of Big Mac price differentials in various countries around the world. A similar index has also been developed by the Union Bank of Switzerland in its annual comparison of prices and incomes around the globe. These light-hearted studies of international burger prices have predictably stimulated the passion of the popular media and the financial press. The Big Mac index was devised as an enjoyable guide to whether currencies are at their "correct" level. As *The Economist* puts it, "the index is not intended to be a predictor of exchange rates, but a tool to make economic theory more digestible." An identical basket of goods and services in this particular case is a McDonald's Big Mac, which is made to roughly the same recipe in more than 100 countries. The Big Mac PPP is the exchange rate that would make a burger cost the same in America as it does abroad. Comparing Big Mac PPPs with actual exchange rates is one test of whether a currency is undervalued or overvalued.

The second column of table 5.2 shows the local-currency prices of a Big Mac: the third converts them into dollars. The fourth column shows Big Mac PPPs. For example, dividing the Swiss price by the American gives a dollar PPP of SFr2.48. The actual rate on February 11, 2003, was SFr1.37, implying that the Swiss franc is 81 percent overvalued against the dollar. The average American price is $2.54. Argentina is a place for bargain hunters: a Buenos Aires Big Mac costs only $0.80. At the other extreme, the Swiss price of $4.61 is enough to make Big Mac fans choke on their all-beef patties. This implies that the Argentinean peso is the most undervalued currency (by 69 percent), and the Swiss franc is the most overvalued (by 81 percent). In general, the dollar is undervalued against the currencies of most big industrial countries, but overvalued against the currencies of developing countries.

Case Questions

1 Name the currencies of the 15 countries listed in table 5.2 and write down their traditional symbols.

Table 5.2 The hamburger standard

Country	*In local currency*	*In dollars*	*Implied PPP of dollar*	*Actual exchange rate*	*Local currency under(–)/over(+) valuation*
USA	2.54	2.54	–	–	–
Switzerland	6.30	4.61	2.48	1.37	+81
Denmark	24.75	3.57	9.74	6.92	+40
UK	1.99	3.24	1.28	1.63	+27
Sweden	24.0	2.81	9.45	9.45	+11
Eurozone	2.57	2.76	0.99	0.93	+6
South Korea	3,000	2.51	1,181	1,196.70	–1
Japan	294	2.42	116	121.30	–4
Taiwan	70.0	2.01	27.6	34.90	–21
Hong Kong	10.2	1.31	4.02	7.80	–48
China	9.9	1.19	3.90	8.29	–53
South Africa	9.70	1.13	3.82	8.57	–55
Russia	35.00	1.10	13.80	31.82	–57
Brazil	3.30	1.00	1.52	3.59	–58
Argentina	2.50	0.80	0.98	3.13	–69

2 Calculate the dollar price of a Big Mac (column 3), the implied PPP of the dollar (column 4), and the local currency under(–)/over(+)valuation (column 6) for Denmark and Hong Kong.
3 In 2003, it cost $0.80 to buy a Big Mac in Argentina, $2.54 to buy a Big Mac in the USA, and $4.61 to buy a Big Mac in Switzerland. How do we explain these deviations from PPP?
4 A web page of OANDA.com (see www.oanda.com/products/bigmac/bigmac.shtml) provides exchange rate trends of various currencies. Use this web page to obtain the latest version of the hamburger standard shown in table 5.2.

Sources: www.oanda.com/products/bigmac/bigmac.shtml as of Feb. 11, 2003; R. E. Cumby, "Forecasting Exchange Rates and Relative Prices With the Hamburger Standard: Is What You Want What You Get With McParity?" Manuscript, Georgetown University, 1995; and M. R. Pakko and P. S. Pollard, "For Here or To Go? Purchasing Power Parity and the Big Mac," *Review*, Federal Reserve Bank of St. Louis, Jan./Feb. 1996, pp. 3–21.

CHAPTER 6

Currency Futures and Options

Opening Case 6: Derivatives Risks

Do you know how many days it took for a son to lose $150 million in foreign-exchange trading that it had taken his father decades to accumulate? The answer is just 60 days. The following story illustrates how volatile the currency derivatives market was in the 1990s.

"Dad, I lost a lot of money," Zahid Ashraf, a 44-year-old from the United Arab Emirates, confessed to his ailing father, Mohammad. "Maybe no matter," the father said, recalling the conversation in court testimony. Mohammad Ashraf, who had built one of the largest gold and silver trading businesses in the Persian Gulf, then asked, "How much have you lost?" The answer – about $150 million – mattered plenty to the stunned 69-year-old family patriarch.

In 2 months of foreign-currency trading in 1996, Zahid wasted much of a fortune ($250 million) that it had taken his father decades to build. The tight-knit Ashraf family estimates that Chicago-based commodities giant Refco Inc. collected about $11 million in commissions for the trades. So they sued Refco for $75 million of their losses. The Ashrafs contended that "Refco brokers conspired Zahid Ashraf to execute massive unauthorized speculative trading in currency futures and options" and "to conceal these trades from other family members." However, after a seven-day trial in February 1999, the jury ruled against the Ashrafs, not only rejecting their claim, but also finding that the family's Eastern Trading Co. still owed Refco $14 million on Zahid's uncovered losses. Because it involved a family business whose home turf is far from the world's financial capitals, such as New York or London, the debacle transpired virtually unnoticed. But it serves as yet another reminder of hazards posed by the volatile derivatives markets of the 1990s.

Financial derivatives, such as futures, options, and swaps, are supposedly hedging instruments designed to alleviate or eliminate a variety of risks. These hedging instruments are generally considered safe for short-term purposes, but they are not risk free either. Even some reputable companies, such as Procter & Gamble, have incurred large derivative-related losses in recent years (see Case Problem 7: Regulation of Derivatives Markets). Such corporate disasters related to financial derivatives continue to be a problem in global business. As is the case with so many issues in modern society, technology is not at fault, but rather human error in its use.

Sources: "How Currency Trading Run Amok Crushed a Family," *The Wall Street Journal*, Apr. 8, 1999, pp. C1, C13; and M. H. Moffett, A. I. Stonehill, and D. K. Eiteman, *Fundamentals of Multinational Finance*, Boston, MA: Addison-Wesley, 2003, p. 157.

Multinational companies (MNCs) normally use the spot and forward markets for international transactions. They also use currency futures, currency options, and currency futures options for various corporate functions. While speculators trade currencies in these three markets for profit, MNCs use them to cover open positions in foreign currencies.

This chapter is divided into three closely related sections. The first section discusses currency futures. With a **currency futures contract**, one buys or sells a specific foreign currency for delivery at a designated price in the future. The second section describes currency options. A **currency option** is the right to buy or sell a foreign currency at a specified price through a specified date. The third section examines currency futures options. A **currency futures option** is the right to buy or sell a futures contract of a foreign currency at any time for a specified period.

Global Finance in Action 6.1

More Bang for Your Buck in Currency Trading

The potential of CME foreign-currency futures and options on futures is easy to understand.

They are volatile. They offer low margins. And they are exceptionally liquid, with an average daily volume close to 100,000 contracts.

Most important, CME currency contracts trend well, year after year. And they respond to familiar, fundamental economic factors – the kind of information you follow every day in the news.

What is more, with CME foreign-currency options, you can take advantage of opportunities in the market with limited risk.

Of course, trading foreign-currency futures and options at the CME does involve risk. But if you can afford to assume it, they offer everything a speculator could want.

More bang for the buck. The euro. And the yen. To learn more, call your futures broker.

Source: Chicago Mercantile Exchange (CME).

6.1 The Currency Futures Market

The Chicago Mercantile Exchange (CME), known as "The Merc," was founded in 1919 as a nonprofit organization to trade spot and futures commodity contracts. In 1972, the CME introduced futures trading in foreign currencies through the International Monetary Market (IMM) as an alternative to regular forward contracts offered by commercial banks. Most major exchanges around the world have added currency futures in recent years. They include the Philadelphia Board of Trade, the New York Board of Trade, the Deutsche Termin Borse in Frankfurt, the Hong Kong Futures Exchange, the London International Financial Futures Exchange, the New Zealand Futures Exchange, the Singapore International Monetary Exchange, the Stockholm Options Market, the Tokyo International Financial Futures Exchange, the Mer Der Exchange in Mexico, the BM&F Exchange in Brazil, the Budapest Commodity Exchange, and the Korean Futures Exchange.

6.1.1 Futures market participants

Futures contracts are deals made now to take place in the future. In a futures contract, the buyer and the seller agree on:

1 A future delivery date.
2 The price to be paid on that future date.
3 The quantity of the currency.

The currency futures market was created for those who use foreign exchange in business. Businesses, which deal with international transactions, routinely buy and sell foreign exchange in the spot market. They enter the futures market only to protect themselves against risks from volatile exchange rates. The currency futures contract is like an insurance policy against changes in exchange rates. In practice, most currency futures contracts are nullified by opposing trades, so futures traders rarely take delivery of a foreign currency; in fact, nearly 98 percent of them are terminated before delivery.

There are two distinct classes of traders in the currency futures market: hedgers and speculators. **Hedgers** buy and sell currency futures contracts to protect the home currency value of foreign currency denominated assets and liabilities. They include MNCs, importers, exporters, bankers, and brokers, who require protection against adverse exchange rate movements. They expect their profits to come from managerial skills in conducting their business activities, not from incidental fluctuations in exchange rates. **Speculators**, on the other hand, buy and sell currency futures contracts for profit from exchange rate movements. They trade futures strictly for profit; they can make or lose fortunes. A speculator trades currency futures but never uses the currency.

A hedger may place a contract with another hedger who wishes to cover currency needs in the opposite direction, but the other party to the contract typically is a speculator. Though criticized for greed, speculators play a vital role in futures markets by assuming the risk of the hedger. Their presence not only gives the market liquidity and continuity but also eases entry and exit.

Currency futures trading can take place for hedging or speculation, as well as for arbitrage. In particular, some traders quickly take advantage of any profitable differential, for the same

Table 6.1 Currencies traded on the Chicago Mercantile Exchange

Currency	*Contract size*
Australian dollar	A$100,000
Brazilian real	R100,000
British pound	£62,500
Canadian dollar	Can$100,000
Euro	€125,000
Japanese yen	¥12,500,000
Mexican peso	Mex$500,000
New Zealand dollar	NZ$100,000
Russian ruble	RR500,000
South African rand	R500,000
Swiss franc	SFr125,000
Cross rate futures (underlying currency/price currency)	
Euro/British pound	125,000
Euro/Japanese yen	125,000
Euro/Swiss franc	125,000

currency, between rates quoted in different markets, such as the spot market, the futures market, and the forward market.

6.1.2 *The futures market and the forward market*

Futures contracts are normally available in a predetermined amount and for one of several specified maturity dates. As table 6.1 shows, futures contracts are currently available for 11 currencies with contract sizes specified by the CME. Futures contracts mature on only 4 days of the year; the maturity dates occur on the third Wednesday of March, June, September, and December.

While the principle of protection against currency price fluctuations is the same in the futures and forward markets, there are two major differences. First, the forward market offers contracts for specific amounts of currencies tailored to particular needs, while the futures market offers only standardized contracts in the predetermined amounts. Take, for example, an importer who wishes to cover accounts payable of Can$140,000. He could cover only a portion of the risk in the futures market, but could arrange for full coverage with a single contract in the forward market. Second, a forward contract can cover the exact date the foreign currency is needed, but the futures contract has a standardized delivery date. Suppose an MNC wishes to lift its hedge before the expiration date of the futures contract. It must assume some risk of a currency price fluctuation between the settlement date of the transaction and the delivery date of the contract.

Because MNCs have specialized needs, they normally prefer the forward contract. Consider IBM, which on April 20 realizes it will need Can$240,000 on May 20 (30 days later). If IBM tries to lock in the future purchase price of Canadian dollars with a futures contract, the closest contract settlement date is the third Wednesday of June. Also, the amount of Canadian dollars

needed (Can$240,000) is more than the standardized amount (Can$100,000) specified in the contract. The best IBM can do is to buy two futures contracts (Can$200,000), but the forward market can be tailored to meet the individual needs of MNCs. IBM can buy a forward contract of Can$240,000 with a maturity date of 30 days from BankAmerica.

Currency futures contracts and forward contracts are acquired for hedging, speculation, or arbitrage. Yet, the futures market is more centralized, standardized, and less customer-oriented than the forward market. The futures market and the forward market differ in notable ways:

1 *Price range*. Because the CME specifies a maximum daily price range for each day, a futures market participant is not exposed to more than a limited amount of daily price change. But forward contracts have no daily limits on price fluctuations.
2 *Maturity*. CME futures contracts are available for delivery on one of only four maturity dates per year, but banks offer forward contracts for delivery on any date.
3 *Size of contract*. The futures market offers only standardized contracts in predetermined amounts, but the forward market offers contracts for specific amounts of currencies tailored to specific needs.
4 *Regulation*. The futures market is regulated by the Commodity Futures Commission, but the forward market is self-regulating.
5 *Settlement*. Less than 2 percent of the CME futures contracts are settled by actual delivery, but more than 90 percent of forward contracts are settled by delivery.
6 *Location*. Futures trading takes place on organized exchanges, but forward trading is negotiated directly between banks and their clients.
7 *Credit risk*. The CME guarantees to deliver the currency on schedule if the seller defaults, or to acquire it if the buyer defaults. On the other hand, a bank dealing in the forward market must satisfy itself that the party with whom it has a contract is creditworthy.
8 *Speculation*. CME brokers accommodate speculative transactions, whereas banks generally discourage speculation by individuals.
9 *Collateral*. A security deposit (margin) must back every futures contract, but forward contracts do not require any margin payment. Compensating balances are required in most forward contracts.
10 *Commission*. In the futures market, commissions of intermediaries depend on published brokerage fees and negotiated rates on block trades. In the forward market, a "spread" between the bank's buy and sell prices sets the commissions of intermediaries.
11 *Trading*. Futures contracts are traded in a competitive arena, but forward contracts are traded by telephone or telex.

6.1.3 How to read currency futures quotes

The Wall Street Journal and other major newspapers carry currency futures quotations, though they do not list the newest or least active contracts. To explain how to read currency futures quotes, we will focus on the Australian dollar futures traded on the CME. Table 6.2 presents the Australian dollar futures prices reported in *The Wall Street Journal* on July 1, 2004. Because there is a one-day time lag between the transactions of foreign exchange and the report of these transactions, we obtained the June 30 quotations from the July 1 issue of *The Wall Street Journal*.

The top, bold-faced line gives the name of the currency, in this case the Australian dollar (AUD); the exchange on which it is traded according to a key in the table, such as the

Table 6.2 Currency futures quotations in the CME: the Australian dollar

						Lifetime		
	Open	*High*	*Low*	*Settle*	*Change*	*High*	*Low*	*Open interest*
AUSTRALIAN DOLLAR (CME) – AUD 100,000; $ per AUD								
Sept.	.6857	.6917	.6821	.6910	.0070	.7780	.5756	25,951
Dec.	.6782	.6832	.6780	.6852	.0070	.7705	.6150	132
Est. vol. 3,997 vol. Tue 8,258; open int. 26,312, +1,335								

Source: *The Wall Street Journal*, July 1, 2004, p. C18.

CME; the size of a single contract, such as AUD100,000 per contract; and the way in which prices are quoted, such as dollars ($) per AUD. The first column gives the months for which delivery of the currency may be obtained. Currency trading takes place in March, June, September, and December. The second column gives the opening price of the day. The next three columns tell us the contract's highest, lowest, and closing (settlement) prices for the day. These figures, viewed together, show how volatile the market was during the trading day. A broker uses settlement prices to evaluate portfolios or for deciding whether to call for more margin. Currency futures losses must be settled every day, and profits are credited daily to customer accounts.

The sixth column from the left of the quotation, labeled "change," shows the difference between the latest settlement price and the one for the previous day. A plus (+) sign indicates that prices ended higher; a minus (–) sign indicates that prices ended lower. The next two columns, the second and third from the right of the quotation, show the highest and lowest prices at which each contract has ever traded. The difference between the highest and lowest prices of each currency during its lifetime is called the "range." The range represents the volatility of the currency or the dispersion of individual prices for the currency around its average price. The wider the dispersion, the higher is the risk. If the highest price and the lowest price are not widely separated from their neighboring prices, the range may be a good measure of risk. If these two prices are erratic, the range should not be used as a measure of risk, because it is unreliable and misleading.

The right-hand column, labeled "Open interest," refers to the total number of outstanding contracts; that is, those that have not been canceled by offsetting trades. This column allows us to see how much interest there is in trading a particular contract. The closest months usually attract the most activity, as we can see from the difference between the June mark contracts and the September mark contracts.

A line at the bottom of each currency quotation gives the estimated number of contracts for the day (Tuesday, June 30), the actual trading volume for the preceding day (Monday, June 29), the total open interest, and the change in the open interest since the preceding day. In other words, "Est. vol.," "vol. Tue," and "open int." are total figures for all the months combined for the trading day.

6.1.4 Market operations

An agreement to buy a futures contract is a **long position** and an agreement to sell a futures contract is a **short position**. To trade futures, people give their broker an order to enter them

into a contract as either a buyer (the long position) or as a seller (the short position), depending on which way they think the market is heading.

MARGIN REQUIREMENTS Some form of deposit ensures that each party fulfills its commitment; this type of deposit is called the margin. The exchanges set a minimum margin for each contract, but brokers often require larger margins from clients. The amount of a futures margin depends on the volatility of the contract value and hence on the risk. Margin levels also vary for hedging and speculating accounts. For example, exchanges and brokerage firms normally require lower margins for hedging accounts because they carry less risk than speculating accounts.

The two basic types of margins are required: the initial margin and the maintenance margin. The **initial margin** is the amount market participants must deposit into their margin account at the time they enter into a futures contract. Then, on a daily basis, the margin account is debited or credited to protect buyers and sellers against the possibility of contract default. Initial margins for futures contracts typically range between 1 and 4 percent of a contract's face value and are set by the exchanges where the contracts are traded.

The **maintenance margin** is a set minimum margin customers must always maintain in their account. On any day that market losses reduce funds in the account below the maintenance margin, the broker calls on his customer for an additional deposit to restore the account to the initial margin level. Requests for additional money are known as **margin calls**. The maintenance margin is usually 75 percent of the initial margin.

In addition to these two basic types of margins, market participants are required to post **performance bond margins**, which are financial guarantees imposed on both buyers and sellers to ensure that they fulfill the obligation of the futures contract. In other words, they are required to make or take delivery of the futures contract unless their position is offset before the expiration of the contract. The purpose of a performance bond margin is to provide integrity.

Example 6.1

Lisa George buys Australian dollar futures contracts to cover possible exchange losses on her import orders denominated in Australian dollars. She has to put up an initial margin of $3,000. The maintenance margin imposed by the exchange is 75 percent of the initial margin, or $2,250. When would she get a margin call from her broker?

If the spot rate for Australian dollars declines, the value of Ms George's position declines. As long as the decline is less than $750, Lisa George does not need to put up any additional margin. Yet, if the cumulative decline in value comes to $751, her margin account would stand at $2,249. She would get a margin call from her brokerage firm and must restore the account to the initial level of $3,000. Otherwise, the exchange will sell out her position and return any remaining balance in her account.

SPECULATION IN THE FUTURES MARKET Speculation offers potentially large profits or losses due to the highly leveraged nature of futures trading. Because margin requirements average less than 4 percent of the contract's full value, it is possible to control large amounts of currencies with little capital. Speculators deliberately expose themselves to exchange risk by engaging in futures contracts in order to make profits from exchange rate movements.

Example 6.2

Kenneth Lee, a speculator, enters into a futures contract for March delivery of SFr125,000 on February 1. The futures exchange rate of the Swiss franc for March delivery (March 15) is $0.5939 per franc. The margin requirement is 2 percent. His expectation of the spot rate for francs on March 15 is $0.6117. If his expectation proves correct, what would be his rate of return on investment?

Because the margin requirement is 2 percent, Mr Lee may control this delivery of SFr125,000 for $1,484.75 (SFr125,000 × $0.5939 × 0.02). He could buy SFr125,000 futures for $74,237.50 at the futures quotation of $0.5939, receive them on March 15, and then sell them at the spot rate of $0.6117 for a gross of $76,462.50. Profit would be $2,225. So, he would earn a net profit of $2,225, or 150 percent on the original investment of $1,484.75. Here, the exchange rate would rise by only 3 percent [(0.6117 – 0.5939)/0.5939], but the rate of return on investment would be 150 percent. Yet the same leverage could lead to equally substantial losses. If the spot rate were to decline by 3 percent during this period, Mr Lee would lose about 150 percent of his investment.

HEDGING IN THE FUTURES MARKET A single forward contract can arrange for the precise amount and maturity that the bank's customer desires. A single futures contract is available only in a predetermined amount for one of the four maturity dates each year. These two features of the futures market may force MNCs to assume some risks of coverage and of currency fluctuation, because they usually need a specified amount of a currency on a specified date. Still, these risks can be minimized in a properly structured hedge. Prices in the spot and futures markets move in the same direction by similar amounts due to arbitrage transactions between these two markets.

Example 6.3

On February 1, an American firm imports 5,000 Swiss watches at a cost of SFr250,000 with payment and delivery due on March 1. The Swiss firm, being a tough negotiator, has demanded that the payment be made in Swiss francs upon the delivery of the watches. The exchange rates are $0.6667 per franc in the spot market and $0.6655 per franc in the futures market for delivery on March 15.

Table 6.3 Buying two franc futures contracts on February 1

	Spot market	*Futures market for March 15 delivery*
Exchange rate	$0.6667/SFr	$0.6655/SFr
Cost of SFr250,000	$166,675	$166,375
Action taken	None	Buy two March 15 contracts

Table 6.4 Reversing the earlier futures contracts on March 1

	Spot market	*Futures market for March 15 delivery*
Exchange rate	$0.7658/SFr	$0.7650/SFr
Cost of SFr250,000	$191,450	$191,250
Action taken	Buy SFr250,000	Sell two March 15 contracts

Given the costs of marketing the watches, the importer decides that the futures exchange rate is low enough for the company to purchase them and make a profit on the transaction. However, the importer must pay for the watches on March 1, although the expiration date of the futures contract is March 15. The importer can hedge most of its exposure by buying March Swiss franc contracts on February 1, with the intention of lifting the hedge on March 1. Because franc contracts are available from the CME in units of 125,000, the importer would purchase two March contracts, as shown in table 6.3.

The importer could trade out of the contracts by selling them before receiving a delivery notice on March 15. The only risk that the company still faces comes from the difference in the value of the contract on March 1 and its value on March 15. Assume that by March 1 the following two things would happen: (1) the spot rate would appreciate to $0.7658 and (2) the futures rate would rise to $0.7650. The importer could close out the franc futures contracts by selling them on March 1, as shown in table 6.4.

On March 1, the importer purchases SFr250,000 in the spot market for $191,450 and settles its import bill. However, this $191,450 is higher ($24,775) than its original value on February 1 ($166,675); in other words, the exchange loss from the spot transaction is $24,775. The futures contract that the company sold on March 1 ($191,250) is higher ($24,875) than the $166,375 the company anticipated in the futures contract that it purchased on February 1; in other words, the exchange gain from the futures transaction is $24,875. The $24,875 gain from the futures transaction exceeds the $24,775 loss from the spot transaction. The risk that the importer assumed on February 1 by purchasing two contracts whose maturity did not coincide with the March 1 usage date of the currency resulted in a windfall exchange gain of $100 ($24,875 – $24,775). This $100 gain arose from the difference between the spot rate and the futures rate prevailing on the day the contracts were liquidated. This difference is the "basis."

The basis, unlike the spot rate itself, is relatively stable and narrows toward zero as the contract moves toward maturity. For example, the basis on February 1 was $0.0012 per

franc ($0.6667 – $0.6655), while by March 1 it had shrunk to $0.0008 ($0.7658 – $0.7650). The degree of uncertainty about the futures price diminishes further as the contract approaches its March 15 expiration date. On March 15, the futures rate, in effect, becomes the spot rate.

In example 6.3, the difference of $0.0004/SFr in the basis between February 1 and March 1 accounted for the windfall exchange gain of $100. This gain might easily have been an exchange loss of a similar amount if the exchange rate of the Swiss franc had depreciated during the same period. The important point is that the importer was protected from any major loss regardless of exchange rate movements. For example, if the importer had not purchased the futures contract and had bought SFr250,000 in the spot market on March 1, the watches would have cost an additional $24,775.

Frequent futures traders may try to coordinate trading between two different markets or two different currencies through a strategy called **spread trading**, which means buying one contract and simultaneously selling another contract. They will always make money on one contract and lose money on the other contract. Thus, they may make or lose more money on the one contract than they lose or make on the other, but they are protected from major loss regardless of exchange rate movements.

THE TRADING VOLUME IN CURRENCY FUTURES The currency futures market is a good source of funds for multinational companies, but it is relatively small and inflexible. In spite of its drawbacks, the futures market grew rapidly until 1992, with total volume falling from that high in recent years. As shown in figure 6.1, the number of currency futures contracts traded on the CME increased from only 199,920 in 1975 to 38 million in 1992. Since 1992, volume has trended downward and was cut almost in half by 2001, when only 20 million contracts were traded. This downward trend took place for at least two major reasons. First, the progress toward European Union and the growing importance of the euro have made trading in most European currencies obsolete. Second, the decline in importance of foreign-currency futures is a consequence of the continuing growth of the over-the-counter market. In the 1990s, the swap market grew to an enormous size and now dwarfs the futures market in general and the currency futures market in particular. Figure 6.2 shows the currency composition of currency futures and their market share in 2001. According to the figure, the euro has emerged as the second most important currency in terms of trading volume, accounting for 28 percent of the total market in 2001.

6.2 The Currency Options Market

Founded in 1790, the Philadelphia Stock Exchange, the oldest securities market in the United States, started currency options trading in 1983; since then, the Chicago Mercantile Exchange and the Chicago Board Options Exchange have added currency options trading. Currency options are now traded on exchanges throughout the world, including those in the USA, London, Amsterdam, Hong Kong, Singapore, Sydney, Vancouver, and Montreal.

As shown in table 6.5, currency options are currently available in six currencies at the Philadelphia Exchange: the Australian dollar, the British pound, the Canadian dollar, the euro, the

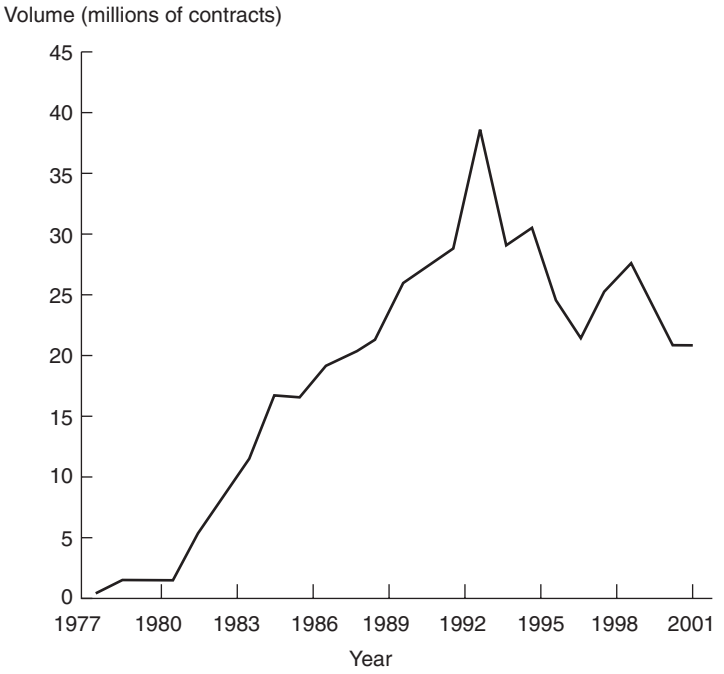

Figure 6.1 The number of currency futures contracts traded on the Chicago Mercantile Exchange
Source: The Currency Futures Trading Commission, *Annual Report*, various issues.

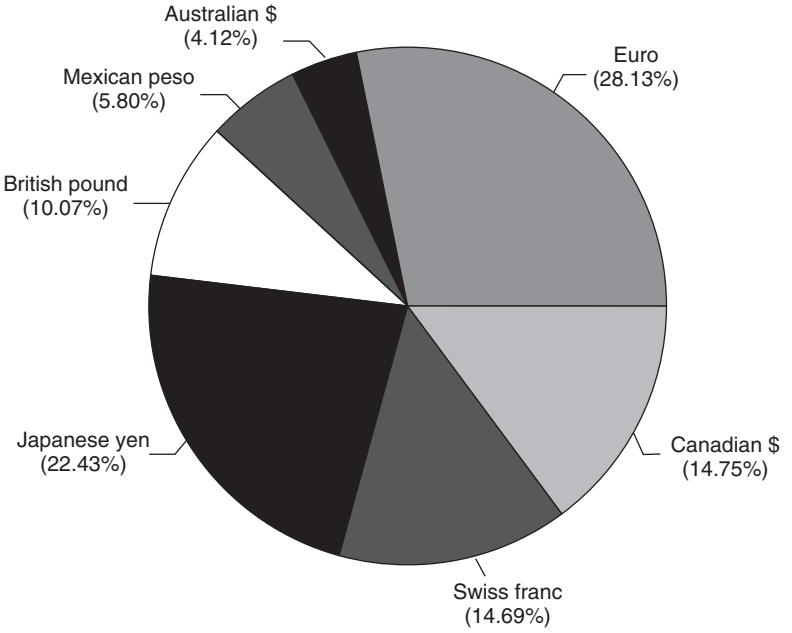

Figure 6.2 The market share for currency futures, 2001
Source: The Currency Futures Trading Commission, *Annual Report*, various issues.

Table 6.5 Currency options prices traded on the Philadelphia Exchange

Currency	*Contract size*
Australian dollar	A$50,000
British pound	£31,250
Canadian dollar	Can$50,000
Euro	€62,500
Japanese yen	¥6,250,000
Swiss franc	SFr62,500

Japanese yen, and the Swiss franc. These currency options are traded in standard contracts half the size of the CME futures contracts. For example, the pound option contract represents 31,250 units, which is half of the 62,500 units represented by the pound futures contract. In addition, a significant amount of currency options is traded outside the organized exchanges. Many banks and other financial institutions have just begun to offer currency options that have exercise prices and exercise dates to meet the specific needs of their corporate clients.

6.2.1 Basic terms

Currency options give the holder the right to buy or sell a foreign currency at a set price on or before a specified date. There are two types of options: calls and puts. A **currency call option** gives the buyer the right, but not the obligation, to buy a particular foreign currency at a specified price at any time during the life of the option. A **currency put option** gives the buyer the right, but not the obligation, to sell a particular foreign currency at a specified price at any time during the life of the option. The grantor of an option – the writer – must deliver the currency if a holder calls, or he must buy it if it is put to him by a put holder. For this obligation, the writer receives a fee or premium.

The holder of a call option will benefit if the underlying currency's price rises, while the holder of a put option will benefit if it falls. If the currency's price does not change much during the life of the option, the holder of the option loses his entire investment. For this reason, options are risky, but there is a potential for large profits in options. To buy a foreign currency outright in the spot market, an investor must pay the entire purchase price of the currency, but the price of an option is a small fraction of the price of the underlying currency.

The **strike price**, or the exercise price, is the price at which the buyer of an option has the right to buy or sell an underlying currency. Option buyers can decide whether or not to go through with the deal at any time up until the expiration date. Options pay no interest and become worthless at expiration unless the price of the underlying currency changes. Only certain expiration dates are available: the exchange, which lists the option, chooses these expiration dates.

Options differ from all other types of financial instruments in the profit–loss patterns that they produce. The beauty of options is that the holder of an option has the possibility of unlimited profit, but his maximum loss would be limited to the amount of premium paid. The holder has the choice of exercising the option or allowing it to expire unused. The holder will exercise the option only when it becomes profitable. On the down side, the holder can let the option

Table 6.6 Swiss franc option quotations

Option & underlying	*Strike price*	*Calls – last*			*Puts – last*		
		Aug.	*Sept.*	*Dec.*	*Aug.*	*Sept.*	*Dec.*
58.51	56.5	–	–	–	0.0	0.03	1.16
58.51	58	0.71	1.05	1.28	0.27	0.81	1.18
58.51	59.5	0.15	0.40	–	2.32	–	–

expire and walk away with a loss no more than the premium paid for it. On the other hand, the possibility of unlimited profit or loss exists in the spot market, the forward market, and the futures market. The profit structures for long and short positions in both the forward market and the futures market exactly mirror each other. In other words, the long or short position on an underlying currency produces a one-to-one gain or loss depending on where the spot rate ends up relative to the contracted futures rate. The buyer of a futures contract earns one dollar for every dollar the seller of the futures contract loses, and vice versa.

6.2.2 How to read currency option quotes

To explain how to read currency option quotes, we will focus on the Swiss franc option traded on the Philadelphia Stock Exchange. Table 6.6 reflects typical quotes in *The Wall Street Journal* for options on the Swiss franc. Although the table does not show them, there are two sets of figures for each of most currencies. One set consists of quotes for European-style options and another set of quotes for American-style options. A European-style option can be exercised only at the time of expiration. An American-style option can be exercised at any time between the date the option is written and its maturity date. Because American-style options are more flexible than European-style options, American-style options are typically more valuable than European-style options for a given strike price, exchange rate volatility, and period to maturity. There are also a number of cross rate options contracts available for several sets of two currencies, such as Euro–Japanese yen.

The first column shows the spot rate of the underlying currency. In table 6.6, "Option & underlying" means that 58.51 cents, or $0.5851, was the spot dollar price of one Swiss franc at the close of trading on the preceding day. The second column shows various strike prices, prices of the underlying currency at which options confer the right to buy or sell. There are several different strike prices listed for the Swiss franc, which means that there were several options available for the Swiss franc.

Then follow two groups of three figures. The first group gives the closing prices or premiums for call options at a given strike price valid until each maturity date (Aug., Sept., and Dec.). The second group gives the closing prices or premiums for put options at a given strike price valid until each maturity date (Aug., Sept., and Dec.). Options mature on the Saturday before the third Wednesday of the expiration month.

Generally, prices are highest for call options whose strike price is below the spot rate and for put options whose strike price is above the spot rate. The volume of options trading is frequently

Table 6.7 Option: in the money, out of the money, or at the money?

	Call option	*Put option*
In the money	Spot > strike	Spot < strike
At the money	Spot = strike	Spot = strike
Out of the money	Spot < strike	Spot > strike

large relative to trading in the underlying currency. This reflects trading by professionals who make their money on numerous but short-term transactions and by holders of foreign exchange who hedge large blocks with options. Such hedging provides a price protection similar to that offered by currency futures.

6.2.3 *Currency option premiums*

An option that would be profitable to exercise at the current spot rate is said to be **in the money**. An option that would not be profitable to exercise at the current spot rate is said to be **out of the money**. When the strike price of any call or put option equals the current spot rate, the option is said to be "**at the money**." Table 6.7 should help you determine whether any call option or put option is in the money, out of the money, or at the money.

A **currency option premium** is the price of either a call or a put that the option buyer must pay the option seller (option writer). This premium depends on market conditions, such as supply, demand, and other economic variables. Regardless of how much the market swings, the most an option buyer can lose is the option premium. He deposits the premium with his broker, and the money goes to the option seller. Option buyers are not required to maintain margin (deposit) accounts because of this limited and known risk.

Option sellers, on the other hand, face risks similar to those of participants in the spot or futures markets. For example, because the seller of a call option is assigned a short position, the risk is the same as for someone who initially bought a foreign currency. The option seller posts margin to demonstrate his or her ability to meet any potential contractual obligations.

Even though the marketplace is the ultimate determinant of an option premium, there are some basic guidelines that traders use to calculate option premiums. In general, an option premium is the sum of intrinsic value and time value:

$$\text{total value (premium)} = \text{intrinsic value} + \text{time value} \tag{6.1}$$

However, it is important to note that both intrinsic value and time value are influenced by the volatility of the difference between a strike price and the price of the underlying currency.

INTRINSIC VALUE **Intrinsic value** is the difference between the current exchange rate of the underlying currency and the strike price of a currency option. In other words, intrinsic value equals the immediate exercise value of the option, but it cannot be lower than zero, because

investors can let their option expire unexercised in case of a possible loss. As a result, any option with an intrinsic value is said to be "in the money." As an example, consider a put option with a strike price of $1.70 per pound and a current spot rate of $1.50 per pound. The intrinsic value of this put is $0.20 ($1.70 − $1.50) in the money, because the immediate exercise of the put would give a $0.20 cash inflow.

TIME VALUE The second major component of an option premium is the **time value**, which is the amount of money that options buyers are willing to pay for an option in the anticipation that over time a change in the underlying spot rate will cause the option to increase in value. In general, the longer the length of time before the settlement date, the higher is the option premium. This is because the right to buy or sell something is more valuable to a market participant if you have 4 months to decide what to do with the option rather than just 1 month. For example, an expiration date in June has four additional months beyond February for the spot rate to change above or below the strike price. As the option approaches its maturity, the time value declines to zero.

THE VALUE OF EXCHANGE RATE VOLATILITY Volatility of the underlying spot rate is one of the most important factors that influences the value of the option premium. Volatility measures the fluctuation in price over a given period of time. The greater the variability of the currency, the higher is the probability that the spot rate will be below or above the strike price. Thus, more volatile currencies tend to have higher option premiums.

SUMMARY Typically, options have positive values even if they are out of the money (i.e., have zero intrinsic value). Investors will usually pay something today for out of the money options on the chance of profit before maturity. They are also likely to pay some additional premium today for in the money options on the chance of an increase in intrinsic value before maturity. Thus, the price of an option is always somewhat greater than its intrinsic value.

6.2.4 *Currency call options*

A currency call option is a contract that gives the buyer the right to buy a foreign currency at a specified price during the prescribed period. People buy currency call options because they anticipate that the spot rate of the underlying currency will appreciate. Currency option trading can take place for hedging or speculation.

HEDGING IN THE CALL OPTIONS MARKET MNCs with open positions in foreign currencies can utilize currency call options. Suppose that an American firm orders industrial equipment from a German company, and its payment is to be made in euros upon delivery. A euro call option locks in the rate at which the US company can purchase euros for dollars. Such an exchange between these two currencies at the specified strike price can take place before the settlement date. Thus, the call option specifies the maximum price that the US company must pay to obtain euros. If the spot rate falls below the strike price by the delivery date, the American firm can buy euros at the prevailing spot rate to pay for its equipment and can simply let its call option expire.

Example 6.4

Let's see how call options may be used to cover possible exchange losses on import orders denominated in foreign currencies. Assume that on February 1 an American firm has purchased a mainframe computer from a Swiss firm for SFr625,000; its payment must be made in Swiss francs on June 1. Let us further assume that the premium for a franc call option with a strike price of $0.5000 and a June expiration date is 0.03 cents per franc. Because there are 62,500 units per franc option, the US firm will need 10 call options to buy SFr625,000. The current spot rate for francs is $0.4900; the US company's bank believes that the spot rate by June 1 will rise to $0.6000.

There are two alternatives available to the US company: do not hedge, or hedge in the options market. If the US company does not want to cover its open position, it would wait for 4 months, buy francs at the prevailing exchange rate in the spot market, and use these francs to pay for its imports. If the bank's forecast is accurate, the US company will spend $375,000 to purchase SFr625,000 at the spot rate of $0.6000.

The price of 10 franc call options is $187.50 (0.03 cents $\times$ 10 options $\times$ 62,500 units per contract). If the US company decides to hedge its position in the options market, on June 1 it would exercise its right to buy SFr625,000 for $312,500 ($0.500 $\times$ SFr625,000). Consequently, the US firm would spend a total of $312,687.50 ($187.50 + $312,500) to purchase SFr625,000. By doing so, the American firm would avoid the risk of a $62,312.50 loss ($375,000 – $312,687.50). Still, if the future spot rate for francs remains below the strike price of $0.5000, the US company can let its options expire and buy Swiss francs at the prevailing spot rate when it must pay for its imports. Here, the US firm would lose its option premium of $187.50.

SPECULATING IN THE CALL OPTIONS MARKET Individuals may speculate with currency call options based on their expectations of exchange rate fluctuations for a particular currency. The purpose of speculation in the call options market is to make a profit from exchange rate movements by deliberately taking an uncovered position. If a speculator expects that the future spot rate of a currency will increase, he makes the following transactions: The speculator will (1) buy call options of the currency, (2) wait for a few months until the spot rate of the currency appreciates highly enough, (3) exercise his option by buying the currency at the strike price, and (4) then sell the currency at the prevailing spot rate. When a speculator buys and then exercises a call option, his profit (loss) is determined as follows:

$$\text{profit (loss)} = \text{spot rate} - (\text{strike price} + \text{premium}) \tag{6.2}$$

Example 6.5

Suppose that the call premium per British pound on February 1 is 1.10 cents, the expiration date is June, and the strike price is $1.60. Richard Smith anticipates that the spot rate of the pound will increase to $1.70 by May 1. If Mr Smith's expectation proves correct, what would be his dollar profit from speculating one pound call option (31,250 units per contract) in the call options market?

Richard Smith could make a profit of $2,781.25 by making the following trades:

1	Buy call options on February 1	–$0.0110 per pound
2	Exercise the option on May 1	–$1.6000 per pound
3	Sell the pound on May 1	+$1.7000 per pound
4	Net profit as of May 1	+$0.0890 per pound
5	Net profit per contract: £31,250 × $0.0890 = $2,781.25	

Richard's profit of $0.0890 per pound can also be obtained by equation 6.2:

$$\text{profit} = \$1.700 - (\$1.6000 + \$0.0110) = \$0.0890$$

Richard Smith does not need to exercise his call options in order to make a profit. Currency call option premiums rise and fall as the exchange rates of their underlying currency rise and fall. If call options become profitable, their premiums will rise. They can be sold, on an exchange, just like any foreign currency itself. So a call option holder such as Mr Smith can save the expense and bother of taking possession of the currency and selling it.

Global Finance in Action 6.2

Options on Economic Data

On October 1, 2002, Goldman Sachs and Deutsche Bank began auctioning options on economic news releases. The first auction was for options on the September US nonfarm payrolls report, released on October 4, while later contracts would include US retail sales, gross domestic product, measures of consumer confidence, inflation, and German data.

The seller of the option is obligated to pay the buyer if the option ends up in the money – having a positive payout. For regulatory reasons, and to reduce the risk that options sellers might default on their obligations to the buyers, only institutional investors and hedge funds may participate in the auctions, and Goldman Sachs and/or Deutsche Bank will be the official counterparties to the buyers.

What economic good do these options on economic statistics provide? They permit companies and individuals to hedge risk, to reduce the danger that bad (or good) economic statistics will reduce their profit/wealth. For example, a construction firm might buy a put option on housing starts to hedge its risk against a slowdown in the industry. If announced housing starts are less than the strike price of the firm's put option, the firm will receive a payment that will make up for the reduced revenue that accompanies fewer housing starts. Similarly, a cruise line might hedge itself against a downturn in travel by using options on consumer confidence.

These options not only allow firms and individuals to share the risk of uncertain economic outcomes, but they also provide publicly available information about the likelihood of these outcomes. In other words, the options prices could help to forecast the distribution of the economic statistics. For example, the difference between the price of call options on September payroll growth with strike prices of 100 and 120 might be used to predict how likely it is that employment growth will be between 100,000 and 120,000. Because such forecasts are generated by firms "putting their money where their mouth is," they might be more accurate than free forecasts. If this market succeeds, such implied forecasts might help both private decision-makers and policy-makers. A Goldman Sachs press release reported that the October 1 auction implicitly predicted a drop of 38,000 in the September nonfarm payrolls. The October 3 auction predicted a drop of 18,000 jobs. In fact, the actual decline was 43,000. Thus, both predictions from the option market bested the consensus forecast of +20,000 published on September 30 in *The Wall Street Journal*. Only time will tell if such good predictions from the economic derivatives market are the exception or the rule.

Source: C. J. Neely, "Options on Economic Data," *International Economic Trends*, Federal Reserve Bank of St. Louis, Nov. 2002.

GRAPHIC ANALYSIS OF A CALL OPTION PRICE Figure 6.3 shows the typical relationship between the market value of a call option and its intrinsic value. Up to the point at which the strike price equals the spot rate, the time value increases as the spot rate increases, but the market value exceeds the intrinsic value for all spot rates. Call options have positive values even if they are out of the money, because they have time value. It is also important to note that the intrinsic value of a call option becomes zero whenever the strike price exceeds the spot rate. In other words, the intrinsic value is zero until the spot rate reaches the strike price, and then rises linearly (one cent for a one-cent increase in the spot rate).

6.2.5 *Currency put options*

A currency put option is simply a contract that gives the holder the right to sell a foreign currency at a specified price during a prescribed period. People buy currency put options because they anticipate that the spot rate of the underlying currency will depreciate.

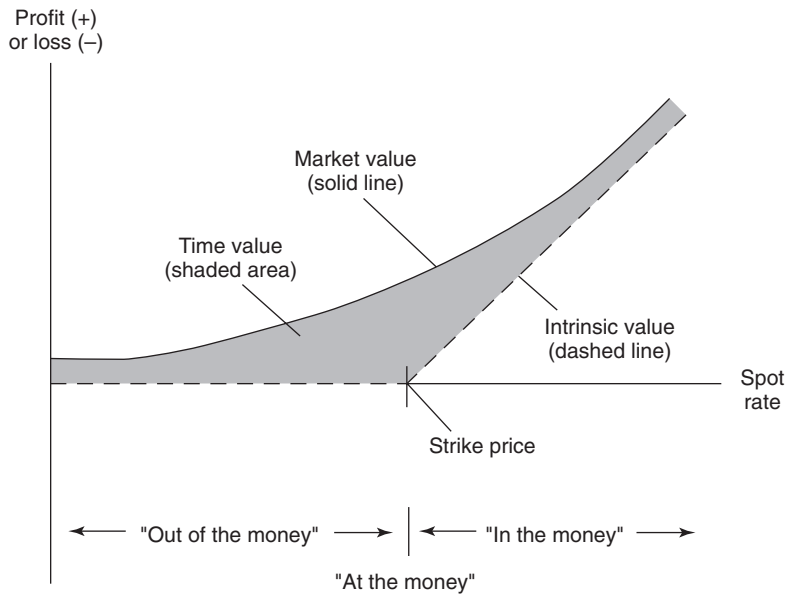

Figure 6.3 The market value of a call option

MNCs with open positions in foreign currencies can employ currency put options to cover such positions. Consider an American company that has sold an airplane to a Japanese firm and has agreed to receive its payment in Japanese yen. The exporter may be concerned about the possibility that the yen will depreciate by the time it is scheduled to receive its payment from the importer. To protect itself against such a yen depreciation, the exporter could buy yen put options, which would enable it to sell yen at the specified strike price. In fact, the exporter would lock in the minimum exchange rate at which it could sell Japanese yen in exchange for US dollars over a specified period of time. On the other hand, if the yen appreciates over this time period, the exporter could let the put options expire and sell the yen at the prevailing spot rate.

Individuals may speculate with currency put options based on their expectations of exchange rate fluctuations for a particular currency. For example, if speculators believe that the Swiss franc will depreciate in the future, they can buy franc put options, which will entitle them to sell francs at the specified strike price. If the franc's spot rate depreciates as expected, they can buy francs at the spot rate and exercise their put options by selling these francs at the strike price. If a speculator buys and then exercises a put option, his profit (loss) is determined as follows:

$$\text{profit (loss)} = \text{strike price} - (\text{spot rate} + \text{premium}) \tag{6.3}$$

For example, the profit for the holder of a put option with a strike price of \$0.585/SFr, a premium of \$0.005/SFr, and a spot rate of \$0.575/SFr is:

$$\text{profit} = \$0.585 - (\$0.575 + \$0.005) = \$0.005/\text{SFr}$$

Speculators do not need to exercise their put options in order to make a profit. They could also make a profit from selling put options, because put option premiums fall and rise as exchange

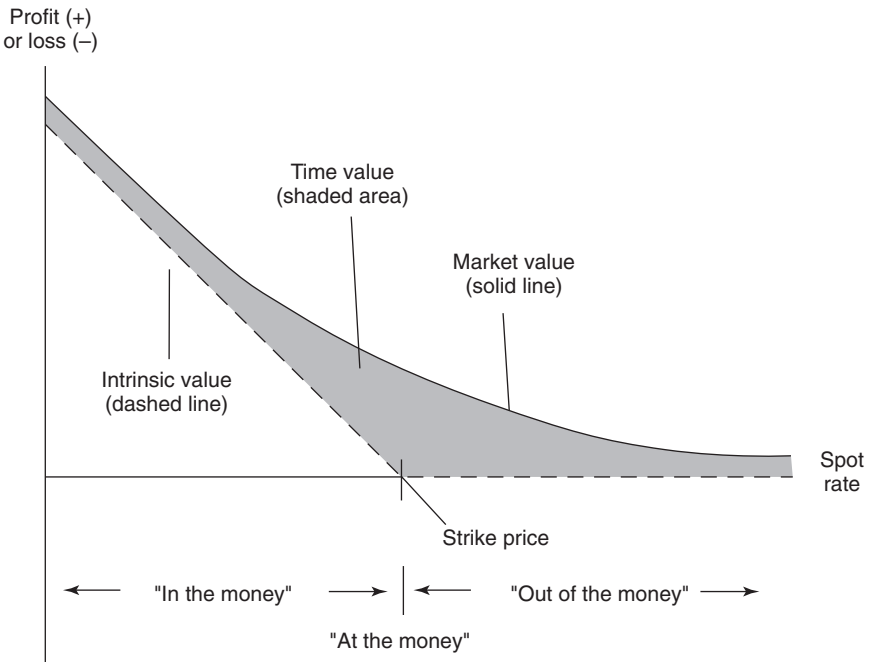

Figure 6.4 The market value of a put option

rates of the underlying currency rise and fall. The seller of put options has the obligation to purchase the specified currency at the strike price from the owner who exercises the put option. If speculators anticipate that the currency will appreciate, they might sell their put options. But if the currency indeed appreciates over the entire period, the put options will not be exercised. On the other hand, if speculators expect that the currency will depreciate, they will keep their put options. Then they will sell their put options when the put option premiums go up.

GRAPHIC ANALYSIS OF A PUT OPTION PRICE Figure 6.4 shows the typical relationship between the market value of a put option and its intrinsic value. Up to the point at which the strike price equals the spot rate, the time value declines as the spot rate increases, but the market value exceeds the intrinsic value for all spot rates. Put options have positive values even if they are out of the money, because they have time value. It is also important to note that the intrinsic value of a put option becomes zero whenever the spot rate exceeds the strike price.

6.2.6 *Profit–loss profiles of options*

Figure 6.5 presents "profit–loss profiles" that trace the relationship between the exchange rate at expiration of the contract and the net gain (loss) to the trader.

Assume that the call premium per British pound is $0.04, the strike price is $1.50, and the contract matures in 2 months. The vertical axes of figures 6.5(a) and 6.5(b) measure profit or loss for the call option trader at different spot rates (horizontal axes) for the pound at the time of maturity. For the buyer of a call option on the pound, the loss is limited to the price origi-

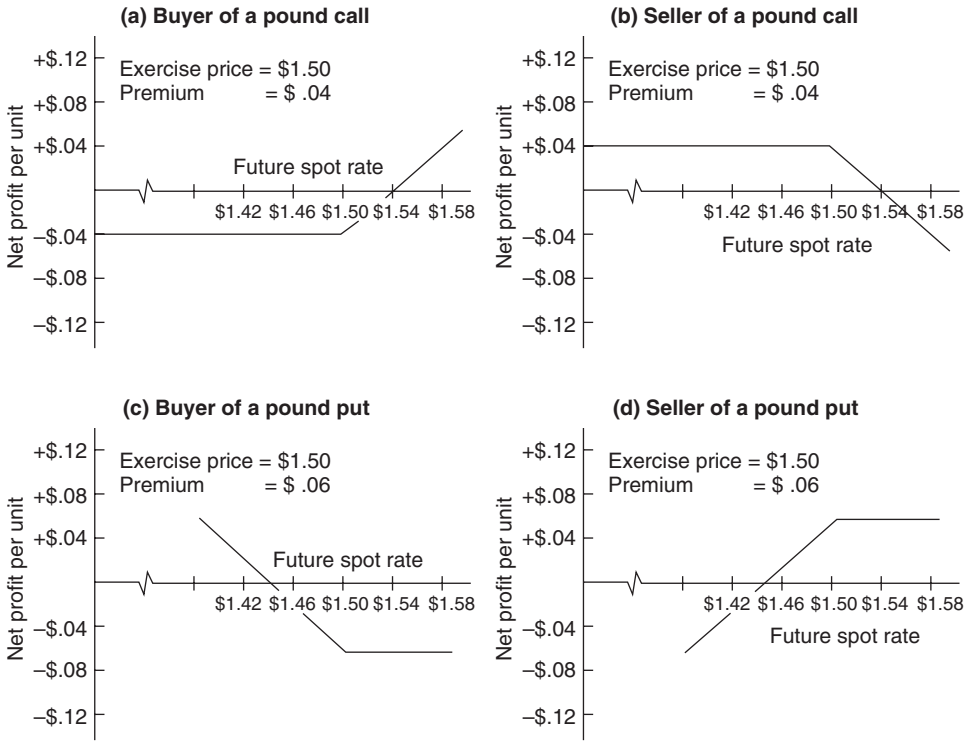

Figure 6.5 Profit–loss profiles for an option holder

nally paid for the option. The entire price ($0.04) would be lost if the spot rate was $1.50 or less. The call option holder would earn $0.04 at $1.54, but this gain would be offset by the $0.04 premium. Thus, this point ($1.54) is called the break-even point. The call option holder would realize a one-to-one gain (unlimited profit) at any spot rate above $1.54.

For the seller of a call option, the gain is limited to the premium originally charged for the option. The entire premium ($0.04) would be earned if the spot rate was $1.50 or less. The call option seller would suffer a one-to-one loss at any spot rate above $1.54.

Assume that the put premium per British pound is $0.06, the strike price is $1.50, and the contract matures in 2 months. Figures 6.5(c) and 6.5(d) show the profit–loss profiles of a put option trader. The buyer of a put option would obtain a one-to-one gain at any rate below $1.44, but only up to the point at which the profit–loss profile of the put option holder intercepts the vertical axis. The break-even spot rate of $1.44 is the price at which the holder neither gains nor loses on exercise of the option: this is the point at which the gain of $0.06 is offset by the premium of $0.06. The holder would lose money at spot rates above $1.44, but the loss would be limited to the premium originally paid for the option.

The seller of a put option would suffer a one-to-one loss at any spot rate below $1.44, but only up to the point at which the profit–loss profile intercepts the vertical axis. For the seller of a put option, the gain is limited to the premium originally charged for the option. The entire premium ($0.06) would be earned if the spot rate was $1.50 or higher.

Table 6.8 Futures positions after an option exercise

	Call option	*Put option*
Buyer assumes:	Long futures position	Short futures position
Seller assumes:	Short futures position	Long futures position

6.3 Futures Options

The Chicago Mercantile Exchange introduced currency futures options, or currency options on futures, in January 1984. Currency futures options do not reflect the options on the underlying currency itself, but they reflect the options on futures contracts of that currency. They were originally established for the German mark, but they are now available for the British pound, the Canadian dollar, the Japanese yen, the Mexican peso, and the Swiss franc. Futures options trade in an expiration cycle of March, June, September, and December, just like their underlying futures contracts.

Currency futures options give the holder the right to buy or sell a foreign currency at a designated price in the future. There are two types of currency futures options: currency futures calls and currency futures puts. A currency futures call option gives the buyer the right, but not the obligation, to buy a particular currency futures contract at a specified price at any time during the life of the option. A currency futures put option gives the buyer the right, but not the obligation, to sell a particular currency futures contract at a specified price at any time during the life of the option. Table 6.8 shows futures positions after options have been exercised.

MNCs with open positions in foreign currencies can use currency futures options to cover such positions. Individuals may speculate with currency futures options based on their expectation of exchange rate movements for a particular currency. Those who believe that the futures prices are too low could buy call options on futures. Those who believe that the futures prices are too high could buy put options on futures.

If a call futures option is exercised, the holder gets a long position in the underlying futures contract plus a cash amount equal to the current futures price minus the exercise price. If a put futures option is exercised, the holder gets a short position in the underlying futures contract plus a cash amount equal to the exercise price minus the current futures price.

Example 6.6

Consider an investor who has a June futures call option on one contract of the British pound (62,500) with a strike price of $1.580. The current futures price of the pound for delivery in June is $1.630. If the investor exercises her option, she would receive $3,125 (62,500 × 0.05) plus a long position in a futures contract to buy £62,500 in June. If desired, she can immediately close out her long position at no cost; this would leave the investor with the $3,125 cash payoff.

Example 6.7

Consider an investor who has a June futures put option on one contract of the Swiss franc (125,000) with a strike price of $0.65. The current futures price of the franc for delivery in June is $0.55. If the investor exercises her option, she receives $12,500 (125,000 × 0.10) plus a short position in a futures contract to sell SFr125,000. If desired, she can immediately close out her short position at no cost; this would leave the investor with the $12,500 cash payoff.

SUMMARY

Three major instruments of the foreign-exchange market are currency futures, currency options, and currency futures options. The three types of contracts are similar because they are all used by those who have specific expectations about future exchange rate movements. Yet they differ because: (1) holders of currency futures must buy or sell the currency on the settlement date; (2) owners of currency options have the right to buy or sell the currency at a specified price; and (3) holders of currency futures options have the right to buy or sell the futures on the currency.

These three types of currency contract are acquired for hedging, speculation, or arbitrage. They appeal to individuals and small companies because they offer standard contracts in predetermined amounts and their purchase prices are small. MNCs with open positions in foreign currencies can use these three markets to cover such positions as an alternative to the forward market offered by commercial banks.

The trading of futures and options involves six major classes of risk: credit, market, liquidity, legal, settlement, and operations. Credit risk derives from the extension of credit to counterparties that may be unwilling or unable to fulfill their contractual obligations. Market risk refers to the effect of changes in the price of the underlying instrument on the value of an open derivative position. Liquidity risk is the risk that a securities firm or bank is unable to liquidate or offset a position because of a lack of counterparties in the market. Legal risk arises when contracts are unenforceable or inadequately documented. Settlement risk happens when a counterparty fails to provide funds or instruments at the agreed time. Operations risk is a loss that results from human error or deficiencies in systems or controls.

Questions

1 What are the major differences between forward and futures contracts?
2 What is the most important difference between futures and options contracts?
3 What are the major types of margin with respect to a futures contract? What is the role of a margin requirement?
4 How can speculators use currency futures?
5 How can US companies use currency futures?
6 What are the components of an option premium?
7 Why is the price of an option always greater than its intrinsic value?
8 Why can't the intrinsic value of an option be less than zero?
9 Assume that a company wants to use either a currency option or a forward contract to hedge against exchange rate fluctuations. What are the advantages and disadvantages of currency options in this case?
10 When should a company buy a call option for hedging? When should a company buy a put option?
11 When should speculators buy a call option? When should speculators buy a put option?
12 What are currency futures options?
13 Why has the number of currency futures contracts tended downward in recent years?

Problems

1 An American company sells yen futures contracts to cover possible exchange losses on its export orders denominated in Japanese yen. The amount of the initial margin is $20,000, and the maintenance margin is 75 percent of the initial margin. The value of the company's position declines by $6,000 because the spot rate for yen has increased.
   (a) What is the dollar amount of the maintenance margin?
   (b) Should the broker issue margin calls to the company?
   (c) What is the amount of additional deposit needed to restore the account to the initial margin level?
2 A speculator enters a futures contract for September delivery (September 19) of £62,500 on February 2. The futures exchange rate is $1.650 per pound. He believes that the spot rate for pounds on September 19 will be $1.700 per pound. The margin requirement is 2 percent.
   (a) If his expectations are correct, what would be his rate of return on the investment?
   (b) If the spot rate for pounds on September 19 is 5 percent lower than the futures exchange rate, how much would he lose on the futures speculation?

(c) If there is a 65 percent chance that the spot rate for pounds will increase to $1.700 by September 19, would you speculate in the futures market?

3 On March 20, a Detroit investor decides to invest $1 million in a British 3-month certificate of deposit (CD) with an annual yield of 20 percent. He expects that this 20 percent rate of return on the British CD will be more than he could have realized by investing in the domestic market. The investor buys British pounds in the spot market and purchases the CD from a British bank. The exchange rates are $2.0000 per pound in the spot market and $2.0050 per pound in the futures market for June delivery (June 20).
   (a) The investor buys enough British pounds in the futures market to cover the principal and accrued interest at the time of maturity. Summarize the transaction.
   (b) By June 20, the British pound has depreciated to $1.8500 per pound. Remember that the spot rate and the futures rate become the same by the delivery date. On June 20, the investor decides to close the position by selling British pounds in the spot market and reversing the futures contracts. Summarize the transaction.
   (c) Compare the exchange gain (loss) from the futures transaction with the exchange loss (gain) from the spot transaction. What is the windfall profit (net exchange gain)?
   (d) If the investor had not hedged his investment, how much exchange loss would he have suffered on the transaction? Remember that the British pound has depreciated to $1.8500 on June 20.

4 The call premium per British pound on March 1 is $0.04, the expiration date is September 19, and the strike price is $1.80. A speculator believes that the spot rate for the pound will rise to $1.92 by September 19.
   (a) If the speculator's expectations are correct, what would be her dollar profit from speculating two pound call options (£62,500)?
   (b) If the spot rate were $1.76 per pound when the option expired, would the speculator exercise the options? What would be her loss from this speculation?

5 The put premium per British pound on March 1 is $0.04, the settlement date is September 19, and the strike price is $1.80. A speculator anticipates that the spot rate for the pound will fall to $1.72 by September 19. If the speculator's expectations are correct, what would be his dollar profit from speculating two put options (£62,500)?

6 A US company has bought 30 personal computers from a British company for £62,500. Its payment must be made in British pounds 90 days from now. The premium for a pound call option with a strike price of $1.60 and a 90-day expiration date is $0.04 per pound. The current spot rate for pounds is $1.58; the US company expects that the spot rate in 90 days will rise to $1.66. The US company has two alternatives: do not hedge and hedge in the options market. Should the US company choose the call option hedge or the no hedge?

7 A US exporter is scheduled to receive SFr125,000 in 60 days. The premium for a franc put option with a strike price of $0.50 and a 90-day settlement date is $0.03 per franc. The company anticipates that the spot rate in 90 days will be $0.46. Should the company hedge its accounts receivable in the options market? If the spot rate were $0.51 in 90 days, how would it affect the company's decision?

8 The exchange rate for Japanese yen is $0.0069 per yen, and a call option has a strike price of $0.0065. An investor has two yen call options. If the investor were to exercise

the call options, how much profit would he realize? (Hint: see table 6.5 for the size of a contract for yen call options and ignore option premiums.)

9 The exchange rate for Japanese yen is $0.0069 per yen, and a put option has a strike price of $0.0070. An investor has two yen put options. If the holder were to exercise the put option, how much profit would he realize? (Hint: see table 6.5 for the size of a contract for yen put options and ignore option premium.)

10 On October 23, the closing exchange rate of British pounds was $1.70. Calls that would mature the following January with a strike price of $1.75 were traded at $0.10.
   (a) Were the call options in the money, at the money, or out of the money?
   (b) Compute the intrinsic value of the call.
   (c) If the exchange rate of British pounds rises to $1.90 prior to the January option expiration date, what is the percentage return on investment for an investor who purchased a call on October 23?

11 With reference to problem 10, put options with the same strike price and a January maturity for British pounds were traded at $0.05 on October 23.
   (a) Were the put options in the money, at the money, or out of the money?
   (b) Compute the intrinsic value of the put.
   (c) If the exchange rate of British pounds falls to $1.65 just prior to expiration, what is the percentage return on investment for an investor who purchased a put on October 23?

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Case Problem 6: Merck's Use of Currency Options

The effect of foreign-currency fluctuations on a company depends on a company's business structure, its industry profile, and its competitive environment. This case recounts how Merck assessed its foreign-exchange exposure and decided to hedge those exposures.

The Company

In 2001, Merck celebrated its 110th anniversary in discovering, developing, producing, and distributing human and animal health pharmaceutical products. Today, the company does business in more than 100 countries around the world. Thus, it is part of an industry that makes its products available for the prevention, relief, and cure of disease throughout the world.

Approximately 50 percent of worldwide sales for Merck come from foreign operations. International earnings assets for the company account for 40 percent of its total earnings assets. The pharmaceutical industry is highly competitive, with no company holding more than 5 percent of the worldwide market. Merck ranks first in pharmaceutical sales in the world, but has slightly less than 5 percent market share worldwide.

As Merck became increasingly global, it continued to establish and enhance strategic alliances here in the USA and abroad, in order to discover, develop, and market innovative products. Moreover, Merck understands that future competition will be more global in nature. To prepare its managers for this broader challenge, Merck continues to expand the international nature of its management training. Programs focus increasingly on international issues such as foreign-exchange risk management, and training program participants reflect the worldwide nature of the company's businesses. For example, the senior-level managers who attended its Executive Development Programs in recent years came from 30 countries.

US pharmaceutical companies have expanded into foreign markets significantly more than have their counterparts in other industries, because they have to fund high risk and growing research expenditures. These companies also differ in their method of doing business overseas. Although many US exporters bill their customers in US dollars, most pharmaceutical companies bill their customers in local currencies. Consequently, the impact of exchange rate volatility tends to be more immediate and direct.

Foreign subsidiaries of pharmaceutical companies are typically importers of product at some stage of production. And these subsidiaries are responsible for completing, marketing, and distributing the product within the country of incorporation. Sales are denominated in local currency, but costs are denominated in a combination of local currency and the parent-country currency.

The Identification and Measurement of Exchange Exposure

Every company faces exposure to foreign-exchange risk as soon as it chooses to maintain a physical presence in a foreign country. Foreign-exchange fluctuations can affect a US

multinational company in three ways. First, the dollar value of net assets held in foreign currencies may be changed. This type of exposure is called translation or accounting exposure; it measures the effect of an exchange rate change on published financial statements of a firm. Second, the expected results of outstanding transactions, such as accounts receivable and/or accounts payable, may be changed. This sort of exposure is known as transaction exposure; it measures the effect of an exchange rate change on outstanding obligations that existed before exchange rates changed but were settled after the exchange rate change. The third type of exposure is referred to as economic exposure; it involves the potential effects of exchange rate changes on all facets of a firm's operations: product market, factor market, and capital market. Economic exposure consists of future revenue exposure and competitive exposure. Future revenue exposure is the possibility that the dollar value of future revenues expected to be earned overseas in foreign currencies may be changed. Competitive exposure is the possibility that a company's competitive position may be changed – for example, a competitor whose costs are denominated in a weak currency will have greater pricing flexibility and thus a potential competitive advantage.

Competitive exposure has been the subject of recent academic study on exchange risk management. Such exposures are best exemplified by the adverse effect of the strong dollar on the competitive position of US industry in the early 1980s. This was true not only in export markets but also in the US domestic market, where the strengthening US dollar gave Japanese and European-based manufacturers a large competitive advantage in dollar terms over domestic US producers.

With its significant presence worldwide, Merck has exposures in approximately 40 currencies. As a first step in assessing the effect of exchange rate movements on revenues and net income, Merck constructed a sales index that measures the relative strength of the dollar against a basket of currencies, weighted by the size of sales in those countries. The company used 1978 as the base year of its sales index. When the index is above 100 percent, foreign currencies have strengthened against the dollar, thereby indicating a positive exchange effect on dollar revenues (exchange gains). When the index is below 100 percent, the dollar has strengthened against the foreign currencies, thereby resulting in a negative exchange impact on dollar revenues (exchange losses). Merck evaluated its sales index from 1972 to 1988 and found that it had significant exchange exposure of its net overseas revenues.

Given the significant exchange exposure of its overseas revenues, Merck then decided to review its global allocation of resources across currencies; the main purpose of this review was to determine the extent to which revenues and costs were matched in individual currencies. The review revealed that the distribution of the company's assets differs somewhat from the sales mix, primarily because of the concentration of research, manufacturing, and headquarters operations in the USA.

Hedging Exposures with Financial Instruments

Having concluded that a diversified strategy (resource deployment) was not an appropriate way for Merck to address exchange risk, it considered the alternative of financial hedging. Thinking through this alternative involved the following five steps: (1) projecting exchange rate volatility; (2) assessing the impact of the 5-year strategic plan; (3) deciding on hedging the

exposure; (4) selecting the appropriate financial instruments; and (5) constructing a hedging program. Based on this five-step process, Merck decided to choose currency options as its risk management tool.

Identifying a company's exchange risk and deciding what action should be taken require extensive analysis. Merck management felt that, as a result of this analysis of its currency exposures, it had developed an appropriate financial hedging plan – one that insures against potentially damaging effects of currency volatility on the company's strategic plan.

Apparently, this hedging strategy has worked well for Merck since 1989 (Schlesinger 2000). Because Merck does about half its business overseas, the dollar surge in the 1980s "really put a crimp in the performance of the company" as the dollar value of foreign revenue fell, recalls Chief Financial Officer Judy Lewent. In response, the company was repeatedly forced into sudden cutbacks in planned research and development spending and capital investments. Beginning in 1989, Merck started hedging against foreign-exchange movements, a practice honed throughout the decade. Thus, even as the dollar surged against the euro last year, Ms Lewent says, "we were able to go through the year and continue our budget commitments to our operating people."

Case Questions

1 Why do you think Merck did not neutralize the impact of unexpected exchange rate changes on its future revenues through a diversification strategy?
2 Describe each of the five steps in Merck's foreign-exchange risk management process: the exchange forecasts, the impact of the strategic plan, the hedging rationale, the financial instruments, and the hedging program.
3 Why did Merck select "options" as its major hedging instrument?
4 The website of the Chicago Mercantile Exchange, www.cme.com, and the website of the Philadelphia Stock Exchange, www.phlx.com/, show a variety of information about currency futures and options. Use these websites to depict the prices of British pound futures and options.

Sources: J. C. Lewent and A. John Kearney, "Identifying, Measuring, and Hedging Currency Risk at Merck," *Journal of Applied Corporate Finance*, Winter 1990, pp. 19–28; and J. M. Schlesinger, "Why the Long Boom? It Owes a Big Debt to the Capital Markets," *The Wall Street Journal*, Feb. 1, 2000, pp. A1, A6.

CHAPTER 7

Financial Swaps

Opening Case 7: Why have Gillette and GE Chosen a Higher Cost of Funding?

Gillette did a strange thing in January 1999. To finance its European operations, it raised money through a Eurobond deal denominated in euros, even though it would have been cheaper to issue in US dollars and then swap the proceeds to euros. Gillette's decision not to execute the currency swap on the 5-year deal cost the company about 10 basis points or €300,000 per year. In fact, Gillette was not the only US borrower to forfeit a lower cost of funding. General Electric issued €250 million in Eurobonds rather than offering bonds in dollars and then swapping for euros. Lynn Seymour, Gillette's controller, explains that currency swaps have formed an integral part of the company's borrowing strategy in the past. "We have borrowed in US dollars, swapped to floating, foreign-denominated debt, like deutsche marks, because it was cheaper," she said. However, under the new accounting rules, this procedure becomes more troublesome.

Gillette's action exemplifies the fact that companies will frequently choose a costlier option to avoid government regulations. When the Financial Accounting Standards Board (FASB) issued its FASB 133 in 1998, some US companies, such as Gillette Corp., decided to undertake the costlier transaction rather than face problems under FASB 133. The FASB 133 standard requires companies to report the fair market value of their derivatives in their balance sheets and to include derivatives gains and losses in their income statements. Business executives argue that such accounting treatments of derivatives will distort their company earnings.

According to Ira Kawaller of Kawaller & Associates, a New York management consulting firm, currency swaps and interest rate swaps must be marked to market as the

present value of cash flows and recorded in current income, subjecting the company to earnings volatility. "This is going to be a big problem for multinational companies," he noted. Bob Sullivan, managing partner of PricewaterhouseCoopers, agreed: "For the top Fortune 100 companies, this is a major issue," adding that, as far as debt markets are concerned, this is the "biggest topic" raised by FASB 133. Although it is too early to tell exactly how the FASB will interpret the new rules, it is already clear that FASB 133 is a major headache for American issuers in international debt markets. Thus some companies, such as Gillette and General Electric, would rather pay greater funding costs than face balance-sheet and income volatilities.

In developing the standard, the FASB reached six decisions that became the cornerstones of FASB 133. First, derivative instruments represent rights or obligations that meet the definitions of assets or liabilities. Second, fair value is the only relevant measure for derivative instruments. Third, only items that are assets or liabilities should be reported as such on the balance sheet. Fourth, therefore, all derivatives are reported at fair value on the balance sheet. Fifth, special hedge accounting is appropriate for derivatives designed and effective in offsetting changes in fair values or cash flows for the risk being hedged. Six, changes in fair value for derivatives not designated and qualifying as hedges are currently recorded in earnings. FASB 133 permits an entity to use the fair-value accounting model and the cash flow hedge accounting model. Under these two accounting models, the entity must recognize gains or losses on derivative hedging instruments as earnings.

Sources: Simon Boughey, "US Issuers in Euromarket are Snakebit by FAS 133," *Investment Dealers Digest*, Feb. 22, 1999, p. 13; and Arjen Ronner and Mark Blok, "Hedging Foreign Currency Exposure: Consequences of FAS 133," *Journal of Applied Finance*, Vol. 11, No. 1, 2001, pp. 25–34.

A **swap** is an agreement between two parties, called **counterparties**, that exchange sets of cash flows over a period of time in the future. When exchange rates and interest rates fluctuate, risks of forward market and money market positions are so great that the forward market and the money market may not function properly. Currency futures and options are inflexible and available only for selected currencies. In such cases, multinational companies (MNCs) and governments may use swap arrangements to protect the value of export sales, import orders, and outstanding loans denominated in foreign currencies.

Financial swaps are now used by MNCs, commercial banks, world organizations, and sovereign governments to minimize currency and interest rate risks. These swaps compete with other exchange risk management tools, such as currency forwards, futures, and options, but they also complement these other instruments.

This chapter consists of three major sections. The first section describes the emergence of the swap market. The second section discusses two major types of financial swap – interest rate swaps and currency swaps. The third section evaluates motivations for swaps.

7.1 The Emergence of the Swap Market

The origins of the swap market can be traced back to the late 1970s, when currency traders developed currency swaps to evade British controls on the movement of foreign currency. The market has grown rapidly since then. In this section, we consider the origins of the swap market, drawbacks of parallel and back-to-back loans, and the growth of the swap market.

7.1.1 The origins of the swap market

Financial swaps are usually regarded as an outgrowth of parallel and back-to-back loans. These work similarly except in one respect; parallel loans involve four firms, while back-to-back loans involve only two firms. These two instruments attained prominence in the 1970s, when the British government imposed taxes on foreign-currency transactions to prevent capital outflows. The parallel loan became a widely accepted vehicle by which these taxes could be avoided. The back-to-back loan was a simple modification of the parallel loan, and the currency swap was a natural extension of the back-to-back loan.

PARALLEL LOANS A loan that involves an exchange of currencies between four parties, with a promise to re-exchange the currencies at a predetermined exchange rate on a specified future date, is referred to as a **parallel loan**. Typically, though not always, the parties consist of two pairs of affiliated companies. Parallel loans are commonly arranged by two multinational parent companies in two different countries.

The structure of a typical parallel loan is illustrated in figure 7.1. Assume that: (1) a parent corporation (IBM) in the United States with a subsidiary in Australia wants to obtain a 1-year Australian dollar loan and (2) a parent corporation (WMC: Western Mining Company) in Australia with a subsidiary in the USA wishes to obtain a 1-year US dollar loan. In other words, each parent wants to lend to its subsidiary in the subsidiary's currency. These loans can be arranged without using the foreign-exchange market. IBM lends the agreed amount in US dollars

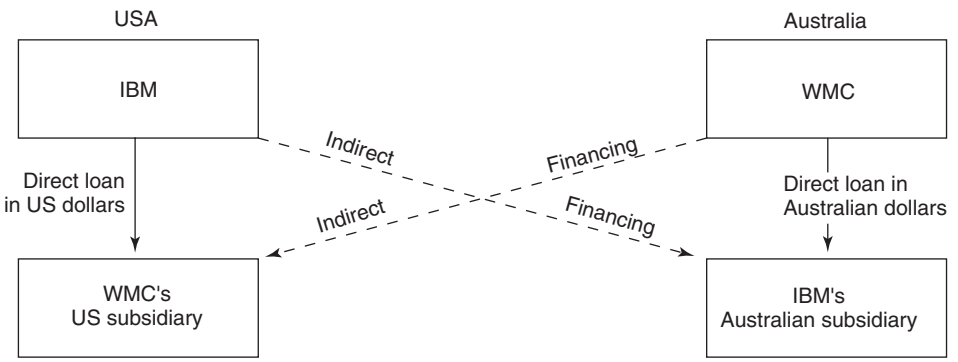

Figure 7.1 The structure of a parallel loan

to the American subsidiary of WMC. In return for this loan, WMC lends the same amount of money in Australian dollars to the Australian subsidiary of IBM. Parallel loan agreements involve the same loan amount and the same loan maturity. Of course, each loan is repaid in the subsidiary's currency. The parallel loan arrangement avoids foreign-exchange risk because each loan is made and repaid in one currency.

BACK-TO-BACK LOANS A loan that involves an exchange of currencies between two parties, with a promise to re-exchange the currencies at a specified exchange rate on a specified future date, is referred to as a **back-to-back loan** and it involves two companies domiciled in two different countries. For example, AT&T agrees to borrow funds in the USA and then to lend those borrowed funds to Toyota in Japan, which, in return, borrows funds in Japan and then lends those funds to AT&T in the USA. By this simple arrangement, each firm has access to the capital markets in the foreign country without any actual cross-border flows of capital. Consequently, both companies avoid exchange rate risk in a back-to-back loan.

7.1.2 Drawbacks of parallel and back-to-back loans

While parallel and back-to-back loans offer definite benefits to participating companies, three problems limit their usefulness as financing tools. First, it is difficult to find counterparties with matching needs. Second, one party is still obligated to comply with such an agreement even if another party fails to do so. Third, such loans customarily show up on the books of the participating parties.

Currency swaps can overcome these problems fully or partly, and this explains their rapid growth. First, a company in one country with a use for this type of financing must find another company in another country with matching needs; that is, mirror-image financing requirements. These requirements include currencies, principals, types of interest payments, the frequency of interest payments, and the length of the loan period. Search costs for finding such a company may be considerable, if it is possible. Currency swaps largely resolve the problem of matching needs because they are arranged by specialized swap dealers and brokers who recruit prospective counterparties.

Second, parallel and back-to-back loans are actually two loans with two separate agreements, which exist independently of each other. If the first company defaults on its obligations to the second company, the second company is not legally relieved of its obligations to the first company. To avoid this problem, a separate agreement, defining the right of offset, must be drafted. If this agreement is not registered, the situation and outcome described above may still arise. On the other hand, registration itself may cause problems. With currency swaps, however, the right of offset is usually embodied in the agreement.

Third, parallel and back-to-back loans are carried on the books of the participating parties. In other words, the exchange of principals under these two instruments involves net increases in both assets and liabilities; these amounts are customarily recorded in full on the counterparties' books. With currency swaps, however, the principal amounts usually do not show up on the participants' books. Many commercial banks prefer currency swaps to parallel and back-to-back loans to keep the transactions off their books. These off-book transactions of currency swaps and other derivatives may enable banks to avoid increases in their capital requirements under applicable regulations. However, such off-book transactions may be disallowed in the near future, as

accounting-standard setters in the USA and other countries require MNCs to include derivatives transactions in their financial statements (see Opening Case 7, Global Finance in Action 7.1, and Case Problem 7).

Global Finance in Action 7.1

Off-Balance-Sheet Operations and New Regulations

American corporate scandals, one after another, have recently rocked investors. The problems with Enron, Arthur Andersen, WorldCom, Global Grossing, and other companies have been blamed on off-balance-sheet transactions. Consider a simple example of the use of an off-balance-sheet, offshore partnership that Enron used to prop itself up financially. According to the US Senate investigation, Enron convinced Merrill Lynch to buy three barges located in Nigeria for $28 million. Enron assured Merrill Lynch that it would repurchase the barges in 6 months at a higher price. Enron recorded the sale and captured a $12 million profit in order to meet its earnings expectations. However, the sale of an asset with an agreement to repurchase it is not really a sale. It is simply a loan, with the asset as collateral for the loan. Enron did not want a loan. In fact, it already had too much debt on its books. It wanted the money and the recorded profit without creating more debt.

In 2003, the Financial Accounting Standard Board (FASB) and the Securities and Exchange Commission (SEC) issued two sets of new rules to bring more transactions onto companies' financial statements, as well as to improve disclosure of those that remain off. They were issued in response to outrage over energy trader Enron's abuse of off-balance-sheet partnerships to hide debt. These new rules require companies to add transactions to their balance sheets when they stand to absorb a majority of the expected benefits or losses from the bulk of expected returns. For activity that remains off balance sheets, companies are required to tell investors about the nature and purpose of that activity, how they benefit from it, and the potential risk to which it exposes them.

The impact of the new rules could be sizable. Companies in Standard & Poor's 500-stock index could add to balance sheets about $379 billion of assets and $377 billion of liabilities, estimates Credit Suisse First Boston (CSFB) in a recent report. Almost two-thirds of those assets and liabilities are expected to be concentrated within 10 companies, mostly banks. For example, Citigroup may see an additional $55 billion of assets on its balance sheet, while the magnitude of the liabilities to be added to Citigroup's balance sheet will likely be roughly equal to that of its assets. The CSFB report estimates that the new rules could affect as many as 234 of the S&P 500 companies.

Sources: C. Bryan-Low, "Off-Balance-Sheet Operations are Focus of New Regulations," *The Wall Street Journal*, July 15, 2003, p. C5; and J. Nofsinger and K. Kim, *Infectious Greed*, Upper Saddle River, NJ: Prentice Hall, 2003.

Table 7.1 The value of outstanding swaps (billions of US dollars)

Year	*Interest rate swaps*	*Currency swaps*	*Total swaps*
1987	683	183	866
1988	1,010	317	1,327
1989	1,539	435	1,974
1990	2,311	578	2,889
1991	3,065	807	3,872
1992	3,851	860	4,711
1993	6,178	900	7,078
1994	8,816	915	9,731
1995	12,811	1,197	14,008
1996	19,170	1,600	20,770
1997	22,291	1,823	24,114
1998	36,262	2,253	38,515
1999	38,372	2,444	40,816
2000	47,995	2,605	50,600
2001	57,220	4,302	61,522
2002	68,274	4,560	72,834

Source: The International Monetary Fund, *International Financial Markets*, various issues.

7.1.3 The growth of the swap market

Salomon Brothers arranged the first currency swap in August 1981, with the World Bank and IBM as counterparties. The World Bank wanted to obtain Swiss francs and German marks to finance its operations in Switzerland and West Germany without having to tap the capital markets of these two countries directly. On the other hand, IBM, which had previously acquired fixed-rate obligations in francs and marks, obtained an unrealized capital gain in terms of dollars when the dollar appreciated. Because IBM's management believed that the dollar's appreciation would not continue, it wanted to realize the capital gain and remove itself from its mark–franc exposure.

It was a short step from currency swaps to interest rate swaps. If swaps could be used to convert one type of currency obligation to another at the applicable interest rate on each currency, a similar type of contract could be used to convert one type of borrowing (fixed rate) to another (floating rate). The first interest rate swap was put together in London in 1981, and their use spread to the USA the next year. The swap concept was extended in 1986 when the Chase Manhattan Bank introduced the commodity swap. In 1989, Bankers Trust introduced the first reported equity swap.

Equity swaps are the newest type of swap and are a subset of a new class of instruments known as synthetic equity. Equity swaps generally function as an asset swap that converts the interest flows on a bond portfolio into cash flows linked to a stock index. The stock indexes that have been used include the Standard & Poor's (S&P) 500, the Tokyo Stock Price Index and Nikkei 225 (Japan), The Chambre des Agents de Change 240 (France), the Financial Times Stock Exchange 100 (United Kingdom), and the Toronto Stock Exchange 300 (Canada).

Table 7.1 shows the amount of outstanding swaps at year-end from 1987 to 2002. By the end of 2002, the total swap market had reached approximately $73 trillion, with about 93 percent

of the swaps being interest rate swaps and the remaining 7 percent being currency swaps. US dollars account for about 30 percent of these swaps, while the Japanese yen, the euro, the British pound, and the Swiss franc account for most of the remaining 70 percent. The value of outstanding swaps increased over 84 times between 1987 and 2002.

7.2 Plain Vanilla Swaps

The basic form of a swap – the simplest kind – is called a **plain vanilla swap**. Although many variants of the plain vanilla swap exist, all swaps have the same basic structure. Two counterparties agree to make payments to each other on the basis of some quantity of underlying assets. These payments include interest payments, commissions, and other service payments. The swap agreement contains a specification of the assets to be exchanged, the rate of interest applicable to each, the timetable by which the payments are to be made, and other provisions. The two parties may or may not exchange the underlying assets, which are called notional principals, in order to distinguish them from physical exchanges in the cash markets. In the sections that follow, we discuss the two forms of a plain vanilla swap: interest rate swaps and currency swaps.

7.2.1 Swap banks

It is difficult and time-consuming for two end users to arrange a swap directly. A more efficient structure for them is to obtain a financial intermediary that serves as counterparty to both end users. This counterparty is called a swap bank. A **swap bank** is a generic term used to describe a financial institution that assists in the completion of a swap. The swap bank profits from the bid–ask spread it imposes on the swap coupon.

The swap bank serves as either a broker or a dealer. A **swap broker** is a swap bank that acts strictly as an agent without taking any financial position in the swap transaction. In other words, the swap broker matches counterparties but does not assume any risk of the swap. The broker receives a commission for this service. A **swap dealer** is a swap bank that actually transacts for its own account to help complete the swap. In this capacity, the swap dealer assumes a position in the swap and thus assumes certain risks.

7.2.2 Interest rate swaps

An **interest rate swap** is a swap in which counterparties exchange cash flows of a floating rate for cash flows of a fixed rate, or exchange cash flows of a fixed rate for cash flows of a floating rate. No **notional principal** changes hands, but it is a reference amount against which the interest is calculated. Maturities range from under 1 year to over 15 years, but most transactions fall within a 2-year to 10-year period. While swaps are inherently international in nature, interest rate swaps can be purely domestic. However, when they are arranged in the Eurocurrency market, interest rate swaps have counterparties from different countries or foreign arranging banks.

In a typical interest rate swap, one company has an initial position in a fixed-rate debt instrument, while another company has an initial position in a floating-rate obligation. In this initial position, the company with the floating-rate obligation is exposed to changes in interest rates. By swapping this floating-rate obligation with the fixed-rate obligation, this company eliminates exposure to changing interest rates.

Borrowers may want to arrange an interest rate swap for a number of reasons. First, changes in financial markets may cause interest rates to change. Second, borrowers may have different credit ratings in different countries. Third, some borrowers have different preferences for debt service payment schedule. Because market imperfections exist in different international financial markets with diversified borrowers and lenders, the objectives of interest rate swaps can be achieved easily and readily. Interest rate swaps are normally arranged by an international bank that serves as a swap broker or a swap dealer. Through interest rate swaps, borrowers obtain a lower cost of debt service payments and lenders obtain profit guarantees.

Example 7.1

Assume that a swap agreement covers a 5-year period and involves annual interest payments on a $10 million principal amount. Party A agrees to pay a fixed rate of 7 percent to party B. In return, party B agrees to pay a floating rate of LIBOR + 3 percent to party A. LIBOR stands for the London Interbank Offered Rate.

Figure 7.2 shows the basic features of this transaction. Party A pays 7 percent interest on $10 million or $700,000 each year to party B. Party B makes an interest payment on $10 million each year to party A in return, but the actual amount of the interest payments depends on the prevailing LIBOR.

If the LIBOR is 5 percent at the time of the first payment, party B will have to pay $800,000 to party A. Party A still owes $700,000 to party B, because its interest is fixed at 7 percent on a $10 million loan. If these mutual interest obligations offset each other, party B owes only $100,000 to party A. Typically, only payment of the net amount, the difference between the two interest obligations, actually takes place. This practice avoids unnecessary payments.

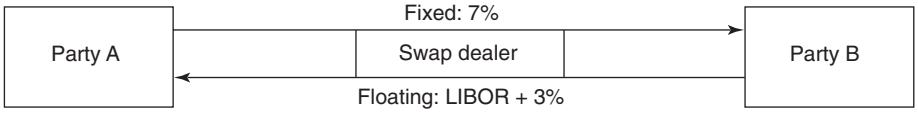

Figure 7.2 An interest rate swap

7.2.3 Currency swaps

A **currency swap** is a swap in which one party provides a certain principal in one currency to its counterparty in exchange for an equivalent amount in a different currency. For example, a British company may be anxious to swap British pounds for US dollars. Similarly, a US company may be willing to exchange US dollars for British pounds. Given these needs, the two companies may engage in a currency swap.

Currency swaps achieve an economic purpose similar to that of parallel loans. However, currency swaps have effectively displaced parallel loans, because companies seeking parallel loans have difficulty matching needs, have no right of offset, and must place such loans on the counterparties' books.

A typical currency swap involves three sets of cash flows. First, at the initiation of the swap, the two parties actually exchange the currencies in which the principals are denominated. This differs from the interest rate swap, in which both parties may deal in the same currency and can pay the net interest amount. Second, the parties make periodic interest payments to each other during the life of the swap agreement. Third, at the termination of the swap, the parties again exchange the currencies in which the principals are denominated.

Example 7.2

Assume that the current spot rate for British pounds is £0.5 per dollar ($2 per pound), the US interest rate is 10 percent, and the British interest rate is 8 percent. BT (British Telecommunications) wishes to exchange £5 million for dollars. In return for these pounds, GM would pay $10 million to BT at the initiation of the swap. The term of the swap is 5 years, and the two firms will make annual interest payments.

With the interest rates given above, GM will pay 8 percent on the £5 million it received; so the annual payment from GM to BT will be £400,000. BT received $10 million and will pay interest at 10 percent; so BP will pay $1 million each year to GM. In actual practice, the counterparties will make only net payments. For example, if the spot rate for pounds changes to £0.45 per dollar at year 1, one pound is worth $2.22. Valuating the interest obligations in dollars at this exchange rate, BT owes $1 million and GM owes $888,000 (£400,000 × $2.22). Hence, BT will pay the $112,000 difference. At other times, the exchange rate could be different, thereby making the net payment reflect the different exchange rate.

At the end of 5 years, the two counterparties again exchange principal. In this example, BT would pay $10 million and GM would pay £5 million. This final payment terminates the currency swap. Figure 7.3(a) shows the initial exchange of principal; figure 7.3(b) represents the annual interest payment; and figure 7.3(c) shows the second exchange of principal that completes the swap.

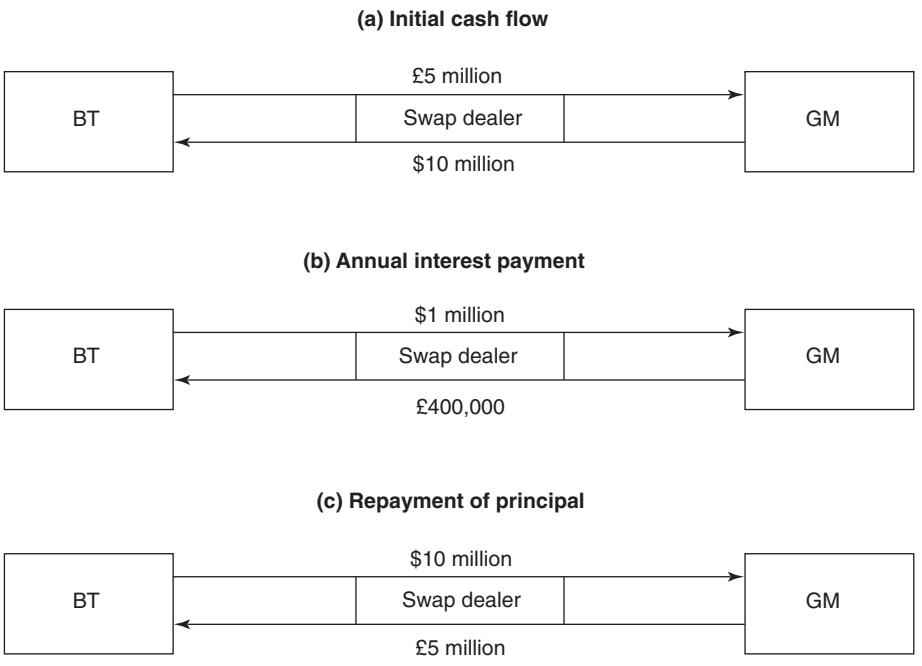

Figure 7.3 A currency swap

7.2.4 *Swaptions, caps, floors, and collars*

In this section, we consider several related instruments before we complete our survey of financial swaps. These instruments are swaptions, caps, floors, and collars.

A **swaption** is an option to enter into a plain vanilla interest rate swap. A **call swaption** gives the holder the right to receive fixed-interest payments. A **put swaption** gives the holder the right to make fixed-interest payments. Call swaptions are attractive when interest rates are expected to fall. Put swaptions are attractive when interest rates are expected to rise. Banks and investment firms usually act as dealers rather than as brokers. In other words, these banks and investment firms stand ready to enter into swaptions on either the buying or selling side.

Swaptions are an alternative to caps, floors, and collars, all of which are traded by the same bank personnel who trade swaptions. An **interest rate cap** sets a maximum rate on floating-rate interest payments; an **interest rate floor** sets a minimum rate on floating-rate interest payments; and an **interest rate collar** combines a cap with a floor. A buyer of one of these instruments pays to the seller a one-time premium, which is a small percentage of the notional principal. The buyer of a cap receives a cash payment from the seller when the floating reference rate for the cap is higher than the cap's strike rate when the two rates are matched against each other on a given date. The buyer of a floor receives a cash payment from the seller when the floating reference rate for the floor is lower on a given date than the floor's strike rate.

7.3 Motivations for Swaps

There are three basic motivations for swaps. First, companies use swaps to provide protection against future changes in exchange rates. Second, companies use swaps to eliminate interest rate risks arising from normal commercial operations. Third, companies use swaps to reduce financing costs.

7.3.1 Currency risk management

Companies use currency swaps to eliminate currency risks arising from overseas commercial operations. A currency swap can take many forms. One type of currency swap accommodates two companies that have long-term needs in two different currencies. Assume the following two things: first, a US firm, hired to build several power plants in Canada, expects to receive payment in Canadian dollars in 3 years; and, second, a Canadian firm has bought machinery from the USA and will make payment in US dollars in 3 years. These two companies could arrange a currency swap that allows for an exchange of Canadian dollars for US dollars in 3 years at a predetermined exchange rate. In this way, the US firm could lock in the number of US dollars it will receive in exchange for the Canadian dollar payment in 3 years. By the same token, the Canadian firm could lock in the number of Canadian dollars it will receive in exchange for the US dollar payment in 3 years.

7.3.2 Commercial needs

Consider a typical mortgage company that accepts deposits and lends these funds for long-term mortgages. Deposit rates must adjust to changing interest rates because depositors can withdraw their funds on short notice. Most mortgagors, on the other hand, wish to borrow at a fixed rate for a long time. This may leave a mortgage company with floating-rate liabilities and fixed-rate assets, thereby making it vulnerable to rising rates. If interest rates rise, the mortgage company will be forced to increase the rate it pays on deposits, but it cannot increase the interest rate it charges on mortgages that have already been issued. To avoid this interest rate risk, the mortgage company might use interest rate swaps to transform its fixed-rate assets into floating-rate assets, or transform its floating-rate liabilities into fixed-rate liabilities.

Example 7.3

Let's extend example 7.1 to make the discussions on motivations for swaps concrete. A mortgage company (party A) has just lent $10 million for 5 years at 7 percent with annual payments, and it pays a deposit rate that equals LIBOR + 1 percent. With these rates, the company would lose money if the LIBOR were to exceed 6 percent. This vulnerability might prompt the mortgage company to consider an interest rate swap. In other words, in

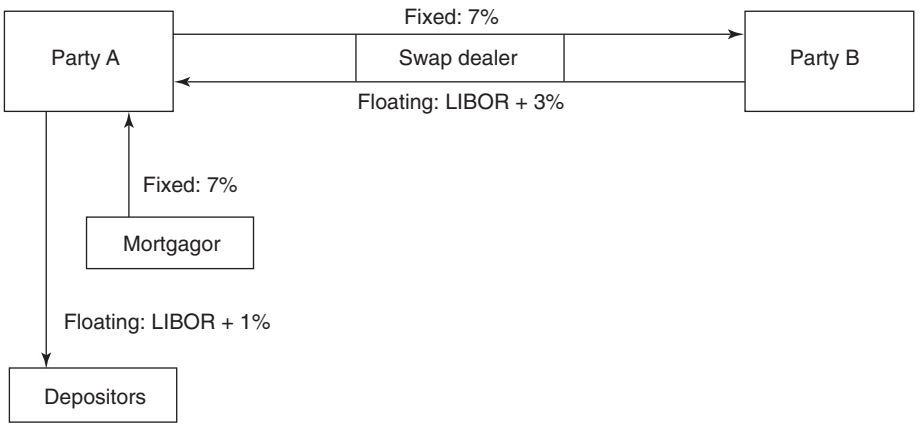

Figure 7.4 Motivation for the interest rate swap

exchange for the fixed-rate mortgages that it holds, the company might want to pay a fixed rate of interest and receive a floating rate of interest.

Figure 7.4 shows example 7.1 (figure 7.2) with additional information about the mortgage company (party A). The company receives payments at a fixed rate of 7 percent on the mortgage. After it enters the swap, the company also pays 7 percent on a notional principal of $10 million to party B. In effect, it receives mortgage payments and passes them through to party B under the swap agreement. In return, party A receives a floating rate of LIBOR + 3 percent from party B. From this cash flow, the company pays its depositors LIBOR + 1 percent and thus this leaves a periodic inflow of 2 percent to the company.

In example 7.3, the mortgage company now has a fixed-rate inflow of 2 percent, and it has succeeded in escaping its exposure to interest rate risk. No matter what happens to the level of interest rates, the company will enjoy a net cash flow of 2 percent on $10 million. This example clarifies why a company has a strong motivation to enter the swap market. The mortgage company faces exposure to changing interest rates because of the very nature of the mortgage industry. However, the company secures a fixed-rate position by engaging in an interest rate swap.

7.3.3 Comparative advantage

In many instances, one company may borrow money at a lower rate of interest in the capital market than another firm. For example, a US company (GM) may borrow money at a favorable rate in the USA, but it might not have favorable access to the capital market in the UK.

Similarly, a British company (BT) may have good borrowing opportunities domestically, but poor opportunities in the USA.

These comparative advantages usually exist because of market imperfections or differences in risk. US banks may not have the same information as British banks have, or they may evaluate information differently. Tax considerations or some kind of government-sanctioned discrimination might cause foreign borrowers to be treated differently from domestic borrowers. Borrowers' risks might also vary from country to country, so that domestic firms might be considered to be less risky than foreign firms. Companies can frequently use swaps not only to save money but also to diversify their funding sources (see Global Finance in Action 7.2).

Example 7.4

In example 7.2, we assumed that two companies (GM and BT) faced the same rate for each currency. Let's now assume that BT has access to pounds at a rate of 7 percent, while GM must pay 8 percent to borrow pounds. On the other hand, GM can borrow dollars at 9 percent, while BT must pay 10 percent for its dollar borrowings. As a result, BT enjoys a comparative advantage in borrowing pounds and GM has a comparative advantage in borrowing dollars. These rate differentials raise the possibility that each firm can exploit its comparative advantage and share the gains by reducing overall borrowing costs. This possibility is shown in figures 7.5(a)–(c), which resemble figures 7.3(a)–(c).

In figure 7.5(a), BT borrows £5 million from a British lender at 7 percent, while GM borrows $10 million from a US lender at 9 percent. After these borrowings, both companies have the funds to engage in a currency swap that we have already analyzed in example 7.2. To initiate the swap, BT forwards the £5 million it has just borrowed to GM, which reciprocates with the $10 million it has borrowed. In effect, the two companies have made independent borrowings and then exchanged the proceeds.

Figure 7.5(b) shows that the swap terms are identical with these two loan terms. BT pays interest payments of 9 percent ($900,000) on the $10 million it received from GM, and GM pays interest payments at 7 percent (£350,000) on the £5 million it received from BT. Note that these rates are the same ones that the two firms must pay their lenders. Now we can clearly see how the swap benefits both parties. Had each party borrowed the other currency on its own, BT would have paid a full 10 percent and GM would have paid a full 8 percent. By using the swap, both parties achieve an effective borrowing rate that is 1 percent lower than they could have obtained by borrowing the currency that they needed directly. By engaging in the swap, both firms use the comparative advantage of the other to reduce borrowing costs. Figure 7.5(c) shows the termination of cash flows for the swap when both parties repay the principal.

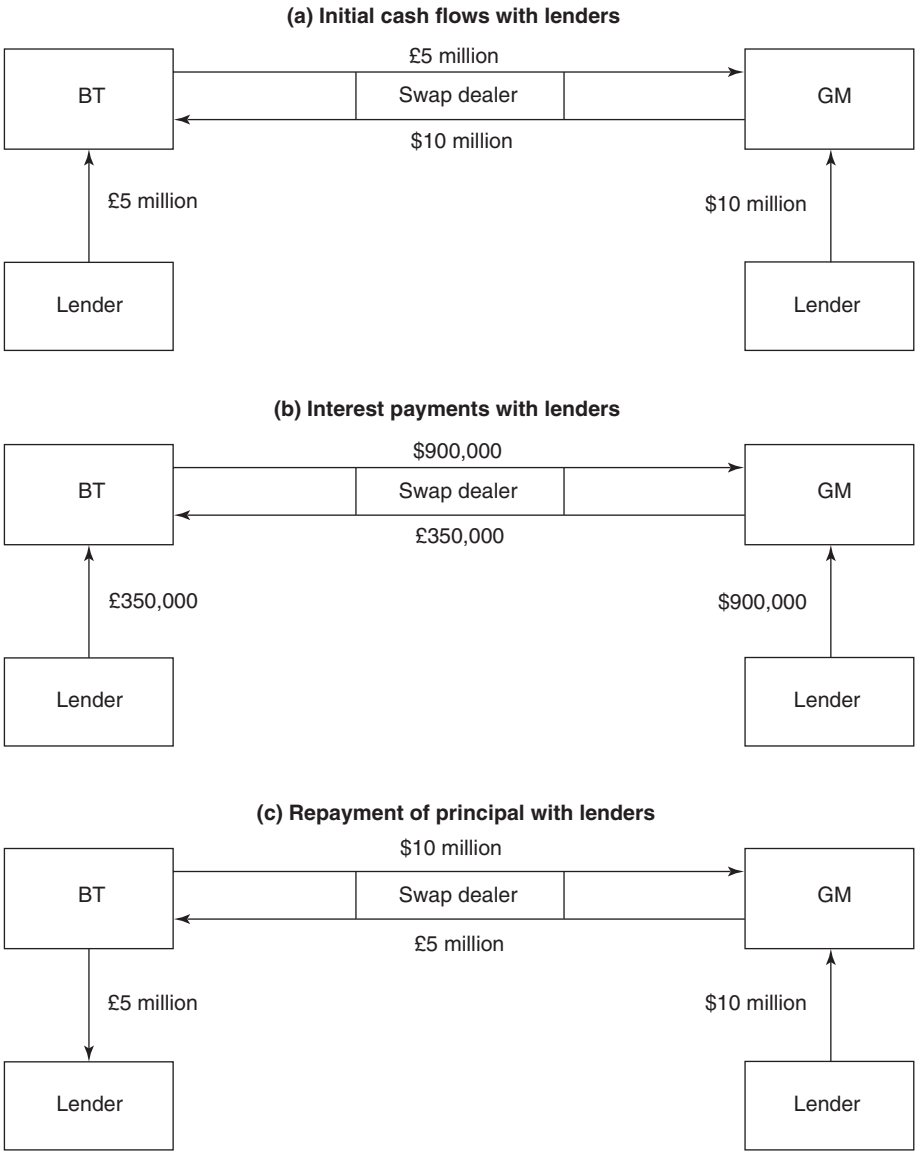

Figure 7.5 Motivation for the currency swap

Global Finance in Action 7.2

Companies Use Swaps to Save Money and Diversify their Funding Sources

The European Investment Bank (EIB) and the Tennessee Valley Authority (TVA) entered into a back-to-back swap deal that gave both cheaper funding than they could have entered through conventional bond issue. Lehman Brothers, which was the co-bookrunner for both deals, said that in addition to saving money, both organizations diversified their funding sources. Some 65 percent of the TVA bond was placed in Europe, 20 percent in Asia, and 15 percent in the USA. About half of the EIB issue was placed in the USA, 35 percent in Europe, and 15 percent in Asia

Are derivatives safe? Clearly, companies can misuse derivative instruments. However, used properly, they can be remarkably effective. Proper risk management involves a three-stage process: (1) identify where the risks lie; (2) design an appropriate strategy for managing them; and (3) select the right tools to execute the strategy. Professor Merton Miller, a Nobel Prize winner in economics, is a firm advocate of derivatives. "Contrary to the widely held perception, derivatives have made the world a safer place," Miller argues. Pointing to statistics that show that volatility is lower now than it was in many previous decades, he says, "They have made it possible for firms and institutions to deal efficiently and cost-effectively with risks and hazards that have plagued them for decades." One point he makes is that the world's banks have thrown away vastly more money in bad real estate deals than they will ever lose on intelligently managed derivatives portfolios.

Source: D. A. Ball, W. H. McCulloch, J. M. Geringer, P. L. Frantz, and M. S. Minor, *International Business*, Boston, MA: McGraw-Hill/Irwin, 2004, pp. 636–737.

SUMMARY

The swap market has emerged largely because financial swaps escape many of the limitations inherent in currency futures and options markets. First, because swaps are custom tailored to the needs of two parties, swap agreements are more likely to meet the specific needs of the counterparties than currency futures and options. Second, major financial institutions are readily identifiable on futures and options exchanges, but only the counterparties know that the swap takes place. Hence, the swap market affords a privacy that cannot be obtained in foreign-exchange trading. Finally, currency futures and options trading are subject to considerable government regulation, but the swap market has virtually no government regulation.

Nevertheless, financial swaps have limitations of their own. First, to have a swap transaction, one potential counterparty must find another counterparty that is willing to take the opposite side of the transaction. Second, a swap agreement cannot be altered without the agreement of both parties, because the swap agreement is a contract between two counterparties. Third, the exchanges effectively guarantee currency futures and options contracts for all parties, but the swap market has no such guarantor.

Questions

1 Why have currency swaps replaced parallel loans?
2 Explain both interest rate swaps and currency swaps. Which instrument has a greater credit risk: an interest rate swap or a currency swap?
3 How can a typical mortgage company use an interest rate swap to escape the interest rate risk?
4 How can multinational companies utilize a currency swap to reduce borrowing costs?
5 If you expect short-term interest rates to rise more than the yield curve should suggest, would you rather pay a fixed long-term rate and receive a floating short-term rate, or receive a fixed long-term rate and pay a floating short-term rate?
6 What is the role of the notional principal in understanding swap transactions? Why is this principal amount regarded as only notional?
7 Comment on the following statement: "If one party benefits from a swap, the other party must lose."
8 What are call swaptions and put swaptions? Compare a call swaption with an interest rate cap.
9 Describe an interest rate collar. How will it be used?
10 What are advantages of financial swaps over currency futures and options?
11 What are major limitations of financial swaps?

Problems

1 A swap agreement covers a 5-year period and involves annual interest payments on a $1 million principal amount. Party A agrees to pay a fixed rate of 12 percent to party B. In return, party B agrees to pay a floating rate of LIBOR + 3 percent to party A. The LIBOR is 10 percent at the time of the first payment. What is the difference (the net payment) between the two interest obligations?
2 Assume that the current spot rate for the Polish zloty is 2.5 zlotys per dollar ($0.40 per zloty), the US interest rate is 10 percent, and the Polish interest rate is 8 percent. Party C wishes to exchange 25 million zlotys for dollars. In return for these zlotys, party D would pay $10 million to party C at the initiation of the swap. The term of the swap is 5 years and the two firms will make annual interest payments. The spot rate for the zloty changes to 2.2222 zlotys per dollar or $0.45 per zloty at year 1. What is the net payment for year 1?
3 A mortgage company (party E) has just lent $1 million for 5 years at 12 percent with annual payments, and it pays a deposit rate that equals LIBOR + 1 percent. With these rates, the company would lose money if the LIBOR exceeds 11 percent. This vulnerabil-

ity prompts the mortgage company to enter an interest rate swap with party F. This swap agreement covers a 5-year period and involves annual interest payments on a $1 million principal amount. Party E agrees to pay a fixed rate of 12 percent to Party F. In return, party F agrees to pay a floating rate of LIBOR + 3 percent to party E. Determine an annual net cash flow available for the mortgage company.

4 The current spot rate for the Polish zloty is 2.5 zlotys per dollar or $0.40 per zloty. Party G has access to zlotys at a rate of 7 percent, while party H must pay 8 percent to borrow zlotys. On the other hand, party H can borrow dollars at 9 percent, while party G must pay 10 percent for its dollar borrowings. Party G wishes to obtain $10 million in exchange for 25 million zlotys, while party H wants to obtain 25 million zlotys in exchange for $10 million. How can these two parties achieve a lower borrowing rate?

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Case Problem 7: Regulations of Derivatives Markets

Financial derivatives – forwards, futures, options, and swaps – are contracts whose values are linked to or derived from values of underlying assets, such as securities, commodities, and currencies. There are two types of markets for financial derivatives: organized exchanges and over-the-counter (OTC) markets. Organized exchanges such as the Chicago Mercantile Exchange are regulated by governments, while OTC markets such as banks are unregulated. Derivatives are used by corporations, banks, and investors to reduce a variety of risks, such as exposure to currency movements (hedging), or to make leveraged bets on the market direction of these instruments (speculation).

Derivatives markets have shown extraordinary growth over the past few years. For example, the size of the global OTC derivatives markets increased from $21 trillion of contracts in 1992 to $130 trillion of contracts in 2002 (see figure 7.6); the amount of outstanding exchange-traded derivatives exceeded $20 trillion in 2002. In addition, recent years have witnessed numerous accounts of derivative-related losses on the part of established and reputable firms. Large losses associated with the use of derivatives include the US oil subsidiary of Metallgesellschaft ($1 billion), Daiwa Bank of Japan ($1 billion), Kashima Oil of Japan ($1.5 billion), Showa Shell of Japan ($1.5 billion), Sumitomo Corp. of Japan ($1.8 billion), Orange County, California ($1.7 billion), Barings of the UK ($1.3 billion), Long-Term Capital Management of the USA ($3 billion), and Allied Irish Bank of the USA/UK ($691 million). All these derivative-related losses have occurred since 1994. The recent rapid growth of derivatives markets and large derivative-related losses have triggered concern and even alarm over the dangers posed by the widespread use of derivatives.

On February 27, 1995, speculative trading by a 28-year-old trader contributed to bringing down Barings PLC, the oldest merchant bank in the UK. In the days that followed, investigators found that the bank's total losses from 1992 to 1995 exceeded $1 billion, a sum larger than its entire $860 million in equity capital. Barings had hired the British trader Nicholas Leeson from Bankers Trust in 1992 to build global fixed-income securities in Singapore. The cause of these losses was a breakdown in Barings' risk management system that allowed Leeson to accumulate and conceal an unhedged $27 billion position in various exchange-traded futures and options contracts.

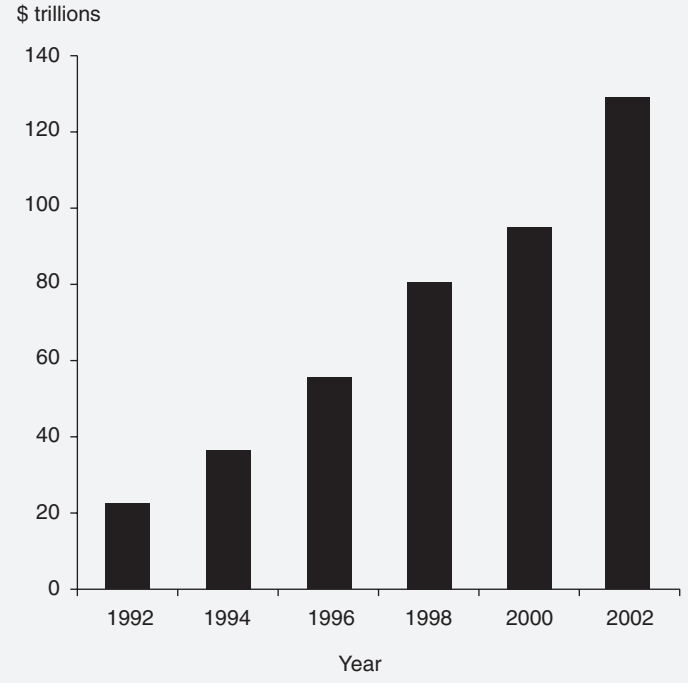

Figure 7.6 The size of the over-the-counter derivatives market
Source: Authors' graphic based on data from several issues of *The Wall Street Journal*.

What lessons do these losses and growth hold for policy-makers? Do they indicate the need for more strict government supervision of derivatives markets or for new laws and regulations to limit the use of these instruments? Apparently, US regulatory authorities think that derivatives pose inherent dangers. In the first half of 1997, Congress had introduced some half-dozen bills designed to ban or limit derivatives. In January 1997, the Securities and Exchange Commission (SEC) adopted a regulation requiring companies to present estimates of losses they could suffer from financial instruments. The Financial Accounting Standard Board (FASB) adopted its Statement 133, *Accounting for Derivative Instruments and Hedging Activities*, in 1998. FASB 133 requires companies to report the fair market value of their derivatives on their balance sheets and to include some derivatives gains or losses on their income statements. The legal status of derivatives was further cast into doubt in 1998, when the Commodity Futures Trading Commission (CFTC) suggested that it had the right to regulate trading in these instruments under the Commodity Futures Trading Commission Act of 1974. Especially big targets of these reforms are privately negotiated contracts through OTC markets.

Since 1997, several hundred letters from big companies, accountants, and even Federal Reserve Chairman Alan Greenspan have laid out the potential damage of these derivatives regulations. In February 2000, a White House panel on OTC derivatives urged Congress to exempt the $80 trillion derivatives market from government regulation. Nevertheless, standard-setters around the world – the USA, the UK, Canada, other industrial countries, and the International Accounting Standards Committee – have recently proposed and/or issued their standards to increase disclosure of off-balance-sheet derivatives transactions.

Case Questions

1 What are the major classes of risk in derivatives trading?
2 What is the potential damage of government derivative rules on derivatives users?
3 Had there been any warning signs that should have alerted the management of Barings to problems with its Singapore futures subsidiary?
4 What lessons for the management of financial institutions to be learned from the failure of Barings?
5 The website of the Securities and Exchange Commission (SEC), www.sec.gov, and the website of the Financial Accounting Standards Board (FASB), www.fasb.org, describe standard practices for financial reporting by companies in the USA. Access the above websites to learn proposed accounting standards and the status regarding reactions to these proposed standards.

Sources: R. Kolb, *Futures, Options, and Swaps*, 3rd edn, Malden, MA: Blackwell, 2000, pp. 779–83; S. McGee and E. MacDonald, "Pre-emptive Strike by Derivatives Players," *The Wall Street Journal*, Feb. 21, 1997, pp. C1, C13; A. Kuprianov, "Derivatives Debacles: Case Studies of Large Losses in Derivatives Markets," *Economic Quarterly*, Federal Reserve Bank of Richmond, Fall 1995, pp. 1–39.

CHAPTER 8

Exchange Rate Forecasting

Opening Case 8: Mundell Wins Nobel Prize in Economics

One major finding by Robert A. Mundell, who won the Nobel Prize in economics in 1999, has become conventional wisdom: when money can move freely across borders, policy-makers must choose between exchange rate stability and an independent monetary policy. They cannot have both. Professor Mundell remains a fan of the gold standard and fixed exchange rates at a time when they are out of favor with most economists. "You have fixed rates between New York and California, and it works perfectly," he has said. This statement implies that if the US dollar works well for 50 US states, a common currency such as the euro should also work well for its member states, the eurozone countries.

The Nobel committee praised Mundell's research into common-currency zones for laying the intellectual foundation for the 11-country euro. In 1961, when European countries were still faithful to national currencies, he described circumstances in which nations could share a common currency. Mundell's Nobel Prize in economics has renewed the focus on the fixed exchange rate system. First, economists and policy-makers failed to forecast recent currency crises in Asia, Europe, Latin America, and Russia. Second, advocates of flexible exchange rates had argued that under the floating-rate system, exchange rates would be stable, trade imbalances would fall, and countries would not need reserves, but none of these predictions proved to be true.

"The benefits of the euro will derive from the transparency of pricing, stability of expectations, lower transaction costs, and a common monetary policy run by the best minds that Europe can muster," Mundell wrote in 1998. The stability of expectations under a single currency would reduce exchange rate uncertainty, prevent speculative attacks, and eliminate competitive devaluations. The benefits of switching to a single

currency come with costs, however. Probably the biggest cost is that each country relinquishes its right to set monetary policy to respond to domestic economic problems. In addition, exchange rates between countries can no longer adjust in response to regional problems. Still, economists and policy-makers believe that the benefits of the euro far exceed its costs.

Mundell believes that the euro will eventually challenge the dollar for global dominance. He said in 1998: "The creation of the euro will set new precedents. For the first time in history, an important group of independent countries have voluntarily agreed to relinquish their national currencies, pool their monetary sovereignties, and create a supercurrency of continental dimensions. The euro will create an alternative to the dollar in its role as unit of account, reserve currency, and intervention currency." As a result, he regards the introduction of the euro as the most important event in the history of the international monetary system since the dollar took over from the pound the role of dominant currency during World War I.

Sources: G. Eudey, "Why is Europe Forming a Monetary Union?" *Business Review*, Federal Reserve Bank of Philadelphia, Dec. 1998, p. 21; R. Mundell, "The Case for the Euro," *The Wall Street Journal*, Mar. 25, 1998; and M. M. Phillips, "Mundell Wins Nobel Prize in Economics," *The Wall Street Journal*, Oct. 14, 1999, pp. A2, A8.

Because future exchange rates are uncertain, participants in international markets never know with certainty what the spot rate will be in 2 months or in 1 year. Thus, currency forecasts are a necessity. In other words, the quality of a company's decisions depends on the accuracy of exchange rate projections. If investors forecast future spot rates more accurately than the rest of the market, they have an opportunity to realize large monetary gains.

This chapter covers four related topics: (1) measuring a change in exchange rates; (2) forecasting the needs of a multinational company (MNC); (3) forecasting floating exchange rates; and (4) forecasting fixed exchange rates. Floating exchange rates are rates of foreign exchange determined by the market forces of supply and demand, without government intervention on how much rates can fluctuate. Fixed exchange rates are exchange rates which do not change, or they fluctuate within a predetermined band.

8.1 Measuring Exchange Rate Changes

An exchange rate is the price of one currency expressed in terms of another currency. As economic conditions change, exchange rates may become substantially volatile. A decrease in a currency's value relative to another currency is known as **depreciation**, or devaluation. Likewise, an increase in a currency's value is known as **appreciation**, or revaluation. MNCs frequently measure a percentage change in the exchange rate between two specific points in time; that is, the current exchange rate and the forecasted exchange rate 1 year ahead.

When the exchange rates from two specific points in time are compared, the beginning exchange rate is denoted as e_0 and the ending exchange rate is denoted as e_1. The percentage

change in the value of a foreign currency relative to the home currency is computed as follows:

$$\text{percentage change} = \frac{(e_1 - e_0)}{e_0} \tag{8.1}$$

Alternatively, the percentage change in the value of a domestic currency is computed as follows:

$$\text{percentage change} = \frac{(e_0 - e_1)}{e_1} \tag{8.2}$$

A positive percentage change represents a currency appreciation, while a negative percentage change represents a currency depreciation.

Example 8.1

Assume that the exchange rate for the Swiss franc changed from $0.64 on January 1 to $0.68 on December 31. In this case, the percentage change in the exchange rate for the franc against the dollar can be expressed in two different ways, but they have the same meaning. From a franc perspective, we can say that the franc's value against the dollar appreciated from $0.64 to $0.68. From a dollar perspective, we can say that the dollar's value against the franc depreciated from $0.64 to $0.68.

The percentage change in the spot rate for the franc (a foreign currency) can be computed by using equation 8.1:

$$\text{percentage change} = \frac{\$0.68 - \$0.64}{\$0.64} = -0.0625$$

Alternatively, the percentage change in the spot rate for the dollar (a domestic currency) against the foreign currency can be computed by using equation 8.2:

$$\text{percentage change} = \frac{\$0.64 - \$0.68}{\$0.68} = -0.0588$$

Thus, a change in the exchange rate from $0.64 to $0.68 is equivalent to a franc appreciation of 6.25 percent or a dollar depreciation of 5.88 percent. It is important to note that the two exchange rate changes are not equal to each other. The amount of franc appreciation is not equal to the amount of dollar depreciation, because the value of one currency is the inverse of the value of the other currency. In other words, the percentage change in the exchange rate differs because the base rate from which it is measured differs.

8.2 The Forecasting Needs of the Multinational Company

Virtually all aspects of multinational operations may be influenced by changes in exchange rates. Thus, an MNC needs foreign-exchange forecasts for many of its corporate functions, although future foreign-exchange rates are not easy to forecast (see Global Finance in Action 8.1).

Global Finance in Action 8.1
Tracking the US Dollar

The dollar goes up, the dollar goes down. Recently, it has been down. From January 2, 2002, to March 7, 2003, the dollar fell 20 percent against the euro, 10 percent against the British pound, and 13 percent against the Japanese yen. Historically, such fluctuations are not unusual, though they are seldom easy to explain.

Ask an economist to describe the reasons for the greenback's recent decline, and the reply will include a furrowed brow. Few subjects are as complicated or confounding to us as the foreign-currency exchange rate market – the deepest, most liquid, and one of the least regulated markets in the world.

Each day, more than $1 trillion in currency trades in the foreign-exchange market. Many participants and factors affect the value of one currency versus another. The market consists of a worldwide cast of businesses, investors, speculators, governments, and central banks, acting and reacting on the basis of a mix of forces such as trade patterns, interest rate differentials, capital flows, and international relations.

As the dollar has recently undergone its worst slide against European currencies since 1987, the overarching reason can be attributed to a reduced demand to place investment funds in the USA, a situation quite different from that of the late 1990s. Between 1995 and 2000, the attractiveness of US capital markets resulted in the dollar rising 20 percent against other major currencies. Recently, with the decline in the US stock market as well as lower interest rates on US government securities, outside investors have turned skittish. Other confidence crushers include the corporate accounting scandal of 2002 and rising tensions with Iraq and North Korea.

A weakened dollar, despite the negative connotation, does carry certain benefits. Although American travelers and businesses are not able to stretch their money as far on foreign soil, the opposite is also true: foreign consumers are able to purchase more US goods with their beefed-up currency. Such behavior, in theory, could help reduce the US trade deficit, which swelled to a record $44.2 billion in December 2002.

If the dollar's recent decline can be attributed to the slowdown in the US economy, along with corporate governance and geopolitical uncertainties, then recent weakness in the dollar is not a matter for serious concern. As the economy rebounds, we would expect foreign investment to make a comeback, and the dollar with it. So, remember: the dollar goes up, the dollar goes down. These are normal fluctuations in a well-functioning and vigorously competitive market.

Source: William Poole, "Tracking the US Dollar," *A Quarterly Review of Business and Economic Conditions*, Apr. 2003, p. 3.

8.2.1 The hedging decision

MNCs have a variety of foreign currency denominated payables and receivables: credit purchases and credit sales whose prices are stated in foreign currencies, borrowed and loaned funds denominated in foreign currencies, and uncovered forward contracts. These payables and receivables are exposed to foreign-exchange risks due to unexpected changes in the future exchange rate. A company's decision to hedge against these potential losses may be determined by its forecasts of foreign-currency values.

8.2.2 Working capital management

Working capital management consists of short-term financing and short-term investment decisions. The value of the currency borrowed or invested will change with respect to the borrower's or the investor's local currency over time. The actual cost of a foreign bank credit to the borrower depends on the interest rate charged by the bank and the movement in the borrowed currency's value over the life of the loan. Likewise, the actual rate of return on a short-term foreign investment consists of the rate of return on the investment in a local currency and the amount of the change in the local currency value.

When MNCs borrow money, they have access to a number of different currencies. As a result, they would wish to borrow money in a currency whose rate of interest is low and whose value will depreciate over the life of the loan. MNCs sometimes have a substantial amount of excess funds available for a short-term investment. Large short-term investments may be made in a number of different currencies. The ideal currency for such an investment should have a high interest rate and should appreciate in value over the investment period.

8.2.3 Long-term investment analysis

The evaluation of foreign direct and portfolio investments requires exchange rate forecasts well into the future. An important feature of foreign investment analysis is the fact that project cash inflows available to the investor depend partially on future exchange rates. There are several ways in which exchange rates can influence the estimated cash inflows. The key point here, however, is that accurate forecasts of future exchange rates will improve the estimates of the cash inflows and thus improve a company's decision-making process.

Some institutions, such as pension funds and insurance companies, invest a substantial portion of their money in foreign stocks and bonds. As with short-term investors, portfolio investors wish to invest in a currency that would have a high rate of return and would appreciate in value over the investment period.

8.2.4 The long-term financing decision

When MNCs issue bonds to obtain long-term funds, they can denominate their bonds in foreign currencies. Like short-term financing, companies would prefer to denominate the bonds in a cur-

rency that would depreciate in value over the life of the bond. To estimate the cost of issuing bonds, companies will have to forecast exchange rates.

8.2.5 Other uses

There are additional situations that require companies to use exchange rate forecasts. First, companies need exchange rate forecasts to assess foreign subsidiary earnings. Most MNCs are required to consolidate the earnings of subsidiaries into those of the parent if the parent owns more than a certain percentage of the subsidiary's voting shares. In other words, when an MNC reports its earnings, it has to consolidate and translate subsidiary earnings into the parent currency. Forecasts of exchange rates, therefore, play an important role in the overall estimate of a company's consolidated earnings.

Second, if a company wishes to buy or sell a product in a foreign currency, it has to forecast the effective exchange rate at the time of transaction. Third, if a company wants to remit its foreign profits to the parent country at some point in the future, it has to forecast the effective exchange rate at the time of remittance.

8.3 Forecasting Floating Exchange Rates

This section opens by first questioning the validity of generating exchange rate forecasts. This question is based on the assumption that market exchange rates reflect all currently available information, thereby making it futile to attempt forecasting exchange rates.

8.3.1 Currency forecasting and market efficiency

Banks and independent consultants offer many currency-forecasting services. Some MNCs have in-house forecasting capabilities. Yet, no one should pay for currency-forecasting services if foreign-exchange markets are perfectly efficient. The **efficient market hypothesis** holds that: (1) spot rates reflect all current information and adjust quickly to new information; (2) it is impossible for any market analyst to consistently "beat the market"; and (3) all currencies are fairly priced.

Foreign-exchange markets are efficient if the following conditions hold: First, there are many well-informed investors with ample funds for arbitrage opportunities when opportunities present themselves. Second, there are no barriers to the movement of funds from one country to another. Third, transaction costs are negligible. Under these three conditions, exchange rates reflect all available information. Thus, exchange rate changes at a given time must be due to new information alone. Because information that is useful for currency forecasting tends to arrive randomly, exchange rate changes follow a random walk. In other words, no one can consistently beat the market if foreign-exchange markets are efficient. Because all currencies are fairly priced in efficient exchange markets, there are no undervalued currencies and therefore no investors can earn unusually large profits in foreign-exchange markets.

Financial theorists define three forms of market efficiency: (1) weak-form efficiency, (2) semi-strong-form efficiency, and (3) strong-form efficiency. **Weak-form efficiency** implies that all

information contained in past exchange rate movements is fully reflected in current exchange rates. Hence, information about recent trends in a currency's price would not be useful for forecasting exchange rate movements. **Semistrong-form efficiency** suggests that current exchange rates reflect all publicly available information, thereby making such information useless for forecasting exchange rate movements. **Strong-form efficiency** indicates that current exchange rates reflect all pertinent information, whether publicly available or privately held. If this form is valid, then even insiders would find it impossible to earn abnormal returns in the exchange market.

Efficiency studies of foreign-exchange markets using statistical tests, various currencies, and different time periods have not provided clear-cut support of the efficient market hypothesis. Nevertheless, all careful studies have concluded that the weak form of the efficient market hypothesis is essentially correct. Empirical tests have also shown that the evidence of the semistrong-form efficiency is mixed. Finally, almost no one believes that strong-form efficiency is valid.

Dufey and Giddy (1978) suggested that currency forecasting can only be consistently useful or profitable if the forecaster meets one of the following four criteria:

1 The forecaster has exclusive use of a superior forecasting model.
2 The forecaster has consistent access to information before other investors.
3 The forecaster exploits small but temporary deviations from equilibrium.
4 The forecaster predicts the nature of government intervention in the foreign-exchange market.

Three methods – fundamental analysis, technical analysis, and market-based forecasts – are widely used to forecast exchange rates. Fundamental analysis relies heavily on economic models. Technical analysis bases predictions solely on historical price information. Market-based forecasts depend on a number of relationships that are presumed to exist between exchange rates and interest rates.

8.3.2 *Fundamental analysis*

Fundamental analysis is a currency forecasting technique that uses fundamental relationships between economic variables and exchange rates. The economic variables used in fundamental analysis include inflation rates, national income growth, changes in money supply, and other macroeconomic variables. Because fundamental analysis has become more sophisticated in recent years, it now depends on computer-based econometric models to forecast exchange rates. Model builders believe that changes in certain economic indicators may trigger changes in exchange rates in a similar way to changes that occurred in the past.

THE THEORY OF PURCHASING POWER PARITY The simplest form of fundamental analysis uses the theory of purchasing power parity (PPP). In chapter 5, we learned that the PPP doctrine relates equilibrium changes in the exchange rate to changes in the ratio of domestic and foreign prices:

$$e_t = e_0 \times \frac{(1+I_d)^t}{(1+I_f)^t} \tag{8.3}$$

where e_t is the dollar price of one unit of foreign currency in period t, e_0 is the dollar price of one unit of foreign currency in period 0, I_d is the domestic inflation rate, and I_f is the foreign inflation rate.

Example 8.2

The spot rate is \$0.73 per Australian dollar. The USA will have an inflation rate of 3 percent per year for the next 2 years, while Australia will have an inflation rate of 5 percent per year over the same period. What will the US dollar price of the Australian dollar be in 2 years?

Using equation 8.3, the US dollar price of the Australian dollar in 2 years can be computed as follows:

$$e_2 = \$0.73 \times \frac{(1+0.03)^2}{(1+0.05)^2} = \$0.7025$$

Thus, the expected spot rate for the Australian dollar in 2 years is \$0.7025.

MULTIPLE REGRESSION ANALYSIS A more sophisticated approach for forecasting exchange rates calls for the use of multiple regression analysis. A **multiple regression forecasting model** is a systematic effort at uncovering functional relationships between a set of independent (macroeconomic) variables and a dependent variable – namely, the exchange rate.

US MNCs frequently forecast the percentage change in a foreign currency with respect to the US dollar during the coming months or years. Consider that a US company's forecast for the percentage change in the British pound (*PP*) depends on only three variables: inflation rate differentials, US inflation minus British inflation (*I*); differentials in the rate of growth in money supply, the growth rate in US money supply minus the growth rate in British money supply (*M*); and differentials in national income growth rates, US income growth rates minus British income growth rates (*N*):

$$PP = b_0 + b_1 I + b_2 M + b_3 N + \mu \tag{8.4}$$

where b_0, b_1, b_2, and b_3 are regression coefficients, and μ is an error term.

Example 8.3

Assume the following values: $b_0 = 0.001$, $b_1 = 0.5$, $b_2 = 0.8$, $b_3 = 1$, $I = 2$ percent (the inflation rate differential during the most recent quarter), $M = 3$ percent (the differential in the rate of growth in money supply during the most recent quarter), and $N = 4$ percent (the differential in national income growth rates during the most recent quarter).

The percentage change in the British pound during the next quarter is

$$\begin{aligned} PP &= 0.001 + 0.5(2\%) + 0.8(3\%) + 1(4\%) \\ &= 0.1\% + 1\% + 2.4\% + 4\% \\ &= 7.5\%. \end{aligned}$$

Given the current figures for inflation rates, money supply, and income growth rates, the pound should appreciate by 7.5 percent during the next quarter. The regression coefficients of $b_0 = 0.001$, $b_1 = 0.5$, $b_2 = 0.8$, and $b_3 = 1$ can be interpreted as follows. The constant value, 0.001, indicates that the pound will appreciate by 0.1 percent when the United States and the United Kingdom have the same inflation rate, the same growth rate in money supply, and the same growth rate in national income. If there are no differentials in these three variables, *I*, *M*, and *N* are equal to zero. The value of 0.5 means that each 1 percent change in the inflation differential would cause the pound to change by 0.5 percent in the same direction, other variables (*N* and *M*) being held constant. The value of 0.8 implies that the pound changes by 0.8 percent for each 1 percent change in the money supply differential, other variables (*I* and *N*) being held constant. The value of 1 indicates that the pound is expected to change by 1 percent for every 1 percent change in the income differential, other variables (*I* and *M*) being held constant.

8.3.3 *Technical analysis*

Technical analysis is a currency forecasting technique that uses historical prices or trends. This method has been applied to commodity and stock markets for many years, but its application to the foreign-exchange market is a recent phenomenon. Yet technical analysis of foreign-exchange rates has attracted a growing audience. This method focuses exclusively on past prices and volume movements, rather than on economic and political factors. Success depends on whether technical analysts can discover forecastable price trends. However, price trends will be forecastable only if price patterns repeat themselves.

Charting and mechanical rules are the two primary methods of technical analysis. These two types of technical analysis examine all sorts of charts and graphs to identify recurring price patterns. Foreign-exchange traders will buy or sell certain currencies if their prices deviate from past patterns. Trend analysts seek to find price trends through mathematical models, so that they can decide whether particular price trends will continue or shift direction.

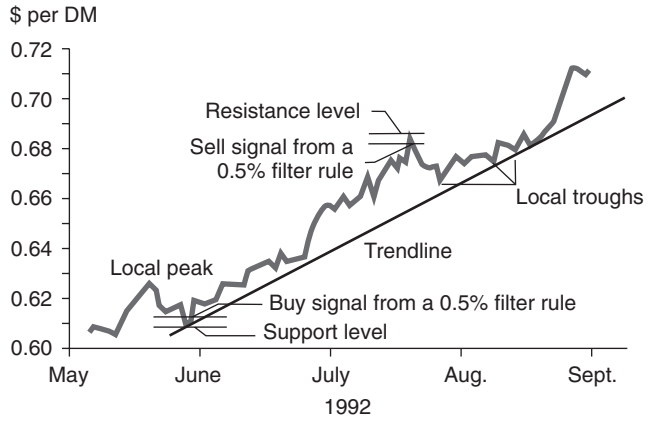

Figure 8.1 Technical analysis: charting and the filter rule; peaks, troughs, trends, resistance, and support levels illustrated for the $/DM
Source: C. J. Neely, "Technical Analysis in the Foreign Exchange Market: A Layman's Rule," *Review*, Federal Reserve Bank of St. Louis, Sept./Oct. 1997, p. 24.

CHARTING To identify trends through the use of charts, practitioners must first find "peaks" and "troughs" in the price series. A peak is the highest value of the exchange rate within a specified period of time, while a trough is the lowest price of the exchange rate within the same period. As shown in figure 8.1, a trendline is drawn by connecting two local troughs based on data of the dollar–mark rate (Neely 1997). Although figure 8.1 does not show it, another trendline may be drawn by connecting two local peaks. After these two trendlines have been established, foreign-exchange traders buy a currency if an uptrend is signaled and sell the currency if a downtrend seems likely.

MECHANICAL RULES Chartists admit that their subjective system requires them to use judgment and skill in finding and interpreting patterns. A class of mechanical rules avoids this subjectivity. These rules impose consistency and discipline on technical analysts by requiring them to use rules based on mathematical functions of present and past exchange rates.

Filter rules and moving averages are the most commonly used mechanical rules. Figure 8.1 illustrates some of the buy-and-sell signals generated by a filter rule with a filter size of 0.5 percent. Local peaks are called resistance levels, and local troughs are called support levels. This **filter rule** suggests that investors buy a currency when it rises more than a given percentage above its recent lowest value (the support level) and sell the currency when it falls more than a given percentage below its highest recent value (the resistance level).

Figure 8.2 illustrates the behavior of a 5-day and a 20-day moving average of the dollar–mark rate from February 1992 to June 1992. A typical moving average rule suggests that investors buy a currency when a short-moving average crosses a long-moving average from below; that is, when the exchange rate is rising relatively fast. This same rule suggests that investors sell the currency when a short-moving average crosses a long-moving average from above; that is, when the exchange rate is falling relatively fast.

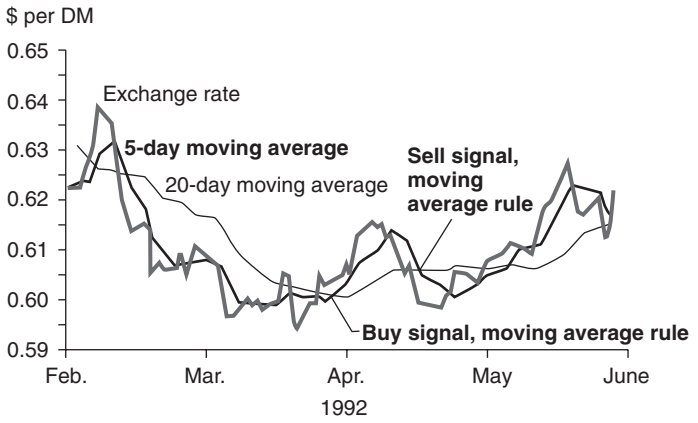

Figure 8.2 Technical analysis: moving-average rule (5- and 20-day moving averages)
Source: C. J. Neely, "Technical Analysis in the Foreign Exchange Market: A Layman's Rule," *Review*, Federal Reserve Bank of St. Louis, Sept./Oct. 1997, p. 24.

8.3.4 Market-based forecasts

A **market-based forecast** is a forecast based on market indicators such as forward rates. The empirical evidence on the relationship between exchange rates and market indicators implies that the financial markets of industrialized countries efficiently incorporate expected currency changes in the spot rate, the forward rate, and in the cost of money. This means that we can obtain currency forecasts by extracting predictions already embodied in spot, forward, and interest rates. Therefore, companies can develop exchange forecasts on the basis of these three market indicators.

SPOT RATES Some companies track changes in the spot rate and then use these changes to estimate the future spot rate. To clarify this point, assume that the Mexican peso is expected to depreciate against the dollar in the near future. Such an expectation will cause speculators to sell pesos today in anticipation of their depreciation. This speculative action will bid down the peso spot rate immediately. By the same token, assume that the peso is expected to appreciate against the dollar in the near future. Such an expectation will encourage speculators to buy pesos today, hoping to sell them at a higher price after they increase in value. This speculative action will bid up the peso spot rate immediately. The present value of the peso, therefore, reflects the expectation of the peso's value in the very near future. Companies can use the current spot rate to forecast the future spot rate because it represents the market's expectation of the spot rate in the near future.

FORWARD RATES The expectation theory assumes that the current forward rate is a consensus forecast of the spot rate in the future. For example, today's 30-day yen forward rate is a market forecast of the spot rate that will exist in 30 days.

Example 8.4

The spot rate is $0.8000 per Canadian dollar. The 90-day forward discount for Canadian dollars is 5 percent. What is the expected spot rate in 90 days?

To solve this problem, use equation 5.4:

$$\text{premium (discount)} = \frac{n\text{-day forward rate} - \text{spot rate}}{\text{spot rate}} \times \frac{360}{n}$$

Applying equation 5.4 to the 90-day forward discount for Canadian dollars given above, we obtain:

$$-0.05 = \frac{\text{90-day forward rate} - \$0.8000}{\$0.8000} \times \frac{360}{90}$$

$$\text{or 90-day forward rate} = \$0.7900$$

INTEREST RATES Although forward rates provide simple currency forecasts, their forecasting horizon is limited to about 1 year, because long-term forward contracts are generally nonexistent. Interest rate differentials can be used to predict exchange rates beyond 1 year. The market's forecast of the future spot rate can be found by assuming that investors demand equal returns on domestic and foreign securities:

$$e_t = e_0 \frac{(1+i_d)^t}{(1+i_f)^t}$$

where e_t is the dollar price of one unit of foreign currency in period t, e_0 is the dollar price of one unit of foreign currency in period 0, i_d is the domestic interest rate, and i_f is the foreign interest rate.

Example 8.5

The spot rate is $2 per pound. The annual interest rates are 10 percent for the USA and 20 percent for the UK. If these interest rates remain constant, then what is the market forecast of the spot rate for the pound in 3 years?

The market's forecast of e_3 – the spot rate in 3 years – can be found as follows:

$$e_3 = \$2 \times \frac{(1+0.10)^3}{(1+0.20)^3} = \$1.5405$$

8.3.5 The evaluation of exchange forecast performance

Because exchange forecasts are not free, MNCs must monitor their forecast performance to determine whether the forecasting procedure is satisfactory. Forecast performance can be evaluated by measuring the forecast error as follows:

$$RSE = \sqrt{\frac{(FV - RV)^2}{RV}}$$

where *RSE* is the root square error as a percentage of the realized value, *FV* is the forecasted value, and *RV* is the realized value. Average forecasting accuracy is usually measured by the root mean square error. The error is squared because a positive error is no better than a negative error. The *RSE* averages the squared errors over all forecasts. A forecasting model is more accurate than the forward rate if it has a smaller *RSE* than the forward rate.

In order to avoid a possible offsetting effect when we determine the mean forecast error, an absolute value (a squared error) is used to compute the forecast error. To clarify why the forecast error must have an absolute value, assume that the forecast error is 20 percent in the first quarter and −20 percent in the second quarter. If the absolute value is not used, the mean error over the two quarters is zero. The mean error of zero in this case, however, is misleading, because the forecast was not perfect in either quarter. If the absolute value is used here, the mean error over the quarters is 20 percent. Thus, the absolute value avoids such a distortion.

Example 8.6

The forecasted value for the Canadian dollar is \$0.7300 and its realized value is \$0.7500. The forecasted value for the Mexican peso is \$0.1100 and its realized value is \$0.1000. What is the dollar difference between the forecasted value and the realized value for both the Canadian dollar and the Mexican peso? What is the forecast error for each of these two currencies?

The dollar difference between the forecasted value and the realized value is \$0.0200 for the Canadian dollar and \$0.0100 for the peso. This does not necessarily mean that the forecast of the peso is more accurate. When we consider the relative size of the difference, we can see that the Canadian dollar has been forecasted more accurately on a percentage basis. The forecast error of the Canadian dollar is computed as follows:

$$RSE = \sqrt{\frac{(\$0.7300 - \$0.7500)^2}{\$0.7500}} = 0.023$$

The forecasted error of the peso is computed as follows:

$$RSE = \sqrt{\frac{(\$0.1100 - \$0.1000)^2}{\$0.1000}} = 0.032$$

These computations, thus, confirm the fact that the Canadian dollar has been predicted more accurately than the peso.

EMPIRICAL EVIDENCE Several studies have analyzed the forecasting effectiveness of market-based forecasts, technical analysis, fundamental analysis, and exchange forecasting firms. In addition to their mixed results, these studies are not comparable because they include different currencies and cover different time periods. Nevertheless, we discuss the results of two most representative studies: one that focuses on the accuracy of several forecasting models and the other that analyzes the accuracy of several forecasting firms.

Meese and Rogoff (1983) evaluated the forecasting effectiveness of seven models – two market-based forecasts (spot rate and forward rate), two technical models, and three fundamental models – for the time period between November 1976 and June 1981. For each currency, they analyzed forecasting horizons of 1, 6, and 12 months. Using the *RSE* between the forecasted value and the realized value for three currencies – the German mark, the Japanese yen and the British pound – they concluded that the market-based forecasts were more accurate than both the technical and fundamental models; and of the two market-based forecasts, the spot rate performed slightly better than the forward rate.

Goodman (1979) evaluated the record of six fundamentally oriented forecasting firms on the basis of their predictive accuracy for six currencies – the Canadian dollar, the French franc, the German mark, the Japanese yen, the Swiss franc, and the British pound – from January 1976 to June 1979. His study evaluated the performance of these forecasting firms using two measures: accuracy in predicting trend and the accuracy of their point estimates. He used the forward rate as a benchmark to judge the effectiveness of the forecasting firms. His study found that no individual firm was significantly more accurate than the forward rate in predicting trend. On average, these firms did not perform better than the forward rate.

Goodman's study also computed the accuracy of the point estimate by measuring the percentage of times that the predicted rates were closer to the actual spot rate than forward rate. Some of the firms performed better than others, but their overall forecast performance was worse than that of the forward rate. A 1982 study by Levich also found that professional forecasting firms clearly failed to outperform the forward exchange rate. In a more recent study, Eun and Sabherwal (2002) evaluated the forecasting performance of 10 major commercial banks from around the world. Their study concluded that, in general, these 10 banks could not beat the random walk model in forecasting the British pound, the German mark, the Swiss franc, and the Japanese yen. More surprising, no bank, including the Japanese bank, could beat the random walk model in forecasting the Japanese yen. In other words, these studies failed to beat the market. Thus, the performance of these companies does not refute the efficient market hypothesis of the foreign-exchange market.

SKEPTICS OF THE EFFICIENT MARKET HYPOTHESIS Many financial economists believe that the exchange rate can be well approximated by a random walk. Using the efficient market hypoth-

esis, they argue that the forward rate is the best available predictor of future spot rates. However, some recent studies by Taylor and Allen (1992), LeBaron (1996), and Szakmary and Mathur (1997) cast doubts on the efficient market hypothesis.

In 1997, for example, Neely tested six filter rules and four moving-average rules on data of daily US dollar bid–ask quotes for the German mark, the Japanese yen, the British pound, and the Swiss franc. All exchange rates data begin on March 1, 1974, and end on April 10, 1997. These four series are the dollar–mark rate, the dollar–yen rate, the dollar–pound rate, and the dollar–franc rate. These 10 rules that were tested had positive excess returns of 4.4 percent over the whole sample period. These test results cast doubts on the efficient market hypothesis, which holds that no trading strategy should be able to earn positive excess returns.

8.4 Forecasting Fixed Exchange Rates

Since the breakdown of the fixed exchange rate system in 1971, exchange rates are believed to be determined by a floating exchange rate system. However, many International Monetary Fund (IMF) member countries have used some form of fixed exchange rates since 1971. The annual report published by the IMF describes the exchange arrangements and exchange restrictions of its member countries. The 2003 report (see chapter 4), which covered 186 countries, listed 97 cases of fixed exchange rates as of January 31, 2003. Exchange rate forecasting under a fixed exchange rate system can be very useful for MNCs with operations in countries that employ fixed exchange rates.

Jacque (1978) suggests the following four-step sequence as a general forecasting procedure under a fixed-rate system. First, through a review of key economic indicators, the forecaster should identify those countries whose balance of payments is in fundamental disequilibrium. Second, for the currencies of such countries, the forecaster should evaluate the pressure that market forces exert on prevailing exchange rates. Third, the forecaster should assess the level of central banks' international reserves to ascertain whether the central bank is in a position to defend the prevailing exchange rate. Finally, the forecaster should try to predict the type of corrective policies that political decision-makers are likely to implement.

A rule of thumb suggests that in a fixed-rate system, the forecaster ought to focus on the government decision-making structure, because the decision to devalue a currency at a given time is clearly a political one. The basic forecasting approach in this case is to first ascertain the pressure to devalue a currency and then determine how long the nation's leaders can persist with this particular level of disequilibrium. We discuss each of the four steps below.

8.4.1 Step one: assessing the balance-of-payments outlook

Step one is an early warning system that will assist the forecaster in identifying those countries whose currencies are likely to be adjusted. Currencies are rarely devalued without prior indication of weakness. Many researchers in this area have attempted to forecast currency devaluation on the basis of key economic indicators that are critical in assessing a country's balance-of-payments outlook. Some of these indicators are the international monetary reserves, international trade, inflation, monetary supply, and exchange spread between official versus market rates. These economic indicators are also used to forecast foreign-exchange controls.

INTERNATIONAL RESERVES International reserves reflect the solvency of a country – its ability to meet international obligations. Debt repayment obligations, profit and royalty obligations, and payments of purchases on credit represent international obligations. Continued balance-of-payments deficits decrease the international reserves of a country that maintains fixed exchange rates, unless these deficits are offset by increased short-term loans or investment. This situation increases the likelihood of devaluation or depreciation.

THE BALANCE OF FOREIGN TRADE Trends and forecasts for the balance of foreign trade indicate the direction in which the value of a currency is to be adjusted. If a country spends more money than it obtains from abroad over a sustained period, the possibility of devaluation increases. If the country receives more money from abroad than it spends abroad, the probability of revaluation increases.

INFLATION Economic forces link the prices of real assets (inflation rates) with the prices of currencies (exchange rates). The relationship between inflation rates and exchange rates is provided by the purchasing power parity doctrine. According to this doctrine, currencies of countries with higher inflation rates than that of the USA tend to depreciate in value against the dollar. By the same token, currencies of countries with lower inflation rates than that of the USA tend to appreciate in value against the dollar.

MONEY SUPPLY Money supply consists of currency in circulation and demand deposits. Simply stated, inflation is the consequence of a country's spending beyond its capacity to produce. As an economy approaches full employment, any additional increase in money supply can serve only to make prices spiral upward. Some foreign-exchange forecasters rely on the money supply as a timely indicator of price changes and exchange rate changes for maintaining purchasing power parity.

OFFICIAL VERSUS MARKET RATES Many foreign-exchange forecasters use the exchange spread between official and market rates as a valid indicator of currency health. In their comparison, forecasters observe the value that outsiders place on a particular currency. Under a freely flexible exchange system, no spread exists between these two exchange rates. However, some spread is practically inevitable where currencies are pegged and exchange controls are imposed on the convertibility of local currency into hard currencies. In this situation, one measures the falling confidence in a local currency by checking the widening spread between official and free market rates.

A rise in the spread between official and market rates serves as an indication of increasing apprehension in the near future. Thus, the increasing divergence from a free market rate over an official rate may be used as a valuable piece of information to forecast devaluation.

8.4.2 Step two: measuring the magnitude of the required adjustment

Once currency forecasters single out a currency for adjustment, they will carry out the second step of the forecasting procedure – that is, determining the size of the change in the exchange rate required to restore the balance-of-payments equilibrium. Essentially, there are three ways of doing this: (1) generalized application of the purchasing power parity (PPP) hypothesis; (2) using

forward exchange rates as predictors of future spot exchange rates; and (3) using free market or black market rates as indicators of future spot exchange rates.

GENERALIZED APPLICATION OF THE PPP THEORY Under the generalized application of the PPP hypothesis, the percentage change in the exchange rate between any two currencies can be estimated by inflation rate differentials between the two countries. The PPP hypothesis, however, is inapplicable if either country or both countries impose controls on prices. Many countries with a fixed exchange system tend to have price controls.

FORWARD PREMIUM OR DISCOUNT An unbiased estimate of the future percentage revaluation or devaluation of a currency may be provided by forward premium or discount. Speculators who think that a forward rate is higher than their prediction of a future spot rate will sell the foreign currency forward. This transaction tends to reduce the forward rate until it equals the expected future spot rate. By the same token, speculators who believe a forward rate is lower than an expected future spot rate will buy a foreign currency forward. This transaction tends to increase the forward rate until it reaches the expected future spot rate.

THE FREE MARKET RATE In the absence of a forward exchange market, the exchange rate quoted by the free market can be used as an indicator of the future spot rate. In the absence of a free market, the black market rate provides a good proxy estimate of the equilibrium exchange rate. These black markets for foreign currencies are likely to appear whenever exchange controls create a divergence between the equilibrium exchange rate and the controlled exchange rate. However, both the free market rate and the black market rate normally overestimate the extent of the devaluation required to bring the balance of payments into fundamental equilibrium.

8.4.3 Step three: the timing of the adjustment

Once forecasters have estimated the pressure on a country's currency based on the discrepancy between the forecasted rate and the actual rate, they will evaluate the resistance capacity of the country under pressure to adjust. The country's ability to resist or to postpone the implementation of corrective policies depends upon two factors: the ability to borrow hard currencies and the overall amount of international reserves.

Countries with good credit ratings can easily borrow money from a number of capital markets, such as Euromarkets, local capital markets, foreign capital markets, and international financial institutions. International reserves and borrowed funds can be used to finance the balance-of-payments deficit caused by the fundamental disequilibrium. Consequently, those countries with a large amount of international reserves and with good credit ratings can resist or delay the implementation of their corrective policies. However, if disequilibrium persists, even these countries will run out of reserves and borrowing capacity.

8.4.4 Step four: the nature of the adjustment

Whether a country will devalue its currency or let it float downward is ultimately a political decision. No matter how necessary a devaluation may be from an economic point of view, political

factors have the final word before choosing between the implementation of corrective policies and a change in the par value of the currency.

CORRECTIVE POLICIES In the case of a structural balance-of-payments deficit, policy-makers will first attempt to implement a number of corrective policies: deflate the economy and institute strict exchange controls, among others.

A government may adopt tight monetary and fiscal policies. To stem inflation, it should control budget deficits, reduce the growth in the money supply, and institute wage and price controls. These deflationary policies should reduce aggregate domestic demand for both domestic and foreign goods, so that the demand for imports falls and the supply of exports rises. In addition, external controls on capital account transactions should further reinforce improvement in the balance of payments.

Under foreign-exchange controls, a country would force its exporters and other recipients to sell their foreign exchange proceeds to the central bank. Then, the government would allocate this foreign exchange only to the various users of foreign exchange. In this way, the government restricts the country's imports to an amount of foreign exchange earned by the country's exports. Thus, imports under exchange controls are less than they would be under free market conditions.

Although deflationary policies appear to be a good way to fix balance-of-payments deficits, they are not without costs. Deflationary policies may slow the economy. Exchange controls may hurt foreign investment and tourism. In other words, the cost of such corrective policies for the balance-of-payments deficit is high unemployment, which is unlikely to arouse popular enthusiasm.

8.4.5 Devaluation

A country will devalue its currency when various corrective policies prove economically ineffective or politically unacceptable. To determine how much longer a devaluation can be delayed for purely political reasons, the currency analyst will have to review political factors in a qualitative manner. At this point, the key question is whether the decision-makers in power can afford the expected political cost of higher unemployment. The answer to this question depends on the economic philosophies of the party in power, government attitudes toward devaluation, the type of government currently in power, patterns of political behavior, and norms for stability. Background information on the political environment of the government goes far beyond understanding an Administration's attitudes and policies toward devaluation. Currency forecasters should understand the path along which all policies toward devaluation have been made in the past.

8.4.6 Why and how central banks intervene in currency markets

In a system of fixed exchange rates, central banks frequently intervene in the foreign-exchange market to maintain the par value system. Even within the flexible exchange rate system, central banks intervene in the foreign-exchange market to maintain orderly trading conditions. Monetary authorities normally intervene in the foreign-exchange market (1) to smooth exchange rate movements, (2) to establish implicit exchange rate boundaries, and (3) to respond to temporary disturbances. Depending on market conditions, a central bank may:

1 Coordinate its action with other central banks or go it alone.
2 Enter the market aggressively to change attitudes about its views and policies.
3 Call for reassuring action to calm markets.
4 Intervene to reverse, resist, or support a market trend.
5 Operate openly or indirectly through brokers (Cross 2002).

In 1999, the Bank for International Settlements (BIS) sent a questionnaire on the practice of exchange market intervention to 44 central banks, including the European Central Bank. Of 44 institutions, 22 responded to some or all of the questions asked. The Reserve Bank of New Zealand was the only authority to report that it had not intervened in the past 10 years. Table 8.1 shows summary statistics of the intervention survey responses. The survey of central banks' intervention practices reveals that a number of monetary authorities do intervene with some frequency in foreign-exchange (mostly spot) markets. The desire to check short-run trends or correct longer-term misalignments often motivates intervention, whereas the size of the intervention often depends on market reaction to initial trades. Although intervention typically takes place during business hours, most monetary authorities will also intervene outside of these hours if necessary. While there is unanimous agreement that intervention does influence exchange rates, there is much disagreement about the horizon over which the full effect of this influence is felt, with estimates ranging from a few minutes to more than a few days.

Table 8.1 A summary of intervention survey responses

		No. of responses	*Minimum*	*Median*	*Maximum*
1	In the last decade, on approximately what percentage of business days has your monetary authority conducted intervention?	14	0.5	4.5	40.0
		No. of responses	*Never*	*Sometimes*	*Always*
2	Foreign-exchange intervention changes the domestic monetary base.	20	40.0	30.0	30.0
3	Intervention transactions are conducted with the following counterparties:				
	Major domestic banks	21	0.0	28.6	71.4
	Major foreign banks	18	16.7	72.2	11.1
	Other central banks	17	76.5	23.5	0.0
	Investment banks	16	68.8	25.0	6.3
4	Intervention transactions are conducted in the following markets:				
	Spot	21	0.0	4.8	95.2
	Forward	17	47.1	52.9	0.0
	Future	16	93.8	6.3	0.0
	Other (please specify in margin)	15	93.3	6.7	0.0

Table 8.1 *continued*

		No. of responses	*Never*	*Sometimes*	*Always*
5	Intervention transactions are conducted by:				
	Direct dealing with counterparties via telephone	20	0.0	30.0	70.0
	Direct dealing with counterparties via electronic communication	16	56.3	31.3	12.5
	Live FX brokers	19	36.8	52.6	10.5
	Electronic brokers (e.g., EBS, Reuters 2002)	16	87.5	0.0	12.5
6	The following strategies determine the amount of intervention:				
	A prespecified amount is traded	17	17.6	70.6	11.8
	Intervention size depends on market reaction to initial trades	20	5.0	55.0	40.0
7	Intervention is conducted at the following times of day:				
	Prior to normal business hours	16	56.3	43.8	0.0
	Morning of the business day	21	0.0	85.7	14.3
	Afternoon of the business day	20	0.0	90.0	10.0
	After normal business hours	17	35.3	64.7	0.0
8	Is intervention sometimes conducted through indirect methods, such as changing the regulations regarding foreign exchange exposure of banks?	21	76.2	23.8	0.0
9	The following are factors in intervention decisions:				
	To resist short-term trends in exchange rates	19	10.5	42.1	47.4
	To correct long-run misalignments of exchange rates from fundamental values	18	33.3	44.4	22.2
	To profit from speculative trades	17	100.0	0.0	0.0
	Other	16	62.5	25.0	12.5
10	Intervention transactions are conducted secretly for the following reasons:				
	To maximize market impact	17	23.5	35.3	41.2
	To minimize market impact	14	42.9	57.1	0.0
	For portfolio adjustment	11	100.0	0.0	0.0
	Other	12	75.0	16.7	8.3
11	In your opinion, how long does it take to observe the full effect of intervention on exchange rates?				
	A few minutes	18	38.9		
	A few hours	18	22.2		
	One day	18	0.0		
	A few days	18	27.8		
	More than a few days	18	11.1		
	Intervention has no effect on exchange rates	18	0.0		

Note: Question 1 shows the minimum, median, and maximum responses (from 0 to 100) on the percentage of days intervention was conducted in the last decade. Questions 2 through 10 show the percentage of responses of "Never," "Sometimes," and "Always" to those questions. Question 11 shows the percentage of responses indicating that the full effects of intervention were felt at each horizon.

Source: C. J. Neely, "The Practice of Central Bank Intervention," *Review*, Federal Reserve Bank of St. Louis, May/June 2001, p. 5.

SUMMARY

This chapter has discussed four closely related topics: measuring exchange rate changes, forecasting needs, forecasting floating exchange rates, and forecasting fixed exchange rates. MNCs need exchange rate forecasts to make decisions on hedging foreign-currency payables and receivables, working capital management, long-term investment analysis, and long-term financing.

The quality of a company's decision depends on the accuracy of exchange rate predictions. Many forecasters believe that for the major floating currencies, foreign-exchange markets are efficient and forward exchange rates are unbiased predictors of future spot rates. No one should solicit the services of forecasting firms if foreign-exchange markets are perfectly efficient.

Fundamental analysis, technical analysis, and market-based forecasts are the most common forecasting techniques. Currently, two dozen forecasting firms exist, and their annual service costs several thousands of dollars. Many traders and MNCs have in-house forecasting services. Investors may earn extra profits by using forecasting techniques and forecasting firms if foreign-exchange markets are inefficient. While many financial economists believe that the foreign-exchange market is highly efficient, some recent studies cast doubts on the efficient market hypothesis. In fact, survey data from a variety of sources indicates a large and growing influence of technical forecasting techniques, especially for very short horizons.

Under a fixed exchange rate system, central banks are committed to maintain exchange rates within a narrow band around the par value. This par value may be changed whenever the following successive events occur. First, the balance of payments of a country moves into fundamental disequilibrium. Second, various corrective policies prove economically ineffective or politically unacceptable. Under such conditions, a change in the exchange rate is a discrete, one-way adjustment of a relatively considerable magnitude, with the new rate to be expected to prevail for some time.

Questions

1 Describe corporate motives for currency forecasting.
2 If foreign-exchange markets are perfectly efficient, why should no one pay for the services of currency forecasting firms?
3 Most empirical studies have found that foreign-exchange markets are at least weak-form efficient. Does this mean that investors can earn extra profits by using technical analysis?
4 Explain fundamental analysis as a technique for forecasting exchange rates.
5 Explain technical analysis as a technique for forecasting exchange rates.
6 Explain the market-based forecast as a technique for forecasting exchange rates.
7 How can we assess performance in forecasting exchange rates?

8 In the early 1990s, some former Eastern-bloc countries allowed the exchange rates of their currencies to fluctuate against the dollar. Would the use of fundamental analysis be useful for forecasting the future exchange rates of these currencies?
9 Explain the events that would force the par value to change.
10 A general rule suggests that in a fixed-rate system, the forecaster ought to focus on the government decision-making structure. Explain.
11 Why do the central banks of countries with flexible exchange rate systems intervene in the foreign-exchange market?

Problems

1 The beginning spot rate is \$0.1854 per South African rand and the ending spot rate is \$0.20394 per rand.
   (a) Calculate the percentage change in the exchange rate for the rand against the dollar.
   (b) Calculate the percentage change in the exchange rate for the dollar against the rand.
2 The beginning spot rate is \$0.1040 per Chinese yuan and the ending spot rate is \$0.0936 per yuan.
   (a) What is the percentage change in the exchange rate for the yuan?
   (b) What is the percentage change in the exchange rate for the dollar?
3 The spot rate is \$0.60 per Swiss franc. The 4-year annualized inflation rate is 9 percent in the USA and 6 percent in Switzerland.
   (a) What is the expected percentage appreciation or depreciation of the franc over the 4-year period?
   (b) What is the forecast for the franc's spot rate in 4 years?
4 A US company's forecast for the percentage change in the British pound (BP) depends on only three variables: inflation rate differentials, US inflation minus British inflation (I); differentials in the rate of growth in money supply, the growth rate in US money supply minus the growth rate in British money supply (M); and differentials in national income growth, US income growth minus British income growth (N). The coefficients are $b_0 = 0.002$, $b_1 = 0.8$, $b_2 = 1.0$, and $b_3 = 0.5$. Finally, differentials in inflation rate, money supply, and income growth are $I = 4$ percent, $M = 2$ percent, and $N = 0$ percent during the most recent quarter. What is the percentage change in the British pound during the next quarter?
5 The spot rate is \$0.5800 per Singapore dollar. The 90-day forward premium for Singapore dollars is 13.79 percent. What is the expected spot rate in 90 days?
6 The spot rate is \$0.08 per Spanish peseta. The annual interest rates are 4 percent for the USA and 9 percent for Spain. What is the market's forecast of the spot rate in 2 years?
7 The forecasted value for the Mexican peso is \$0.1200 and its realized value is \$0.1000. What is the forecast error (root square error) for the peso?

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Case Problem 8: General Motors Operations in Mexico, and the Peso Crisis

Although Mexico had allowed its peso to fluctuate within a narrow band, the government had virtually pegged the peso to the US dollar since 1990. However, on December 20, 1994, Mexico unexpectedly announced its decision to float the peso and a 40 percent devaluation followed in the next 2 days. The peso devaluation and the peso float, at first glance, seemed to have caused serious problems for General Motors (GM), whose manufacturing facilities in Mexico depend heavily on materials and components from the USA. An emergency meeting of the GM Executive Committee was called on December 24 in Detroit, to deal with the consequences of the devaluation and the float. Gary Henson, President and Managing Director

Table 8.2 Selected economic indicators for the USA and Mexico

	1990	*1991*	*1992*	*3rd Q 1993*	*4th Q 1993*	*1994*
Exchange rate (pesos per $)	2.9454	3.0710	3.1154	3.1059	3.4040	5.3250
Mexican CPI	100.0	122.7	141.7	155.5	167.4	170.5
US CPI	100.0	103.1	105.0	106.9	109.2	110.1
US money supply	100.0	108.6	124.0	136.7	135.9	139.1
Mexican money supply	100.0	223.9	257.6	303.3	276.2	306.6

Source: The International Monetary Fund, *International Financial Statistics*, Washington, DC, June 1995.

Table 8.3 Mexico's balance of payments (millions of US dollars)

Accounts	*1990*	*1991*	*1992*	*1993*	*3rd Q 1994*	*4th Q 1994*
Goods and services	–3,110	–9,369	–18,619	–16,010	–15,466	–21,054
Current account	–7,451	–14,888	–24,442	–23,400	–21,525	–28,784
International receivers	9,863	17,726	18,942	25,110	16,374	6,278

Source: The International Monetary Fund, *International Financial Statistics*, Washington, DC, June 1995.

of GM de Mexico since December 1992, knew that all of the company's top executives would be attending the meeting and felt certain that he would be asked why the devaluation and the float had caught him off guard. He decided to analyze economic statistics for both Mexico and the USA (see tables 8.2 and 8.3) along with the news clippings in his file on the Mexican peso.

Concern over the possibility of devaluation had existed for years, from 1990 to December 20, 1994, because real exchange rates for the peso had skyrocketed. However, many observers felt that President Salinas's economic reforms had improved Mexico's economy to such an extent that devaluation would not be necessary.

Henson was, therefore, not the only person caught off guard by the size of the devaluation and by the timing of the float. When the Mexican Central Bank opened on December 22, it began quoting pesos at 5.5 per US dollar, then as low as 6.33; the peso dropped to 5.8 by the end of the day. By December 23, foreign-exchange experts had become sharply divided on how far the peso might fall. Some said that the foreign-exchange market had already overreacted, but others saw no end in sight to the peso's depreciation. Analysts also disagreed on whether the valuation and the float would be sufficient to correct the country's balance-of-payments difficulties and other economic problems. All these conflicting and perplexing points of view made it more difficult for Henson to assess the effects of the float and the devaluation on GM's operations in Mexico.

Although there are some historical exceptions, exchange rate stabilization programs commonly result in a specific dynamic of consumption and investment patterns, current-account deficits, and exchange rate pressures. The typical pattern of exchange rate stabilization programs includes the following (Gruben 1996). First, despite reductions in inflation, the real

exchange rate rises because some inflation remains and is not offset by nominal exchange rate movements. Second, the trade and current-account balances deteriorate. Third, in the early stages of the program, capital inflows finance the excess of consumption and investment over domestic production, allowing a boom to ensure, but the inflows ultimately reverse. Fourth, with this reversal, the growing current-account deficit can no longer be financed, the consumption boom ends, and the exchange rate stabilization program collapses.

Case Questions

1 Do you think that the peso had fallen far enough as of December 22 or that it would continue to lose value? (Hint: answer this question using equation 8.3.) Is the predicted exchange rate usually accurate?
2 Could the peso float have been forecasted? (Hint: answer this question using economic indicators such as the balance of payments, international reserves, inflation, and money supply.)
3 What alternatives were available to the Mexican government for dealing with its balance-of-payments problems?
4 Assume that Mexico imposed prolonged foreign-exchange controls and thus GM de Mexico, the Mexican subsidiary of General Motors, could not import crucial materials and components from the USA. Briefly outline courses of action that GM de Mexico should take to cope with the foreign-exchange controls.
5 Is there any evidence that the typical pattern of exchange rate stabilization programs suggested by researchers such as William Gruben took place in Mexico?
6 The website of the Chicago Mercantile Exchange, www.cme.com, provides information on currency futures prices, including recent quotes and trends. Because a futures contract is similar to a forward contract, it can be used to forecast the value of a currency. Use this website to review the recent trend of futures prices for the Mexican peso and to answer the following question: Why do you think that the futures prices of the peso have changed over the past few months? Discuss how this information could be of assistance to Mr Gary Henson, President and Managing Director of GM de Mexico. The website of Olsen and Associates, www.olsen.ch, provides information on technical forecasts. Visit this website to obtain technical information for several currencies.

Sources: The International Monetary Fund, *International Financial Statistics*, Washington, DC: IMF, various issues; W. C. Gruben, "Policy Priorities and the Mexican Exchange Rate Crisis," *Economic Review*, Federal Reserve Bank of Dallas, First Quarter 1996, pp. 19–29; C. Ramirez, "GM Pulls into Leader Spot in Mexico Sale," *Automotive News*, July 17, 1995, p. 33; and D. Wessel, P. B. Carroll, and T. T. Vogel, "How Mexico's Crisis Ambushed Top Minds in Officialdom, Finance," *The Wall Street Journal*, July 6, 1995, pp. A1, A3.

CHAPTER 9

Managing Transaction Exposure and Economic Exposure

Opening Case 9: Avon's Actions to Protect Against Volatile Currencies

Avon Products, Inc. is a global manufacturer and marketer of beauty and related products. In 1996, the Asian market accounted for 16 percent of Avon's total revenues ($4.8 billion). This case recounts how Avon minimized its currency exposure to the Asian financial crisis of 1997—8 through the use of three hedging techniques: the balance-sheet hedge, leads and lags, and forward contracts.

First, Avon produces and sells nearly all its own products in 10 Asian countries. This strategy, known as the balance-sheet hedge, has enabled Avon to maintain the same amount of exposed assets and exposed liabilities in Asian currencies. Avon suffered neither a gain nor a loss from the Asian crisis, because devaluations of the Asian currencies affected both the company's assets and liabilities equally.

Second, when the crisis began in Thailand in July 1997, Avon had its Asian unit remit its earnings weekly rather than monthly (leads) and had, moreover, delayed its dollar payments to some Asian suppliers (lags).

Third, just before other Asian countries allowed their currencies to depreciate, Avon sold about $50 million worth of five Asian currencies forward against the dollar for periods of up to 15 months.

Source: Fred R. Bleakly, "How US Firm Copes with Asian Crisis: Avon Moves to Protect against Volatile Currencies," *The Wall Street Journal*, Dec. 26, 1997, pp. A2, A4.

Foreign-exchange risk is the risk of loss due to changes in the international exchange value of national currencies. For example, in 1999 Sony was the victim of a 40 percent increase in the yen against currencies of its major trading partners in 1999 (Landers 1999). In October 1999, Sony reported impressive accomplishments for the first half of that year: new products, product and distribution rationalization, and increased sales and profits across the board in local-currency terms. But the same report broke bad news in dollar terms: sales had dropped by 7.6 percent, operating income by 45 percent, and net income by 25 percent. These results underline the impact of the high yen on Japanese exporters such as Sony. In fact, these days many companies are at the mercy of foreign-exchange rates.

So long as we do not have a single world currency, some degree of exchange risk will exist, no matter what the system. Fluctuations in the value of currency had been quite frequently pronounced even under the fixed exchange rate system. A study by DeVries (1968), for example, shows that during the 20-year period from 1948 to 1968, 96 countries devalued their currencies by more than 40 percent, and 24 countries devalued their currencies by more than 75 percent. This problem has become more complicated in the past three decades, because most countries have permitted their currencies to float since 1973. Daily currency fluctuations and frequent currency crises have become a way of life since then. Daily currency fluctuations and the increasing integration of the world economy are two major reasons why multinational companies (MNCs) consider exchange rate risk as the most important among many risks.

This chapter has four major sections. The first section describes the basic nature of foreign-exchange exposure. The second section explains how transaction exposure can be measured and hedged. The third section explains how economic exposure can be measured and hedged. The fourth section covers the use of exchange risk management instruments by MNCs. In addition, this section explores the possibility that a hedge can be risky, by using the maturity mismatch in a German firm's oil futures hedge as an example.

9.1 The Basic Nature of Foreign-Exchange Exposures

Foreign-exchange exposure refers to the possibility that a firm will gain or lose because of changes in exchange rates. Every company faces exposure to foreign-exchange risk as soon as it chooses to maintain a physical presence in a foreign country. Likewise, a firm faces exposure to exchange risk when it chooses to finance its operations in foreign currencies. Both exchange risks are analyzed in the context of investing and financing decisions. In addition, foreign trade and loans may involve foreign-exchange risk. An important task of the international financial manager is to compare potential losses with the cost of avoiding these losses.

Three basic types of exchange exposure are translation exposure, transaction exposure, and economic exposure. Translation exposure is the accounting-based changes in consolidated financial statements caused by exchange rate changes. Transaction exposure occurs when exchange rates change between the time when an obligation is incurred and the time when it is settled, thereby affecting actual cash flows. Economic exposure reflects the change in the present value of the firm's future cash flows because of an unexpected change in exchange rates.

9.1.1 Exposure management strategy

Most large MNCs manage their foreign-exchange risk by using a pre-established exposure management strategy. For example, Merck uses the following five steps for currency exposure management: (1) projecting exchange rate volatility, (2) assessing the impact of the 5-year strategic plan, (3) deciding on hedging the exposure, (4) selecting the appropriate financial instruments, and (5) constructing a hedging program (for details, see Case Problem 6: Merck's Use of Currency Options). To protect assets adequately against risks from exchange rate fluctuations, MNCs must (1) forecast the degree of exposure, (2) develop a reporting system to monitor exposure and exchange rate movements, (3) assign responsibility for hedging exposure, and (4) select appropriate hedging tools.

FORECASTING THE DEGREE OF EXPOSURE To develop a viable hedging program, an MNC must forecast the degree of exposure in each major currency in which it operates. Approaches range from gut feelings to sophisticated economic models, each of which has had varying degrees of success. Whatever the approach, the MNC should estimate and use ranges within which it expects a currency to vary over the forecasting period. Some companies develop in-house capabilities to monitor exchange rates, using economists who also try to obtain a consensus of exchange rate movements from the banks with which they deal. Their concern is to forecast the direction, magnitude, and timing of an exchange rate change. Other companies contract out their forecasting needs.

DEVELOPING A REPORTING SYSTEM TO MONITOR EXPOSURE AND EXCHANGE RATE MOVEMENTS Once the MNC has decided how to forecast the degree of exposure, it should develop a reporting system that will assist in protecting it against risk. To achieve this goal, substantial participation from foreign operations must be combined with effective central control. Because exchange rates change frequently, MNCs should obtain input from those who are attuned to the foreign country's economy. Central control of exposure protects resources more efficiently than letting each subsidiary monitor its own exposure. The management of the MNC should devise a uniform reporting system for all of its subsidiaries. The report should identify the exposed accounts that it wants to monitor, the amount of exposure by currency of each account, and the different times under consideration.

ASSIGNING RESPONSIBILITY FOR HEDGING EXPOSURE It is important for management to decide at what level hedging strategies will be determined and implemented. Most MNCs today continue to centralize exchange exposure management, because it is impossible for regional or country managers to know how their foreign-exchange exposure relates to other affiliates. A three-country study of exchange risk management by Belk (2002) found that 66 percent of the sample companies highly centralized their exposure management, 19 percent lowly centralized their exposure management, and only 15 percent decentralized their exposure management. However, a centralized policy may miss opportunities to detect the possibility of currency fluctuations in certain regions or countries. Thus, some MNCs decentralize some exposure management decisions so that they can react quickly to a more rapidly changing international environment.

SELECTING APPROPRIATE HEDGING TOOLS Once an MNC has identified its level of exposure and determined which exposure is critical, it can hedge its position by adopting operational techniques and financial instruments (see Global Finance in Action 9.1). **Operational techniques** are operational approaches to hedging exchange exposure that include diversification of a company's operations, the balance-sheet hedge, and exposure netting. **Financial instruments** are financial contracts to hedging exchange exposure that include currency forward and futures contracts, currency options, and swap agreements. This chapter and chapter 10 will discuss these and other hedging devices in detail.

Global Finance in Action 9.1

Coca Cola's Exposure Management

Coca Cola is a good example of how MNCs use operational techniques and financial instruments for their foreign-exchange exposure management. Because Coca Cola earns about 80 percent of its operating income from foreign operations, foreign-currency changes can have a major impact on reported earning. The company manages its currency exposures on a consolidated basis, which allows it to net exposures from different operations around the world and takes advantage of natural offsets – for example, cases in which Japanese yen receivables offset Japanese yen payables. It also uses financial contracts to further reduce its net exposure to currency fluctuations. Coca Cola enters into currency forward contracts and purchases currency options in several countries, most notably the euro and Japanese yen, to hedge firm sales commitments. It also buys currency options to hedge certain anticipated sales.

Source: J. D. Daniels, L. H. Radebaugh, and D. P. Sullivan, *International Business: Environments and Operations*, 10th edn, Upper Saddle River, NJ: Prentice Hall, 2004, p. 620.

9.1.2 Transaction exposure

Gains or losses may result from the settlement of transactions whose payment terms are stated in a foreign currency. **Transaction exposure** refers to the potential change in the value of outstanding obligations due to changes in the exchange rate between the inception of a contract and the settlement of the contract. Transactions that are subject to transaction exposure include credit purchases and credit sales whose prices are stated in foreign currencies, borrowed and loaned funds denominated in foreign currencies, and uncovered forward contracts.

Receipts and payments denominated in foreign currencies are considered to be exposed. If exposed receipts are greater than exposed payments, foreign-currency depreciations will cause exchange losses, and foreign-currency appreciations will cause exchange gains. On the other hand, if exposed receipts are smaller than exposed payments, foreign-currency depreciations will create exchange gains, and foreign-currency appreciations will create exchange losses.

Example 9.1

An American firm has sold machinery to a British firm through its UK subsidiary for £10,000, with terms of 180 days. The payments must be received in pounds. The spot rate for pounds is $1.70 and the US seller expects to exchange £10,000 for $17,000 when payment is received.

Transaction exposure arises because of the risk that the US exporter will receive something other than $17,000 when the British pound receipts are exchanged for dollars. If the spot rate were to decline to $1.40 180 days from today, the US exporter would receive only $14,000, $3,000 less than the expected $17,000. However, if the spot rate were to rise to $1.90 during the same period, the exporter would receive $19,000, an increase of $2,000 over the amount expected. If the US exporter had invoiced in dollars, the transaction exposure would have shifted to the British importer. Unlike translation gains and losses, transaction gains and losses have a direct impact on actual cash flows.

9.1.3 Economic exposure

Economic exposure, also called operating exposure, competitive exposure, or revenue exposure, measures the impact of an exchange rate change on the net present value of expected future cash flows from a foreign investment project. Future effects of changes in exchange rates occur under the general category of economic risk. An MNC may have established its subsidiary in a country with price stability, readily available funds, a favorable balance of payments, and low rates of taxation. These positive features may disappear over time if the economic situation of the country deteriorates. Eventually, the local currency will devalue or depreciate. The subsidiary is likely to face immediate operational problems if it has to pay for its imports in hard currencies or if it has borrowed from abroad. Exchange rate changes may also affect economic factors such as inflationary forces, price controls, the supply of loanable funds, and local labor availability.

Economic exposure is a broader and more subjective concept of exposure than either translation or transaction exposure, because it involves the potential effects of exchange rate changes on all facets of a firm's operations. Economic exposure is difficult to measure, but may be more significant than the others because it relates to the long-term profit performance and hence the value of the firm.

Example 9.2

For the coming year, a Malaysian subsidiary of an American firm is expected to earn 35 million ringgits after taxes, and its depreciation charge is estimated at 5 million ringgits. The exchange rate is expected to decrease from M$4 per dollar at present to M$5 per dollar for the next year.

The difference between the first-year cash flows with and without devaluation is computed as follows:

Profit after taxes	M$35 million
Depreciation	+5 million
Cash flows from operation	M$40 million

Predevaluation rate (M$4 = $1)	M$40 million = $10 million
Postdevaluation rate (M$5 = $1)	M$40 million = –$8 million
Potential exchange loss	$2 million

The subsidiary's economic loss is a decline in Malaysian ringgit cash flows equal to $2 million over the next 12 months. The translation loss or the transaction loss is a one-time loss, but the economic loss is an open-ended event. If the anticipated business activity were to stay the same for the next 5 years, cash flows would decrease by $2 million per year for 5 years.

9.1.4 A comparison of the three exposures

The management of foreign-exchange risk based on translation exposure is basically static and historically oriented. By definition, translation exposure does not look to the future impact of an exchange rate change that has occurred or may occur. In addition, it does not involve actual cash flows. In contrast, both transaction and economic exposures look to the future impact of an exchange rate change that has occurred or may occur. These exposures also involve actual or potential cash flow changes.

Transaction risk and economic risk are the same in kind, but they differ in degree. For example, economic risk is essentially subjective, because it depends on estimated future cash flows for an arbitrary time horizon. Transaction risk, on the other hand, is essentially objective, because it depends on outstanding obligations that existed before changes in exchange rates but were settled after changes in exchange rates. Table 9.1 illustrates the major differences among these three exposures.

9.2 Transaction Exposure Management

An action that removes transaction risk is said to "cover" that risk. A cover involves the use of forward contracts, a combination of spot market and money market transactions, and other techniques to protect a foreign-exchange loss in the conversion from one currency to another. The term "conversion" relates to transaction exposure because the transaction exposure involves the actual conversion of exposed assets and liabilities from one currency to another. If MNCs decide to cover their transaction exposure, they may select from a variety of financial instruments and operational techniques. Operational techniques, such as exposure netting, leading and lagging, and price adjustments through transfer prices, will be discussed in chapter 10. This chapter will focus on the following four financial instruments.

Table 9.1 Major differences among three types of exposure

Variables	*Translation exposure*	*Transaction exposure*	*Economic exposure*
Contract	Specific	Specific	General
Duration	A point in time	Period of contract	Project life
Gains (losses)	Easy to compute	Intermediate to compute	Difficult to compute
Gains (losses)	Paper in nature	Actual	Actual
Measurement	Depends on accounting rules	Depends on changes in actual spot rates	Depends on changes in actual spot rates
Hedging	Easy	Intermediate	Difficult
Extent of exposure	Determined by accounting rules	Determined by the nature of the contract	Determined by product and market factors
Value	Book value of assets and liabilities	Contract value of assets and liabilities	Market value of assets
Management of exposure	By the Treasury Department	By the Treasury Department	By all departments

1 The forward market hedge.
2 The money market hedge.
3 The options market hedge.
4 Swap agreements.

9.2.1 *The forward market hedge*

A **forward-exchange market hedge** involves the exchange of one currency for another at a fixed rate on some future date to hedge transaction exposure. The purchase of a forward contract substitutes a known cost for the uncertain cost due to foreign-exchange risk caused by the possible devaluation of one currency in terms of another. Although the cost of a forward contract is usually smaller than the uncertain cost, the forward contract does not always assure the lowest cost due to foreign-exchange rate change. The forward contract simply fixes this cost in advance, thus eliminating the uncertainty caused by foreign-exchange rate changes. For example, an American company may have a euro import payable in 9 months. The American company can cover this risk by purchasing euros at a certain price for the same date forward as the payment maturity.

9.2.2 *The money market hedge*

A **money market hedge** involves a loan contract and a source of funds to carry out that contract in order to hedge transaction exposure. In this case, the contract represents a loan agreement. Assume that an American company has a British pound import payable in 90 days. To

hedge transaction exposure from this import payable, the American company may borrow in dollars (loan contract), convert the proceeds into British pounds, buy a 90-day British Treasury bill, and pay the import bill with the funds derived from the sale of the Treasury bill (source of funds). Of course, it can buy British pounds in the foreign-exchange spot market when the import bill becomes due, but this approach involves transaction risk.

A money market hedge is similar to a forward market hedge. The difference is that the cost of the money market hedge is determined by differential interest rates, while the cost of the forward market approach is determined by the forward premium or discount. If foreign-exchange markets and money markets are in equilibrium, the forward market approach and the money market approach incur the same cost.

9.2.3 *The options market hedge*

If a company has a foreign-currency receivable or a foreign-currency payable, the options market hedge can protect the company from exchange rate fluctuations. By buying a call option on the foreign currency, a US company can lock in a maximum dollar price for its foreign-currency accounts payable. By purchasing a put option on the foreign currency, the company can lock in a minimum dollar price for its foreign-currency accounts receivable.

Companies understand that hedging techniques such as the forward market hedge and the money market hedge can backfire or may even be costly when an accounts payable currency depreciates or an accounts receivable currency appreciates over the hedged period. Under these circumstances, an uncovered strategy might outperform the forward market hedge or the money market hedge. The ideal type of hedge should protect the company from adverse exchange rate movements but allow the company to benefit from favorable exchange rate movements. The options market hedge features these attributes.

To see how currency options provide such a flexible optional hedge against transaction exposure, assume that Boeing exports a DC 10 to British Airways and bills £10 million in 1 year. If Boeing purchases a put option on £10 million, this transaction provides Boeing with the right, but not the obligation, to sell up to £10 million at a fixed exchange rate, regardless of the future spot rate. With its pound receivable, Boeing would protect itself by exercising its put option if the pound were to weaken, but would benefit by letting its put option expire unexercised if the pound were to strengthen.

9.2.4 *The swap market hedge*

When exchange rates and interest rates fluctuate too widely, the risks of forward market and money market positions are so great that the forward market and the money market may not function properly. Currency options are available only for a selected number of currencies and are inflexible. In such cases, MNCs may use swap arrangements to protect the value of export sales, import orders, and outstanding loans denominated in foreign currencies.

The **swap market hedge** involves an exchange of cash flows in two different currencies between two companies. Swaps take many forms, but one type of swap — the currency swap — accommodates an MNC's needs to cover its transaction risk. In a currency swap, one company provides a certain principal in one currency to another company in exchange for an equivalent

amount in a different currency. For example, a Swiss company may be anxious to swap Swiss francs for US dollars. Similarly, a US company may be willing to exchange US dollars for Swiss francs. Given these needs, the two companies engage in a currency swap.

Example 9.3

To see how forward-exchange market, money market, options market, and swap market hedges may be utilized to protect against transaction exposure, assume that an American firm has sold an airplane to a Swiss firm for SFr100,000, with terms of 90 days. Let us further assume that the spot rate for francs is \$0.5233, the 90-day forward rate for francs is \$0.5335, the Swiss 90-day interest rate is 10 percent, and the US 90-day interest rate is 17.8 percent. The interest rates are in equilibrium with forward-exchange quotations, and this is confirmed by the following computation, using equation 5.8:

$$\frac{n\text{-day } F - S}{S} \times \frac{360}{90} = \text{domestic rate} - \text{foreign rate}$$

$$\frac{\$0.5335 - \$0.5233}{\$0.5233} \times \frac{360}{90} = 17.8\% - 10.0\%$$

$$7.8\% = 7.8\%$$

The US company's bank believes that the spot rate in 90 days will rise to \$0.6000, which is higher than the implicit unbiased forecast of \$0.5335 that exists in the currency forward quotation. In addition, assume that put options with a 3-month settlement date have a strike price of \$0.5369 per franc and a premium of \$0.01 per franc. Finally, a swap dealer says that she will find a Swiss company that is willing to swap Swiss francs for US dollars at an exchange rate of \$0.5400 per franc.

Five alternatives are available to the US company: do not hedge (take the transaction risk), hedge in the forward market, hedge in the money market, hedge in the options market, or use swap agreements.

If the US company decides to accept the transaction risk, it would receive SFr100,000 in 90 days and sell them in the foreign-exchange market for dollars. If the bank's forecast is accurate, the US company would receive \$60,000 (\$0.6000 × SFr100,000) in 90 days. However, that receipt is subject to foreign-exchange risk. If the franc were to decline to \$0.4000, the US company would receive only \$40,000, which is \$20,000 less than expected. The \$40,000 could in fact be insufficient to cover the manufacturing cost of the airplane. On the other hand, if the franc should increase in value even more than the bank's forecast, the US company would receive substantially more than \$60,000.

If the US company wishes to hedge its transaction exposure in the forward market, it would sell SFr100,000 in the forward market for \$53,350. This is known as a covered transaction, in which the US firm no longer has foreign-exchange risk. In 90 days, the US firm would receive SFr100,000 from the Swiss importer, deliver the proceeds to the bank against its forward sale, and receive \$53,350. It should be recognized that the certain \$53,350 is

less than the uncertain $60,000 expected from the unhedged position, because the forward market quotation is not identical with the bank's forecast.

In addition to the forward market approach, the US company can also cover its transaction against foreign-exchange risk through the money market approach. The money market approach works as follows: (1) borrow SFr97,561 from a Swiss bank at 10 percent per annum (2.5 percent per quarter) in exchange for a promise to pay SFr100,000 (SFr97,561 × 1.025); (2) receive $51,054 (SFr97,561 × $0.5233) by exchanging the SFr97,561 for dollars at the current spot rate of $0.5233; and (3) invest this sum in the US money market at 17.8 percent per annum (4.45 percent per quarter) and receive $53,326 ($51,054 × 1.0445) at the end of 3 months. This sum should be equal to the sum received in the forward market hedge described earlier. The small difference between these two sums is due to a compounding error.

The US firm can cover its franc receivables with the put option. The US firm buys put options for a total premium of $1,000 (SFr100,000 × $0.01), exercises its options in 90 days, and sells SFr100,000 at a strike price of $0.5369 for $53,690. Thus, the US firm would obtain a net amount of $52,690 ($53,690 — $1,000) in exchange for SFr100,000 at the end of 3 months. If the spot rate of the Swiss franc should exceed $0.5369 in 90 days, the US firm would let the option contract expire unexercised and convert the SFr100,000 at the prevailing spot rate.

Finally, the US firm can cover its transaction risk with currency swaps. The US firm is anxious to swap its SFr100,000 for US dollars. Through a swap dealer, it may be able to find a Swiss company that may be willing to exchange US dollars for SFr100,000. Given these needs, the two companies could arrange a currency swap that allows for an exchange of SFr100,000 for US dollars at a predetermined exchange rate of $0.5400. In this way, the US company could lock in the number of US dollars at $54,000 that it will receive in exchange for SFr100,000 in 90 days.

OPTIONS VERSUS FORWARD CONTRACTS A forward contract is often an imperfect hedging instrument, because it is a fixed agreement to buy or sell a foreign currency at a specified price in the future. However, in many practical situations, companies are not sure whether their hedged foreign-currency cash flows will materialize. Consider the situations in which: (1) an overseas deal may fall through; (2) a bid on a foreign-currency contract may be rejected; or (3) a foreign subsidiary's dividend payments may exceed the expected amount. In such cases, companies may not need the obligation, but the right, to buy or sell a foreign currency at a specified price in order to reduce their exchange rate risk. Giddy (1983) suggested that companies should use the following rules to choose between forward contracts and currency options for hedging purposes:

1 When the quantity of a foreign-currency cash outflow is known, buy the currency forward; when the quantity is unknown, buy a call option on the currency.
2 When the quantity of a foreign-currency cash inflow is known, sell the currency forward; when the quantity is unknown, buy a put option on the currency.
3 When the quantity of a foreign-currency flow is partially known and partially uncertain, use a forward contract to hedge the known portion and an option to hedge the maximum value of the uncertain remainder.

CROSS-HEDGING A **cross-hedge** is a technique designed to hedge exposure in one currency by the use of futures or other contracts on another currency that is correlated with the first currency. Frequently, futures or forward markets are not available for some currencies. In these situations, MNCs may be able to use a substitute or proxy for the underlying currency that is available. The idea behind cross-hedging is this. If MNCs cannot find a forward contract on a particular currency in which they have an exposure, they may wish to hedge their exposure through a forward contract on a related currency.

Assume the following four things: (1) a US company has accounts payable in Hong Kong dollars 90 days from now; (2) the Hong Kong dollar is expected to appreciate against the US dollar; (3) forward contracts or other hedging techniques are not available for the Hong Kong dollar; and (4) the British pound and the Hong Kong dollar tend to move in a similar direction against the US dollar. In this case, the US firm could effectively hedge this position by using the pound as a proxy forward. In other words, the US firm can eliminate its exchange risk by purchasing the British pound in the forward market.

9.2.5 *Swap agreements*

Swaps take many forms, but they can be divided into four general categories: currency swaps, credit swaps, interest rate swaps, and back-to-back loans.

CURRENCY SWAPS An agreement between two parties to exchange local currency for hard currency at a specified future date is called a **currency swap**. In other words, a company purchases the specified amount of local currency in the foreign-exchange market and simultaneously buys a forward contract to sell this amount of local currency for hard currency at a future date. The former transaction is a spot transaction, and the latter transaction is a forward transaction. Thus, the currency swap is a simultaneous spot and forward transaction. This arrangement allows the company to recover the foreign exchange at a predetermined exchange rate.

To see how a currency swap works, assume that a US parent company wants to lend British pounds to its British subsidiary and to avoid foreign-exchange risk. The parent company would buy pounds in the spot market and lend them to the subsidiary. At the same time, the parent firm would sell the same amount of pounds in exchange for dollars in the forward market for the period of the loan. The parent company would receive the loan repayment in terms of pounds from the subsidiary at maturity and exchange the pounds with the dollars to close the forward contract. Alternatively, the US parent could enter into a swap agreement with a foreign-exchange dealer whereby they trade dollars for pounds now and pounds for dollars at maturity.

CREDIT SWAPS This hedging device is similar to the foreign-currency swap. The **credit swap** arrangement is a simultaneous spot and forward loan transaction between a private company and a bank of a foreign country. Suppose that an American company deposits a given amount of dollars in the New York office of a Colombian bank. In return for this deposit, the bank lends a given amount of pesos to the company's subsidiary in Colombia. The same contract provides that the bank could return the initial amount of dollars to the company on a specified date, and that the subsidiary could return the original amount of pesos to the bank on the same day. By so doing, the American company recovers the original dollar amount of its deposit, and the Colombian bank obtains a free hard-currency loan in the United States.

Example 9.4

A subsidiary in Israel requires the Israel shekel equivalent of $1 million at the current exchange rate of NIS4 per dollar, or NIS4 million. To obtain NIS4 million for the subsidiary in Israel, the parent must open a $1 million credit in favor of an Israeli bank. The Israeli bank charges the parent 10 percent per annum on the NIS4 million made available to the subsidiary and pays no interest on the $1 million that the parent has deposited in favor of the bank. The parent's opportunity cost on the $1 million deposit is 20 percent.

The total cost of this swap consists of the parent's opportunity cost and the interest charge on the local currency loan. The opportunity cost at 20 percent on the $1 million is $200,000 and the 10 percent interest on the NIS4 million (NIS400,000) is $100,000 at the prevailing rate of NIS4 per dollar. Thus, the total swap cost is $300,000 on a loan equivalent of $1 million, or 30 percent. This example suggests that a direct loan costs the parent 20 percent while the credit swap costs it 30 percent. The parent cannot choose between these two alternatives solely on the basis of comparative costs, because the direct loan is unhedged while the credit swap is hedged. The meaningful comparison of the two lending alternatives requires the parent to explicitly consider foreign-exchange fluctuations. The direct loan is 10 percent cheaper only if the exchange rate stays the same.

If the MNC is unable to predict future exchange rate changes with a fair degree of accuracy, it may attempt to identify the future exchange rate that equates the cost of the credit swap with the cost of the direct loan; that is, the exchange rate at which the MNC would be indifferent between the two financing alternatives. Assume that this exchange rate is denoted by y. The cost of the direct loan from the parent consists of 200,000y, which equals the Israeli shekel cost equivalent of the direct loan ($1 million $\times$ 20 percent) plus (1,000,000y — 4,000,000), which equals the potential foreign-exchange loss from the repayment of the loan principal ($1 million). The cost of the credit swap consists of 200,000y, which equals the Israeli shekel cost equivalent of the $1 million deposited in favor of the Israeli bank plus 400,000, which equals the interest paid on the NIS4 million loan extended by the Israeli bank at 10 percent per annum. Because the cost of the direct loan and the cost of the credit swap are the same at the exchange rate of y, we obtain:

$$\frac{\text{direct loan cost}}{200{,}000y + (1{,}000{,}000y - 4{,}000{,}000)} = \frac{\text{credit swap cost}}{200{,}000y + 400{,}000}$$

$$y = 4.4$$

If the MNC company believes that the foreign-exchange rate will not deteriorate to the equilibrium exchange rate of NIS4.4 per dollar, it should choose the unhedged alternative, which will be less costly. It should select the hedged alternative whenever its subjective assessment indicates that there is a significant chance for the foreign-exchange rate to deteriorate beyond NIS4.4 per dollar.

INTEREST RATE SWAPS This device can be used to alter the exposure of a portfolio of assets or liabilities to interest rate movements. An **interest rate swap** is a technique whereby companies exchange cash flows of a floating rate for cash flows of a fixed rate, or exchange cash flows of a fixed rate for cash flows of a floating rate. Interest rate swaps are actively used when companies have costs of debt that are fixed but revenues that vary with the level of interest rates.

Take the example of a French company that borrowed $100 million from the Bank of America a year ago at 9.5 percent. The long-term interest rate in the USA has started to fall and the French company believes that it will continue to fall. To take advantage of this drop in interest rates, the French company decides to enter an interest rate swap in dollars. It swaps $100 million with a fixed rate of 9.5 percent for $100 million with a floating rate equal to a 6-month SDR rate. In effect, the French company is now protected against a downward movement in interest rates. Conversely, a reverse swap is arranged if the French company believes that the US interest rate will increase.

BACK-TO-BACK LOANS Back-to-back loans, or parallel loans, are arranged by two parent companies in two different countries. Suppose that a US parent has a subsidiary in Japan and that a Japanese parent has a subsidiary in the USA. Let us further assume that each parent wants to lend to its subsidiary in the subsidiary's currency. These loans can be arranged without using the foreign-exchange market. The US parent lends the agreed amount in dollars to the American subsidiary of the Japanese parent. In return for this loan, the Japanese parent lends the same amount of money in yen to the Japanese subsidiary of the American parent. Parallel loan agreements involve the same amount of loan and the same loan maturity. Of course, each loan is repaid in the subsidiary's currency. The parallel loan arrangement avoids foreign-exchange risk because each loan is made and repaid in one currency.

There are a number of variations on this basic swap scheme. A variation may involve blocked funds. Assume that General Motors (GM) and IBM have their subsidiaries in Colombia. The Colombian subsidiary of GM has idle pesos but cannot remit to the USA because of Colombian restrictions on the remittance of funds. On the other hand, the Colombian subsidiary of IBM needs peso loans for expansion. In this case, in Colombia the GM subsidiary lends pesos to the IBM subsidiary; while in the USA, IBM lends dollars to GM.

9.3 Economic Exposure Management

Companies can easily hedge translation and transaction exposures, because these risks are based on projected foreign-currency cash flows. However, it is very difficult, if not impossible, for companies to hedge economic exposure for several reasons. The scope of economic exposure is broad, because it can change a company's competitiveness across many markets and products. A company always faces economic risks from competition. When based in foreign currencies, the risks are long term, hard to quantify, and cannot be dealt with solely through financial hedging techniques.

As a result, international financial managers should assess economic exposure comprehensively. Their analysis should account for how variations in exchange rates influence: (1) a company's sales prospects in foreign markets (the product market); (2) the costs of labor and other inputs to be used in overseas production (the factor market); and (3) the home-currency value of finan-

cial assets and liabilities denominated in foreign currencies (the capital market). Consequently, those techniques used to eliminate translation and transaction risks — forwards, money markets, options, swaps, leads and lags of intersubsidiary accounts, and transfer pricing adjustments — are not feasible for hedging economic exposure.

Economic exposure management is designed to neutralize the impact of unexpected exchange rate changes on net cash flows. Diversified operations and financing can reduce economic exposure. They permit the MNC to react to those opportunities that disequilibrium conditions in the foreign-exchange, capital, and product markets present. Moreover, diversification strategies do not require that management predict disequilibrium conditions. Still, they require that it recognize them when they occur. In other words, the primary technique to minimize economic risk is strategic management in choosing product markets, pricing policies, promotion, and investment and financing alternatives.

When managing economic exposure, MNCs resort to maneuvers across functional areas of operations. The functional areas of business operations for MNCs are production, marketing, and finance. Production and marketing are clearly critical because they determine a company's existence – its ability to produce products and to sell them at a profit. But finance is an integral part of total management and cuts across functional boundaries.

Economic exposure management depends on the assumption that disequilibrium conditions exist in national markets for factors of production, products, and financial assets. For example, consider the cases in which there are temporary deviations from purchasing power parity and the international Fisher effect. Companies could observe changes in comparative costs, profit margins, and sales volume in one country compared to another.

9.3.1 Diversified production

Several production strategies can deal with economic exposure when disequilibrium conditions exist: (1) plant location, (2) input mix, (3) product sourcing, and (4) productivity increase.

First, companies with manufacturing facilities in many countries can quickly lengthen their production runs in one country and shorten them in another in line with the changing currency costs of production. Second, well-managed companies can substitute their input mix between domestic and imported inputs, depending on the relative prices of inputs and the degree of possible substitution. Third, well-diversified companies can make shifts in sourcing raw materials, components, and products in accordance with currency value fluctuations. Fourth, companies assaulted by wide swings in currency values can improve productivity by closing inefficient plants, automating production processes, and negotiating concessions from unions.

9.3.2 Diversified marketing

Marketing programs are normally adjusted only after changes in exchange rates. Yet marketing initiatives under conditions of exchange rate changes can obtain competitive leverage by means of: (1) product strategy, (2) pricing strategy, (3) promotional options, and (4) market selection.

First, product differentiation, diversification, and deletions reduce the impact of exchange rate fluctuations on worldwide corporate earnings. Second, prices may be adjusted to cope with the consequences of currency-value changes. A pricing strategy is affected by a variety of factors such

as market share, profit margin, competition, and price elasticity. Third, the size of promotional budgets for advertising, personal selling, and merchandising could be adjusted to reflect changes in currency values. For example, a devaluation of the Japanese yen may well be the time to increase a US company's advertising budget in Japan. Fourth, a worldwide distribution system enables companies to neutralize the impact of unexpected exchange rate changes on overall company revenues.

9.3.3 Diversified financing

On the financial side, additional tools to protect against economic risk are the currency denomination of long-term debt, the place of issue, the maturity structure, the capital structure, and leasing versus buying. For example, LSI Logic, a manufacturer of custom-made microchips based in California, uses four financial instruments: (1) equity markets in London and other European markets; (2) Japanese equity through institutional investors such as Nomura Securities; (3) local Japanese credit markets through its joint venture partners; and (4) Eurobond issues through Swiss and US securities firms.

Diversified financing sources allow a company to improve its overall financial performance because interest rate differentials do not always equal expected changes in exchange rates. In addition to taking advantage of unexpected differentials in diversified markets, companies reduce economic risk by matching the mix of currencies in loan portfolios or operating expenses to the mix of currencies in expected revenues.

9.3.4 A summary of economic exposure management

Purely domestic companies do not have as many options for reacting to international disequilibrium conditions as MNCs. International diversification neutralizes the impact of unexpected exchange rate changes on corporate cash flows. Exchange rate changes under conditions of disequilibrium are likely to increase competitiveness in some markets and to reduce it in others. However, at least one serious constraint may limit the feasibility of a diversification strategy: companies with worldwide production systems may have to relinquish large economies of scale. However, these companies could still diversify sales functions and financing sources.

9.4 Currency Exposure Management Practices

9.4.1 The relative importance of different exchange exposures

Table 9.2 shows the relative importance of different exchange exposures from two perspectives: the amount of attention given to each exposure and hedging preference for each exposure. A survey of 125 US MNCs by Malindretos and Tsanacas (1995) revealed that transaction exposure was the overwhelming choice of chief financial officers (CFOs) in terms of the attention that it must receive, with 64 percent ranking it as the most important one. Twenty-six percent of these CFOs picked economic exposure as their number one choice, while only 13 percent considered translation exposure as their most important exposure. A survey of large US MNCs

Table 9.2 The relative importance of different exchange exposures

Type of exposure	*Most important exposure*	*Hedging preference*
Translation exposure	13%	26%
Transaction exposure	64%	65%
Economic exposure	26%	39%

Sources: J. Malindretos and D. Tsanacas, "Hedging Preferences and Foreign Exchange Exposure Management," *Multinational Business Review*, Fall 1995, pp. 56–66; and D. M. Perkins, "Treasury. Accounting Must Work Together to Fashion Foreign Exchange Hedging Strategy," *Corporate Cashflow*, Jan. 1993, pp. 34–6.

by Business International and Arthur Andersen & Co. found that 65 percent of the sample companies hedged their transaction exposure, while only 26 percent hedged their translation exposure. Apparently, not many executives of MNCs think that they should hedge paper gains and losses for translation exposure and potential exchange gains and losses from future operations (economic exposure). In addition, these executives do not pay too much attention to these two types of exposure, because they believe that these exposures are not as important as transaction exposure.

9.4.2 *The use of hedging techniques by MNCs*

Burston-Marsteller, a consulting firm in currency risk management, conducted a survey of 110 chief financial officers at a November 1997 CFO forum in Manila, Philippines. Figure 9.1 shows that these CFOs consider foreign-exchange risk (38 percent) as the most important one among the many risks that they face. The next most frequently cited risks are interest rate risk (32 percent) and political risk (10 percent). Other risks (20 percent) consist of credit risk at 9 percent, liquidity risk at 7 percent, and inflation risk at 4 percent.

Figure 9.1 also shows that the traditional forward contract was the most commonly used instrument to manage foreign-exchange risks. Of all respondents, 42 percent used the forward contract as the primary hedging instrument. Four other hedging techniques discussed in part II of this book – currency swaps, interest rate swaps, currency options, and futures – were almost equally used by these respondents. Another recent survey by Jesswein et al. (1995) also found that the forward contract is the most popular hedging instrument. In addition, their other findings confirm most of the Burston-Marsteller survey results.

9.4.3 *A maturity mismatch in MGRM's oil futures hedge*

Metallgesellschaft (MG) is Germany's 14th largest industrial company, with interests in engineering, metals, and mining. In early 1994, the US subsidiary of the company, MGRM, reported the world's largest derivative-related losses — $1.3 billion from its positions in energy futures and swaps. This incident brought MG to the brink of bankruptcy. After dismissing the company's chief executive officer and several other senior managers, MG's board of supervisors was forced to negotiate a $1.9 billion rescue package with the company's 120 creditor banks. Many analysts

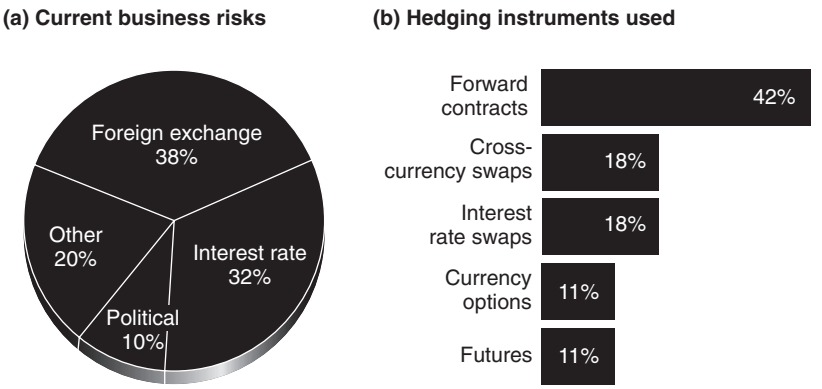

Figure 9.1 Survey results of 110 chief financial officers
Source: *The Wall Street Journal*, Nov. 19, 1997, p. A18; reprinted by kind permission.

remain puzzled over how a company could lose over $1 billion by hedging. This debacle has sparked a lively debate on the drawbacks of the company's hedging strategy and on the lessons to be learned from the incident.

In 1992, MGRM began to implement an aggressive marketing program in which it offered long-term customers firm price guarantees for up to 10 years on gasoline, heating oil, and diesel fuel. These long-term price guarantees included: (1) firm-fixed contracts that guaranteed a set price over the life of the contract; (2) firm-flexible contracts with prices that fluctuated with spot oil prices; and (3) guaranteed margin contracts that pegged the price of refined oil products to prices paid by local competitors. Through these contracts, MGRM had assumed most of the oil price risk of its customers.

To hedge the risk of these delivery obligations, MGRM bought a combination of short-dated oil swaps and futures contracts as part of a strategy known as a "stack-and-roll" hedge. In its simplest form, a stack-and-roll hedge involves repeated purchases of a stack of near-term futures contracts to hedge a long-term exposure. In other words, the long (buy) position was rolled over each month into the next month's contract. MGRM used a one-to-one hedging strategy in which long-term obligations were hedged dollar-for-dollar with positions in near-term oil futures contracts.

As discussed in chapter 6, market gains or losses from fluctuations in the price of futures contracts are debited or credited on a daily basis to protect market participants against the possibility of contract default. Had oil prices risen, the accompanying gain in the value of MGRM's futures contracts would have produced positive cash flows; this gain in turn would have offset losses arising from its commitments to deliver oil at below-market prices. However, short-term cash drains must be incurred to meet margin calls when futures prices fall. Margin calls are a broker's request for additional money to restore the margin account to a certain minimum level. As it happened, oil prices fell sharply in 1993.

Significantly lower oil prices in 1993 caused MGRM to incur huge unrealized losses and subsequent margin calls on its derivative positions. After several consecutive months of falling oil prices during the latter part of 1993, MGRM's German parent liquidated its hedge and realized losses in excess of $1 billion. The mismatch between the long-term delivery obligations of oil

and the short-term long position in oil futures created chaos for MGRM. In other words, fluctuations in the price of short-dated futures contracts resulted in widely fluctuating short-term cash flow needs that did not match the maturity of MGRM's long-term contracts.

SUMMARY

This chapter has discussed two foreign-exchange exposures and their management. Every single company faces an exposure to gain or loss from changes in exchange rates, because globalization is totally reshaping the way we live and do business. Transaction exposure refers to possible gains or losses that may result from the settlement of transactions whose payment terms are stated in a foreign currency. Economic exposure measures the total impact of exchange rate changes on a firm's profitability.

In essence, a hedge or a cover is a type of insurance that provides security against the risk of loss from a change in exchange rates. When devaluation seems likely, the MNC must determine whether it has any unwanted net exposure to foreign-exchange risk. When the company finds that it has an unwanted net exposure to exchange risk, it can use a variety of operational techniques and financial instruments to reduce this net exposure. These include the forward market hedge, the money market hedge, the options market hedge, swaps, and others. These financial instruments are primarily used to minimize transaction exposures. Economic exposure can be managed by balancing the sensitivity of revenues and expenses of changes to exchange rates through diversification and strategic planning.

Questions

1 Explain the conditions under which items and/or transactions are exposed to foreign-exchange risks.
2 This chapter has discussed transaction exposure and economic exposure. Briefly explain each of these two types of exposure.
3 How should appreciation of a company's home currency affect its cash inflows? How should depreciation of a company's home currency affect its cash inflows?
4 What should management do to protect assets adequately against risks from exchange rate fluctuations?
5 What are the two major types of hedging tools?
6 Which exposure is more difficult to manage: transaction exposure or economic exposure?
7 How could a US company hedge net payables in Japanese yen in terms of forward and options contracts?
8 How could a US company hedge net receivables in Japanese yen in terms of forward and options contracts?

9 Are there any special situations in which options contracts are better than forward contracts or vice versa?
10 What are the major problems of economic exposure management?
11 What is the basic purpose of economic exposure management?
12 How do most companies deal with their economic exposure?

Problems

1 A US company negotiated a forward contract to buy 100,000 British pounds in 90 days. The company was supposed to use the £100,000 to buy British supplies. The 90-day forward rate was $1.40 per pound. On the day the pounds were delivered in accordance with the forward contract, the spot rate of the pound was $1.44. What was the real cost of hedging the pound payables in this example?
2 Boeing sells an airplane to Korean Airlines for 840 million won with terms of 1 year. Boeing will receive its payment in Korean won. The spot rate for the Korean currency is 700 won per dollar and Boeing expects to exchange 840 million won for $1.2 million (840 million ÷ 700) when payment is received.
   (a) If the spot rate for won rises to 600 won per dollar 1 year from today, what is the potential transaction gain or loss?
   (b) If the spot rate for won declines to 1,000 won per dollar at maturity, what is the potential transaction gain or loss?
3 For the coming year, a Singapore subsidiary of an American company is expected to earn an after-tax profit of S$25 million and its depreciation charge is estimated at S$5 million. The exchange rate is expected to rise from S$2.00 per dollar to S$1.5 per dollar for the next year.
   (a) What is the potential economic gain or loss?
   (b) If the anticipated business activity were to stay the same for the next 3 years, what would be the total economic gain or loss for 3 years?
4 A US company purchased several boxes of watches from a Swiss company for SFr300,000. This payment must be made in Swiss francs 90 days from today. The following quotations and expectations exist:

90-day US interest rate	4.00%
90-day Swiss interest rare	3.00%
90-day forward rate for francs	$0.400
Spot rate for francs	$0.404

Would the company be better off using the forward market hedge or the money market hedge?

5 For the coming year, a British subsidiary of an American company is expected to incur an after-tax loss of £50 million and its depreciation charge is estimated at £10 million. The exchange rate is expected to rise from $1.5 per pound to $1.7 per pound for the next year. What is the potential economic gain or loss?

6 A US company has bought a number of TV sets from a Japanese company for ¥100,000. This payment must be made in Japanese yen 180 days from today. The following quotations and expectations exist:

Present spot rate	$0.0050
180-day forward rate	$0.0051
Japanese interest rate	7.00%
US interest rate	11.00%
Highest expected spot rate 180 days hence	$0.0052
Lowest expected spot rate 180 days hence	$0.0046

The US company does not have any idle dollar balances at present, but it expects to have adequate cash in 180 days. Identify the alternatives available for making payment.

7 An American firm has just sold merchandise to a British customer for £100,000, with payment in British pounds 3 months from now. The US company has purchased from its bank a 3-month put option on £100,000 at a strike price of $1.6660 per pound and a premium cost of $0.01 per pound. On the day the option matures, the spot exchange rate is $1.7100 per pound. Should the US company exercise the option at that time or sell British pounds in the spot market?

8 Assume that a subsidiary in New Zealand needs NZ$500,000 and that a credit swap has been proven the least costly hedged alternative. Further assume that the best unhedged alternative is the direct loan from the parent and that the cost of the direct loan is 20 percent. The current exchange rate is $0.5000 per New Zealand dollar. To obtain NZ$500,000 for the subsidiary in New Zealand, the parent must open a $250,000 credit ($0.5000 × NZ$500,000) in favor of a New Zealand bank. The New Zealand bank charges 10 percent per year on the NZ$500,000 made available to the subsidiary and pays no interest on the $250,000 deposit that the parent has deposited in the bank.

(a) What is the exchange rate that would make the direct loan and the credit swap equally attractive?

(b) If most market analysts predict that the exchange rate will be NZ$2 per dollar in 180 days, which alternative would you recommend?

(c) If most market analysts predict that the exchange rate will be NZ$3 per dollar in 180 days, which alternative would you recommend?

(d) If the New Zealand bank should pay 5 percent interest on the $250,000 credit, what is the exchange rate that would make the direct loan and the credit swap equally attractive?

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Case Problem 9: Western Mining's Economic Exposure Management

Western Mining Company (WMC) is an Australia-based minerals producer with business interests in 19 countries. It is the world's third largest nickel producer, owns 40 percent of the world's largest alumina producer (Alcoa World Alumina and Chemicals), and is a major producer of copper, uranium, gold, fertilizer, and talc. WMC builds its business on large, low-cost, and long-life assets that are globally competitive.

Most commodities produced by Australian mining companies, including WMC, are exported and priced in US dollars. Thus, these companies would suffer significantly and their Australian dollar revenue would drop if the Australian dollar appreciated sharply against the US dollar. Given such an exposure, the conventional wisdom held that borrowing in US dollars would provide a "natural" hedge against their dollar revenue stream. When forward markets began to develop in the mid-1970s, Australian mining companies often hedged up to 100 percent of forecasted revenues with a combination of debt servicing and forward contracts — often for periods up to 10 years. In the early and mid-1980s, the Australian dollar declined sharply against the US dollar, and the "natural" hedge proved not to be a hedge at all, but rather an uncovered short position in the US dollar. As expected, the decline in the Australian dollar

increased the cost of serving US dollar debt. And those companies that had also sold forward their expected dollar revenue stream also suffered further foreign-exchange losses as these contracts matured. The positive effect of the stronger US dollar on dollar-denominated revenues was offset by a prolonged slump in mineral commodity prices.

Although WMC also experienced some currency losses, it fared better than many of its competitors for two reasons. First, it had relied more on the equity markets to finance capital expenditures. Second, it had not participated in new major projects in the early 1980s. In 1984, however, the company contemplated investment in a new copper, uranium, and gold mine, with capital costs expected to be about $750 million. Under arrangements with a joint venture partner, the company planned to finance its share of the mine solely with debt, thereby increasing its total debt by a magnitude of two or three times.

When confronted with the need to decide the currency denomination of the debt, WMC concluded that taking a short position in US dollars, whether by borrowing or selling forwards, would not stabilize the volatility of its home-country operating profits. Consequently, WMC decided to borrow in a basket of currencies that included Australian dollars, US dollars, Japanese yen, British pounds, and deutsche marks. The company also decided to discontinue its practice of selling forward US dollar revenues, except when actual sales had been made.

Case Questions

1 Evaluate the pros and cons of various exchange-hedging instruments and techniques.
2 What are the different types of foreign-exchange risk that WMC will encounter?
3 Explain why borrowings in US dollars and forward sales of US dollar revenues by Australian mining companies in the 1980s had backfired.
4 Explain why WMC decided to borrow in a basket of currencies rather than exclusively in US dollars or Australian dollars.
5 What are two possible ways to hedge economic exposure?
6 Explain why WMC decided not to hedge its economic exposure (i.e., future US-dollar revenues).
7 The websites for various multinational companies disclose exchange rate hedging activities and their exchange gains or losses. (Hint: see footnotes of annual reports.) On the basis of the website of WMC, www.wmc.com.au, or the website of IBM, www.ibm.com, describe the management of foreign-exchange risk for either company.

Sources: N. Abuaf, "The Nature and Management of Foreign Exchange Risk," *Journal of Applied Corporate Finance*, Fall 1986, pp. 39–44; P. J. Maloney, "Managing Currency Exposure: The Case of Western Mining," *Journal of Applied Corporate Finance*, Winter 1990, pp. 29–34; WMC's *Annual Reports*, various issues; and www.wmc.com.au.

CHAPTER 10

Translation Exposure Management

Opening Case 10: Main Features of Accounting Exposure

Translation exposure has these main features:

1 Because accounting exposure, commonly known as translation exposure, is based on book values only, it does not reflect the true economic value a company has at risk. By the same token, the gains and losses of foreign-exchange trading as measured by this concept bear no relationship to the real impact exchange rate changes have on the value of the firm itself. They are purely of a paper nature.

2 In connection with the above feature, accounting exposure is incapable of encompassing the various and complex ways in which exchange rate changes will really affect a company.

3 Accounting exposure is a function of the method used in translating foreign-currency financial statements. The application of different translation methods may lead to very different account exposures and to different bases for corporate decision-making.

4 Accounting exposure is a concept that is static and historically oriented rather than dynamic and geared toward the future; in other words, it measures assets and liabilities for given past dates instead of flows of currencies over future periods of time. Under this accounting concept, the exposure of two companies may show exactly the same values although they can be in different economic situations and would be affected differently by exchange rate changes.

Source: Martin Glau, "Strategic Management of Exchange Rate Risks," *Long Range Planning*, Aug. 1990, pp. 65–71.

Translation exposure, sometimes called accounting exposure, measures the effect of an exchange rate change on published financial statements of a firm. Foreign-currency assets and liabilities that are translated at the current exchange rate are considered to be exposed. In accounting terms, the difference between exposed assets and exposed liabilities is frequently called net exposure. If exposed assets are greater than exposed liabilities, foreign-currency depreciations will result in exchange losses and foreign-currency appreciations will produce exchange gains. On the other hand, if exposed assets are smaller than exposed liabilities, foreign-currency depreciations will lead to exchange gains and foreign-currency appreciations will lead to exchange losses.

This chapter has three major sections. The first section discusses four translation rules commonly used by multinational companies (MNCs) to consolidate their worldwide operations into home currency. The second section analyzes major differences between two major translation rules: FASB 8 and FASB 52. The third section considers some techniques designed to reduce translation risk.

10.1 Translation Rules

Before we discuss translation rules, we will look at a numerical example to see how net exchange gains or losses occur.

Example 10.1

A US parent company has a single wholly owned subsidiary in Malaysia. This subsidiary has exposed assets of 100 million ringgits and exposed liabilities of 50 million ringgits. The exchange rate declines from M$4 per dollar to M$5 per dollar.

The potential foreign-exchange loss on the company's exposed net assets of 50 million ringgits would be $2.5 million:

Exposed assets	M$100 million	
Exposed liabilities	–50 million	
Net exposure	M$ 50 million	
Predevaluation rate (M$4 = $1)	M$50 million =	$12.5 million
Postdevaluation rate (M$5 = $1)	M$50 million =	–$10.0 million
Potential exchange loss		$2.5 million

These translation gains and losses do not involve actual cash flows because they are only translated into dollars, not converted into dollars. In other words, they are purely of a paper nature. Some companies are concerned about this risk, because it affects their ability to raise capital, the cost of capital, their earnings per share, their stock price, and key financial ratios.

Financial statements are intended to present information about the performance, financial position, and cash flows of a company. To meet this purpose, the financial statements of separate entities within a business enterprise are consolidated and presented as though they were the financial statements of a single economic entity. Financial statements are frequently restated or translated from one currency into another to assist the users of the financial statements, such as investors and creditors.

Accounting for foreign-currency translation is undoubtedly one of the most controversial technical issues facing MNCs. Many of the problems associated with currency translation derive from the fact that foreign-exchange rates, used to carry out the translation process, are seldom fixed. Consequently, actual operating results can vary, often markedly, from reported results because of differences in the translation rates employed. This is why foreign-currency translation has become even more controversial and important since 1973, when the flexible exchange rate system was established. This flexible exchange system abolished the old fixed exchange rate system that was established in 1944, on the basis of the Bretton Woods Agreement.

If exchange rates have changed since the previous accounting period, the translation of financial statement items denominated in foreign currencies will result in foreign-exchange gains or losses. The possible extent of these gains or losses often depends on the rules that govern translation. The four translation methods most widely used by MNCs are current/noncurrent, monetary/nonmonetary, temporal, and current rate.

10.1.1 The current/noncurrent method

In using this, one assumes that financial-statement accounts should be grouped according to maturity. Under the **current/noncurrent method**, all current assets and current liabilities of foreign affiliates are translated into the parent currency at current exchange rates. All noncurrent assets, noncurrent liabilities, and owners' equity are translated at historical exchange rates.

10.1.2 The monetary/nonmonetary method

Under the **monetary/nonmonetary method**, monetary assets and monetary liabilities are translated at current exchange rates. Nonmonetary assets, nonmonetary liabilities, and owners' equity are translated at historical rates. Monetary assets include cash, accounts receivable, and notes receivable. Nonmonetary assets include inventory and fixed assets. In general, all liabilities are monetary liabilities.

10.1.3 The temporal method

Under generally accepted accounting principles of historical accounting in the United States, the **temporal method** produces essentially the same results as the monetary/nonmonetary method. The only difference is that under the monetary/nonmonetary method, inventory is always translated at the historical rate. Under the temporal method, inventory is usually translated at the his-

Table 10.1 Exchange rates used to translate balance-sheet items

Balance-sheet accounts	*Current/ noncurrent*	*Monetary/ nonmonetary*	*Temporal*	*Current-rate*
Cash	C	C	C	C
Receivables	C	C	C	C
Payables	C	C	C	C
Inventory	C	H	H or C	C
Fixed assets	H	H	H	C
Long-term debt	H	C	C	C
Net worth	H	H	H	H

Note: C represents the current rate and H represents the historical rate.

torical rate, but it could be translated at the current rate if inventory is carried at market prices or at replacement costs.

10.1.4 The current-rate method

The **current-rate method** is the simplest; all assets and liabilities are translated at the current rate. Existing equity accounts such as common stock and paid-in capital are translated at the historical rate.

10.1.5 A comparison of the four translation methods

All financial-statement items restated in terms of the parent currency are the foreign-currency amount multiplied by the appropriate exchange rate. Table 10.1 compares the four translation methods – current/noncurrent, monetary/nonmonetary, temporal, and current-rate – in terms of the exchange rate for each balance-sheet item.

Example 10.2

Assume that a foreign subsidiary of a US MNC has the following (FC = functional currency): (1) cash = FC100; (2) accounts receivable = FC150; (3) inventory = FC200; (4) fixed assets = FC250; (5) current liabilities = FC100; (6) long-term debt = FC300; and (7) net worth = FC300. Let us further assume that the historical exchange rate is $2 = FC1, the current exchange rate is $1 = FC1, and inventory is carried at market prices. Remember that the functional currency depreciates from $2 per FC to $1 per FC.

Table 10.2 illustrates the effect of each translation method on the balance sheet. Exchange gains or losses are shown here as a separate plug (balancing) account to show

Table 10.2 A comparison of the four translation methods

Accounts	*Foreign currency*	*Current/ noncurrent*		*Monetary/ nonmonetary*		*Temporal*		*Current-rate*	
Cash	FC100	1	$100	1	$100	1	$100	1	$100
Receivables	150	1	150	1	150	1	150	1	150
Inventory	200	1	200	2	400	1	200	1	200
Fixed assets	250	2	500	2	500	2	500	1	250
Total	FC700		$950		$1,150		$950		$700
Current debts	FC100	1	$100	1	$100	1	$100	1	$100
Long-term debt	300	2	600	1	300	1	300	1	300
Net worth	300	2	600	2	600	2	600	2	600
Gains (losses)	–		(350)		150		(50)		(300)
Total	FC700		$950		$1,150		$950		$700

how they would be derived. However, in actual practice net worth would be used as a plug figure, or exchange gains and losses would be closed out to retained earnings.

Under the current/noncurrent method, an exchange loss of $350 is recorded, because current assets are greater than current liabilities. On the other hand, under the monetary/nonmonetary method, an exchange gain of $150 is recorded, because monetary liabilities exceed monetary assets. Under the current-rate method, the exchange loss is $300 for two reasons: (1) all accounts except net worth are translated at the current exchange rate; and (2) exposed assets are greater than exposed liabilities.

10.2 FASBs 8 and 52

The accounting profession has recognized the growing importance of foreign-currency transactions and/or foreign operations. In October 1975, the Financial Accounting Standards Board (FASB) issued its Statement 8, *Accounting for the Translation of Foreign Currency Transactions and Foreign Currency Financial Statements*. FASB 8 formerly required US companies to translate their foreign-currency financial statements into dollars by applying the appropriate exchange rate to the measurement basis of each account; the appropriate exchange rate may be the historical rate, the current rate, or the average rate. This statement also requires companies to show all foreign-exchange gains or losses in their quarterly and annual income statements, regardless of whether these gains or losses were realized or unrealized.

FASB 8 was a product of considerable effort, including extensive exposure drafts and discussion memoranda, by the FASB to resolve the translation issue. However, from its inception in autumn 1975, FASB 8 was the subject of extensive debate; most of the criticism centered on recognizing foreign-exchange gains or losses. Companies claimed that FASB 8 grossly distorted their earnings because of the sharp fluctuations in foreign-exchange rates. The FASB issued its Statement 52, *Foreign Currency Translation*, on December 7, 1981. FASB 52 supersedes FASB 8. In 1982, US companies were allowed to utilize either FASB 8 or FASB 52. Ford used FASB 52 in 1982 to exclude its translation loss of about $220 million from the income statement. In the

same year, General Motors employed FASB 8 to include its translation gain of about $384 million in the income statement.

FASB 52 requires the use of the current exchange rate in translating foreign-currency financial statements into US dollars. Such translation adjustments are placed directly in stockholders' equity rather than income. Thus, FASB 52 has substantially reduced fluctuations in many companies' reported earnings caused by gyrations in foreign-exchange rates under FASB 8.

10.2.1 Functional currency

In this section, two terms are extensively used: parent currency and functional currency. **Parent currency**, sometimes called reporting currency, is the currency of the country where the parent company is located. For example, the parent currency of US-based MNCs is the dollar. The **functional currency**, usually called foreign currency or local currency, is the currency of the country where the foreign operation of an MNC is located. The functional currency of an entity, as defined in FASB 52 (paragraph 39), is "the currency of the primary economic environment in which the entity operates; normally, that is the currency of the environment in which an entity primarily generates and expends cash."

The term "functional currency" was first used in the translation literature in conjunction with FASB 52. Functional currency is, in fact, a key feature of FASB 52, because it determines the choice of translation method. This feature is very important, because the translation method employed determines the translation rate and the disposition of exchange gains and losses. If the foreign currency is determined to be the functional currency, FASB 52 is used to carry out the translation process. On the other hand, if the US dollar is deemed to be the functional currency, FASB 8 is used to remeasure foreign-currency operations in dollars.

Normally, a foreign subsidiary's functional currency is the currency of the foreign country in which it operates and generates net cash flows. For example, a French subsidiary with relatively contained and integrated operations in France would have the euro as its functional currency. Such translation adjustments do not affect cash flows and are not included in net income. Consequently, translation adjustments are placed directly in stockholders' equity. However, if the French subsidiary has some transactions and open-account balances denominated in Swiss francs from a Swiss customer, those balances must be restated in euros, and gains or losses must be included in the subsidiary's net income before the statements are translated into US dollars during the consolidation process.

The functional currency of an entity is not always identical with the currency of the country in which the foreign operation is located or the currency of the country in which the records are maintained. The dollar is the functional currency, and exchange gains or losses must be included in the net income for those foreign operations whose cash flows directly affect the parent's US dollar cash flows on a current basis. Such a situation may occur when the foreign entity is merely an extension of the parent company. In this case, the functional currency is the reporting currency of the parent company. For example, if the Mexican subsidiary of a US parent company received all of its raw materials from the USA and resold all of its output back to the USA, the US dollar should be the functional currency.

Foreign subsidiaries in countries with runaway inflation are another case in which the reporting currency is used as the functional currency. FASB 52 (paragraph 11) states that "the financial statements of a foreign entity in a highly inflationary economy shall be remeasured as if the

functional currency were the reporting currency." A highly inflationary economy is defined as one that has cumulative inflation of approximately 100 percent or more over a 3-year period. The cumulative inflation for 3 years is a compounded rate; as a result, an annual inflation rate of about 26 percent produces a cumulative inflation of 100 percent over 3 years.

10.2.2 Differences between FASBs 8 and 52

The underlying assumption of FASB 8 was that consolidated financial statements should reflect the transactions of the consolidated group as though all operations, including foreign operations, were extensions of the parent's domestic operations. This premise failed to recognize the fact that in many cases the operations of foreign subsidiaries exist in other environments and involve foreign-currency cash flows in those other environments. Thus, the results of accounting after translation did not correctly portray the foreign-currency cash flows.

FASB 52 is intended to portray foreign-currency cash flows. Companies using the functional currency approach and the current-rate method can maintain compatible income and cash flows before and after translation. Financial summary indicators, such as profit margin, gross profit, and debt-to-equity ratio, are almost the same after translation into the reporting currency as they are in the functional currency. In addition, the volatility of a company's reported earnings should be reduced under FASB 52, because its foreign-exchange gains or losses are placed directly in stockholders' equity rather than in income.

10.2.3 Translation of foreign-currency financial statements

FASB 8 had formally required US firms to use the temporal method from 1976 until the FASB replaced it with FASB 52 in December 1981. According to the temporal method, balance-sheet items carried at current or future prices should be translated at the current exchange rate, while balance-sheet items carried at historical prices should be translated at the applicable historical rate. Under this method, sales revenue and operating expenses are translated at the average exchange rate, while cost of goods sold and depreciation are translated at the applicable historical rate. Exchange gains or losses from the translation of the balance sheet should be included in the income statement.

Under FASB 52, the current exchange rate method is used to translate foreign-currency balance sheets from their functional currency into the reporting currency. The current exchange rate method is the easiest to apply because under this method, all assets and liabilities are translated at the current exchange rate. Only owners' equity is translated at the historical exchange rate. Unlike the controversial FASB 8, FASB 52 does not require companies to include translation adjustments in net income. Instead, a company will report these translation adjustments separately and accumulate them in a separate component of equity until it sells or substantially liquidates the foreign net investment.

Under FASB 52, all income-statement elements are translated in a manner that produces approximately the same result as using the exchange rate in effect on the dates on which these elements are recognized. However, paragraph 12 of FASB 52 provides that "because translation at the exchange rates on the dates the numerous revenues, expenses, gains, and losses are recognized is generally impractical, an appropriately weighted average exchange rate for the period may be used to translate those elements."

Example 10.3

The Canadian subsidiary of a US multinational corporation with a Canadian dollar functional currency started business and acquired fixed assets on January 1, 2004, when the Canadian dollar/US dollar exchange rate was 0.85. Table 10.3 applies the temporal method and the current exchange rate method to hypothetical financial statements that are affected by an 11.8 percent devaluation of the Canadian dollar. For this devaluation, the exchange rate on December 31, 2004, was 0.75 and the weighted average rate for the period was 0.80.

Table 10.3 shows that fluctuations in reported earnings in this example are reduced significantly under FASB 52, because we used a single rate in translating balance-sheet items

Table 10.3 Translation of foreign-currency operations under FASBs 8 and 52

		FASB 8		*FASB 52*	
	Canadian dollars	*Rates used*	*US dollars*	*Rates used*	*US dollars*
Balance sheet					
Cash and receivables	100	.75	75	.75	75
Inventory	300	.81*	243	.75	225
Fixed assets, net	600	.85	510	.75	450
Total	1,000		828		750
Current liabilities	180	.75	135	.75	135
Long-term debt	700	.75	525	.75	525
Common stock	100	.85	85	.85	85
Retained earnings	20		83		16
Equity adjustments from translation	–				–11
Total	1,000		828		750
Income statement					
Revenue	130	.80	104	.80	104
Cost of goods sold	–60	.83*	–50	.80	–48
Depreciation	–20	.85*	–17	.80	–16
Other expenses	–10	.80	–8	.80	–8
Exchange gain (loss)	–		70		–
Income before tax	40		99		32
Income tax	–20	.80	–16	.80	–16
Net income	20		83		16
Ratios					
Net income to revenue	0.15		0.80		0.15
Gross profit margin	0.54		0.52		0.54
Long-term debt to equity	5.83		3.13		5.83

*Historical rates for inventory, cost of goods sold, and depreciation of fixed assets.

and reported translation adjustments in equity. Under the new standard, moreover, the net income of the US parent company is the same as what is expected based on the level of earnings in Canadian dollars.

Under FASB 52, a translation loss of $11 is the expected economic effect of the Canadian dollar, whose value declined against the US dollar. This translation loss of $11 is reported in the balance sheet as "equity adjustments from translation." On the other hand, FASB 8 required the US parent company to report a translation gain of $70 in the income statement.

Under FASB 52, key Canadian-dollar ratios, such as net income to revenue, gross profit, and long-term debt to equity, are maintained after translation from the Canadian dollar to the US dollar. However, these ratios in the Canadian dollar are significantly different from those in the US dollar under FASB 8.

10.3 Hedging Translation Exposure

When a devaluation or upvaluation seems likely, a company must determine whether it has an unwanted net exposure to exchange risk. Management's basic objective with any exposure is to minimize the amount of probable exchange losses and the cost of protection. A **hedge** is an approach designed to reduce or offset a possible loss. An arrangement that eliminates translation risk is said to hedge that risk. A hedge is designed to substitute a known cost of buying protection against foreign-exchange risk for an unknown translation loss. One can use a variety of techniques to deal with translation exposure. These techniques consist of one major group of hedging devices: a balance-sheet hedge.

10.3.1 The balance-sheet hedge

Balance-sheet hedges are generally employed to minimize translation exposure. A **balance-sheet hedge** involves the selection of the currency in which exposed assets and liabilities are denominated so that an exchange rate change would make exposed assets equal to exposed liabilities. To attain this objective, a company must maintain the same amount of exposed assets and exposed liabilities in a particular currency. A devaluation would affect both types of balance-sheet accounts equally; thus, the company would suffer neither a gain nor a loss.

When an MNC has several subsidiaries, a variety of funds-adjustment techniques can be used to reduce its translation loss. These techniques require the company to adopt the following two basic strategies:

1 The company must decrease soft-currency assets and increase soft-currency liabilities.
2 The company must increase hard-currency assets and decrease hard-currency liabilities.

Hard currencies are those currencies that are likely to appreciate; soft currencies are those currencies that are likely to depreciate.

Most techniques for hedging an impending local-currency (soft-currency) devaluation reduce local-currency assets and/or increase local-currency liabilities to generate local-currency cash. In order to reduce translation exposure, these local-currency funds must be converted into hard-

currency assets. This conversion can be accomplished, either directly or indirectly, by a variety of funds-adjustment techniques. Direct funds-adjustment techniques include pricing exports in hard currencies and imports in the local currency, investing in hard-currency securities, and replacing hard-currency loans with local-currency loans.

10.3.2 Indirect funds-adjustment methods

A variety of indirect funds-adjustment methods can be used to reduce foreign-currency exposure.

EXPOSURE NETTING MNCs can net certain exposures from different operations around the world so that they may hedge only their net exposure. For example, when an MNC has both receivables and payables in a given foreign currency, these receivables and payables can be offset through netting, which will reduce the amount of foreign-exchange exposure. **Exposure netting** is a method of offsetting exposures in one currency with exposures in the same or another currency in such a way that gains or losses on the first exposure will be offset by losses or gains on the second exposure. Unlike the simple case of exposure netting on a currency-by-currency basis that we discussed above, MNCs have a portfolio of currency positions. If MNCs want to apply exposure netting aggressively, it helps to centralize their exposure management function in one location.

LEADING AND LAGGING Leading and lagging is another operational technique that MNCs can use to reduce foreign-exchange exposure. **Leading** means to pay or collect early, whereas **lagging** means to pay or collect late. MNCs should lead soft-currency receivables and lag hard-currency receivables to avoid the loss from the depreciation of the soft currency and to obtain the gain from the appreciation of the hard currency. For the same reason, MNCs will try to lead hard-currency payables and to lag soft-currency payables.

TRANSFER PRICING **Transfer prices** are prices of goods and services sold between related parties, such as a parent and its subsidiary. Transfer prices are frequently different from arm's-length prices (fair market prices) so that they can be used to avoid foreign-currency exposure. For example, an MNC can remove funds from soft-currency countries by charging higher transfer prices on goods sold to its subsidiaries in those countries. For the same reason, an MNC can keep funds at those subsidiaries in hard-currency countries by charging lower prices on goods sold to its subsidiaries in those countries. Governments usually assume that MNCs manipulate their transfer prices to avoid financial problems or to improve financial conditions. Thus, most governments set up policing mechanisms to review the transfer pricing policies of MNCs.

SUMMARY

Translation exposure occurs when companies translate financial-statement accounts from a foreign currency to their home currency. The possible extent of translation gains and losses often depends on the rules that govern translation. The four translation methods most widely used by MNCs are

current/noncurrent, monetary/nonmonetary, temporal, and current-rate. This chapter presented a numerical example to compare these four recognized methods.

US companies were required to use FASB 8 (the temporal method) from 1975 until the FASB issued its Statement 52 (the current-rate method) in 1981. The FASB issued its Statement 52 because accountants and executives raised two major complaints about FASB 8. First, FASB 8 required US companies to show gains and losses in their current income statement, thereby distorting their earnings. Second, FASB 8 required US companies to use different rates for different balance-sheet items. Under FASB 52, all gains and losses are treated as net worth, and all balance-sheet items are translated at the current exchange rate except net worth.

MNCs can use a variety of methods to deal with translation exposure. These methods consist of one major group of hedging devices: balance-sheet hedges, which are generally employed to minimize translation exposure. A balance-sheet hedge involves the selection of the currency in which exposed assets and liabilities are denominated so that an exchange rate change would make exposed assets equal to exposed liabilities. Because translation gains and losses are purely of a paper nature, most MNCs do not employ financial instruments, such as currency forwards, futures, and options.

Questions

1 Explain the conditions under which items and/or transactions are exposed to foreign-exchange risks.
2 Three basic types of exchange exposure are translation exposure, transaction exposure, and economic exposure. Briefly explain each of these three types of exposure.
3 What is the basic purpose of exposure netting?
4 How does FASB 8 differ from FASB 52?
5 What is the basic translation hedging strategy?
6 How will the weakened US dollar affect the reported earnings of a US company with subsidiaries all over the world? How will the strengthened US dollar affect the reported earnings of a US company with subsidiaries all over the world?
7 How could an MNC use leading and lagging to hedge its soft-currency receivables and its soft-currency payables?
8 Which method do most MNCs use to hedge their translation exposure: financial instruments or operational techniques?

Problems

1 A US company has a single, wholly owned affiliate in Japan. This affiliate has exposed assets of ¥500 million and exposed liabilities of ¥800 million. The exchange rate appreciates from ¥150 per dollar to ¥100 per dollar.
   (a) What is the amount of net exposure?
   (b) What is the amount of the translation gain or loss?
   (c) If the Japanese yen declines from ¥150 per dollar to ¥200 per dollar, what would be the amount of the translation gain or loss?

2 The British subsidiary of a US company had current assets of £1 million, fixed assets of £2 million, and current liabilities of £1 million at both the beginning and the end of the year. There are no long-term liabilities. The pound depreciated during the year from $1.50 per pound to $1.30 per pound.
   (a) What is the amount of net exposure?
   (b) What is the amount of the translation gain or loss?

3 Assume that a Malaysian subsidiary of a US company has the following: (1) cash = M$1,000; (2) accounts receivable = M$1,500; (3) inventory = M$2,000; (4) fixed assets = M$2,500; (5) current liabilities = M$1,000; (6) long-term debt = M$3,000; (7) net worth = M$3,000; and (8) net income before translation gain or loss = M$225. Let us further assume that the historical exchange rate is $0.25 per ringgit, the current exchange rate is $0.20 per ringgit, the average exchange rate is $0.225 per ringgit, and inventory is carried at cost.
   (a) Prepare the balance sheet of the US subsidiary in Malaysia.
   (b) Determine the dollar net income without the translation gain or loss.
   (c) Determine the translation gain or loss under FASBs 8 and 52.
   (d) If the functional currency is determined to be the US dollar, which translation method should be used? What kind of impact would it have on the company's net income?
   (e) Compute the Malaysian ringgit debt ratio, the return on investment, and the long-term debt-to-equity ratio. Compare these ratios with the ratios in dollars under FASBs 8 and 52.

4 In 1982, Ford incurred an after-tax loss of $658 million, adopted FASB 52, and had a translation loss of $220 million. In the same year, General Motors earned an after-tax profit of $963 million, used FASB 8, and had a translation gain of $348 million.
   (a) Why do you think that in 1982, Ford adopted a new accounting rule FASB 52, while GM used an old accounting rule FASB 8?
   (b) What would have been Ford's reported net loss if it had used FASB 8 instead of FASB 52?
   (c) What would have been GM's reported net income if it had adopted FASB 52 instead of FASB 8?

5 Assume that a subsidiary in New Zealand needs NZ$500,000 and that a credit swap has been proven to be the least costly hedged alternative. Further assume that the best

unhedged alternative is the direct loan from the parent and that the cost of the direct loan is 20 percent. The current exchange rate is $0.5000 per New Zealand dollar. To obtain NZ$500,000 for the subsidiary in New Zealand, the parent must open a $250,000 credit ($0.5000 × NZ$500,000) in favor of a New Zealand bank. The New Zealand bank charges 10 percent per year on the NZ$500,000 made available to the subsidiary and pays no interest on the $250,000 deposit that the parent has deposited in the bank.

(a) What is the exchange rate that would make the direct loan and the credit swap equally attractive?
(b) If most market analysts predict that the exchange rate will be NZ$2 per dollar in 180 days, which alternative would you recommend?
(c) If most market analysts predict that the exchange rate will be NZ$3 per dollar in 180 days, which alternative would you recommend?
(d) If the New Zealand bank should pay 5 percent interest on the $250,000 credit, what is the exchange rate that would make the direct loan and the credit swap equally attractive?

6 The current exchange rate of Saudi Arabian riyal is SR4 per $1. The Exton Company, the Saudi Arabian subsidiary of a US multinational company, has the following balance sheet:

Assets		Claims on assets	
Cash	SR 500		
Accounts receivable	600	Accounts payable	SR 100
Inventory (cost)	400	Notes payable	200
Inventory (market price)	800	Other payables	1,000
Total current assets	SR2,300	Total current liabilities	SR1,300
		Long-term debt	800
Plant and equipment	2,400	Common stock	1,000
Accumulated depreciation	(1,400)	Retained earnings	200
Net plant and equipment	1,000	Exchange loss or gain	–
Total assets	SR3,300	Total claims	SR3,300

If the Saudi Arabian riyal devalues from SR4 per $1 to SR5 per $1, what would be the translation loss (gain) under each of the following methods: current/noncurrent, monetary/nonmonetary, temporal, and current-rate?

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Case Problem 10: Dell Mercosur

At the end of 2002, Todd Pickett, CFO of Dell Mercosur, was faced with conflicting predictions of the value of the Brazilian currency, the real, and what to do to hedge Dell's operation in Brazil. Although Pickett was concerned about Dell's exposure in the other Mercosur countries, especially Argentina, Brazil was clearly the largest concern. The year 2002 began with the shocks resulting from the Argentine financial crisis that started at the end of 2001, and it ended with the election in October of Luiz Ina'cio Lula da Silva, known simply as Lula, as the president of Brazil. Lula, the leader of the Worker's Party and long-time leftist politician, had held the lead throughout the year. The markets were skeptical of Lula's potential leadership, a factor that caused the real to fall from 2.312 reals per US dollar at the end of 2001 to a record 4 reals to one US dollar at one point just prior to the election. After the election, the real began to strengthen somewhat, but Pickett had to base his strategies on whether the real would continue to strengthen or would weaken again. Figure 10.1 shows the Brazilian real/US dollar exchange rate changes for 1995 through 2002.

The History of Dell

Founded in 1984 by Michael Dell, the computer company operates in 34 countries with 36,000 employees (of which about 14,400 are outside the USA) and recorded $32 billion in sales for 2002. In the past 5 years, Dell has expanded beyond PCs, to servers, storage, and communications equipment. Most PC manufactures have claimed poor results since the technology bubble burst in 2000 – IBM left the industry in 2000 and Compaq and Hewlett-Packard (HP) merged in 2001 in hopes of boosting their competitive position. Unlike its competitors, Dell has thrived in the past few years, moving from a market share of 12 percent to 15 percent in

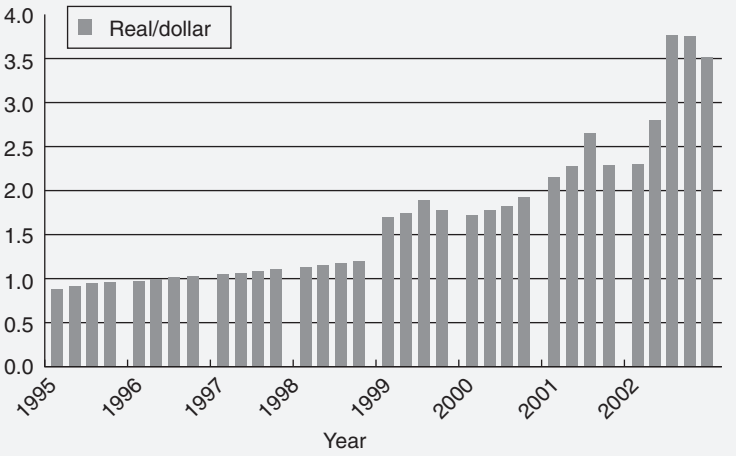


Figure 10.1 Exchange rates for the Brazilian real and the US dollar

2001, the number one spot in the industry. Fiscal 2002 was one of the toughest years to date in the PC industry. Because of the softening of the global economy and the events of September 11, demand for PCs was down sharply. Dell responded with an aggressive price strategy and reduced costs through workforce reductions and facility consolidations. Although global industry shipments fell in 2002 by 5 percent, Dell's unit shipments increased by 15 percent, thus enabling the company to retain its number one position.

Dell bases its success on its build-to-order, direct sales model. Dell has eliminated resellers and retailers and sells directly to the customer by phone or over the Internet. Dell customizes every computer to the customer's needs and waits to build the computer until it is ordered. As a result, Dell requires little inventory (4 days on average) and is able to deliver the newest technology to its customers. Costs are kept to a minimum compared to its competitors, because it has no costly retail outlets and little inventory.

Dell began assembling computers in Round Rock, Texas, in 1985 and moved to global production in the following order:

1990	Opened manufacturing plant in Ireland
1996	Opened manufacturing plant in Malaysia
1998	Opened manufacturing plants in China
1999	Opened manufacturing plants in Tennessee and Brazil

Dell's 2002 Form 10K Reports

Sales outside the USA accounted for approximately 35 percent of the company's revenues in fiscal year 2002. The company's future growth rates and success are dependent on continued growth and success in international markets. As is the case with most international operations, Dell's overseas sales are subject to numerous risks and uncertainties, including local economic and labor conditions, political instability, unexpected changes in the regulatory envi-

ronment, trade protection measures, tax laws (including US taxes on foreign operations), and foreign-currency exchange rates.

Dell in Brazil

Dell's production facility in Brazil is in Eldorado do Sul, close to Porto Alegre, the capital of Rio Grande do Sul, the southernmost state in Brazil. Its call center in Brazil is similar to the one in Bay, Ireland, and services both Brazil and Argentina. Its Brazilian facility, which consists of 100,000 square feet of leased property, is the smallest of its facilities outside the USA, but the potential in Brazil and Argentina is huge, and Dell is planning further expansion. Because of the tariff-free provisions of Mercosur and the close proximity of Dell's manufacturing facilities in the south of Brazil, Dell is well positioned to service all of Mercosur with its Brazilian manufacturing operations. In 2002, it held a 4.5 percent market share in Brazil, behind HP/Compaq, IBM, and a Brazilian company. However, it was rapidly moving up to third place in the market and growing quickly.

Although Dell is divided into products and customers, it is managed generally on a geographical basis. Terry Kahler, the general manager of Dell Mercosur, reports to the head of the Americas/International group, who in turn reports to the Rosendo Parra, the Vice President of the Americas/International Group in Austin, Texas. Pickett works closely with Kahler, but reports directly to the CFO staff in Austin.

Dell's revenues in Brazil are denominated in reals, and most of its operating costs are also denominated in reals. However, about 97 percent of Dell's manufacturing costs in Brazil are denominated in US dollars, since Dell imports parts and components from the USA. It translates its financial statements according to the current-rate method, which means that assets and liabilities are translated at the average exchange rate for the period. Because of business development loans from the Brazilian government, Dell's net exposed asset position in Brazil is quite small, but it is subject to foreign-exchange gains and losses as the rate changes.

The Hedging Strategy

In its Form 10K for 2002, Dell states its foreign-currency hedging strategy as follows:

> The Company's objective in managing its exposure to foreign currency exchange-rate fluctuations is to reduce the impact of adverse fluctuations on earnings and cash flows associated with foreign currency exchange-rate changes. Accordingly, the Company utilizes foreign currency option contracts and forward contracts to hedge its exposure on forecasted transactions and firm commitments in most foreign countries in which the Company operates. The principal currencies hedged during fiscal 2002 were British pound, Japanese yen, euro, and Canadian dollar. The Company monitors its foreign currency exchange exposures to ensure the overall effectiveness of its foreign currency hedge positions. However, there can be no assurance the Company's foreign currency activities will substantially offset the impact of fluctuations in currency exchange rates on its results of operations and financial position.
>
> The Company uses purchased option contracts and forward contracts designated as cash flow hedges to protect against the foreign currency exchange risk inherent in its forecasted

transactions denominated in currencies other than the US dollar. Hedged transactions include international sales by US dollar functional currency entities, foreign currency denominated purchases of certain components, and intercompany shipments to certain international subsidiaries. The risk of loss associated with forward contracts is entered into until the time it is settled. These contracts generally expire in three months or less.

The Company also uses forward contracts to economically hedge monetary assets and liabilities, primary receivables and payables that are denominated in a foreign currency. These contracts are not designated as hedging instruments under generally accepted accounting principals, and therefore, the change in the instrument's fair value is recognized currently in earnings and is reported as a component of investment and other income (loss), net. The change in the fair value of these instruments represents a natural hedge as their gains and losses offset the changes in the underlying fair value of the monetary assets and liabilities due to movements in currency exchange rates. These contracts generally expire in three months or less.

Based on these general statements of principle, Dell's strategy is to hedge all foreign-exchange risk, which is a very aggressive hedging strategy. Since there is no options market for Brazilian reals, Pickett uses forward contracts to hedge the foreign-exchange risk in Brazil. Corporate treasury monitors currency movements worldwide and provides support to Pickett's Brazilian treasury group in terms of currency forecast and hedging strategies. Within the broad strategy approved by corporate treasury, the Brazilian group establishes a strategy and then works with corporate on specific executions of the strategy.

There are two key parts to the strategy. One has to do with forecasting exposure, and the other has to do with designing and executing the strategy to hedge the exposure. Although the balance-sheet exposure is not material, it still must be forecast and is partly a function of the cash flows generated by revenues. The revenue side is more difficult to forecast, so Pickett hedges about 80 percent of forecasted revenues. However, the Dell team in Brazil has become very adept at forecasting revenues and in executing a strategy in order to reach its target forecast. The team works hard on identifying the challenges in reaching its target and in devising policies to overcome those challenges. Its execution strategies vary widely quarter by quarter, and the management team has become very good at meeting its targets by working closely together and being flexible. Pickett and Kahler work closely together on a daily basis to execute their strategy.

The second key to this strategy is designing and executing the hedging strategy. Since revenues vary on a daily basis, Pickett does not enter into contracts all at once. Instead, he works with corporate treasury to enter into contracts in different amounts and different maturities depending on when it expects to generate the revenues. Revenues are generally lower at the beginning of the quarter and are always higher in the last week or two of the quarter, so he enters into contracts accordingly. Timing is a crucial issue. The gain or loss on a forward contract is the difference in exchange rates between when the contract is entered into and when it is settled. The key is to unwind (or settle) the contracts while the rate is still favorable. Pickett noted that if Dell began to unwind the contracts in the last week or two of the quarter instead of the last day or two of the quarter, it could get much more favorable foreign-exchange gains. His strategy was so successful that in some quarters, Dell was generating more finan-

cial income than operating income. Although Pickett and his treasury team have some flexibility in designing and implementing strategy, corporate treasury keeps in touch, depending on their forecast of exchange rate and the strategy that Dell Brazil is following.

Corporate treasury uses a consensus forecast of exchange rates that is provided by a group of banks, but banks have different scenarios. For example, in the last quarter of 2002, corporate treasury was relying on a bank forecast that the real would revalue even more by the end of the year. Pickett's dilemma was that his gut feeling was that the real would actually fall instead of rise. That would indicate a different hedging strategy. He was resisting entering into hedges while corporate treasury was pressuring him to do just that. However, he was closely watching the forward market, and when it began to move, he decided it was time to enter into the contracts. But who knows what will happen to Brazil if Lula, Brazil's new president, loses fiscal control of the ninth largest economy in the world, resulting in another round of inflation and a falling currency. Dell has significant market opportunities in Mercosur, but the financial risk will make for exciting times in the years to come.

Case Questions

1 Given how Dell translates its foreign-currency financial statements into dollars, how would a falling Brazilian real affect Dell Mercosur's financial statement?
2 Dell imports about 97 percent of its manufacturing cost. What type of exposure does this create for it? What are its options to reduce that exposure?
3 Describe and evaluate Dell's exposure management strategy.
4 What are the costs and benefits of hedging all foreign-exchange risk?
5 The mission of the Financial Accounting Standard Board (FASB) is to establish and improve standards of financial accounting and reporting for the guidance and education of the public, including issuers, auditors, and users of financial information. Visit the FASB's home page, www.fasb.org, to see current accounting standards and letters commenting on proposed standards.

Source: J. D. Daniels, L. H. Radebaugh, and D. P. Sullivan, *International Business: Environments and Operations*, 10th edn, Upper Saddle River, NJ: Prentice Hall, 2004, pp. 623–6. This case is reprinted with permission by Prentice Hall.

PART III

The Global Financing Strategy

Part III (chapters 11–14) describes sources of global finance. One major facet of financial management is to raise funds on favorable terms. In the case of global financial management, this involves those sources of funds necessary to finance world trade and foreign investment. These funds can come from either internal or external sources. Internal sources of funds, such as earnings and depreciation, are the major sources of funds for most multinational companies (MNCs). But external sources of funds, such as bank loans and Eurodollars, are important as well.

A dramatic expansion in international capital flows has emerged in recent years for several reasons. First, revolutionary advances in information and communications technology, together with significantly lower transportation and transaction costs, have accelerated the growth of cross-border financial flows. Second, financial innovations in the United States and other industrial countries, such as mutual funds, hedge funds, and derivatives, have made cross-border investments more accessible to institutional and individual investors. Third, the removal of capital controls and broader liberalization of financial markets in most countries around the world have stimulated competition and resulted in a growing integration of domestic and offshore markets. MNCs should take into account these three factors in financing their international transactions. This is because the factors have not only increased the efficiency of global capital markets, but have also created new systematic risks associated with increased asset-price variability.

CHAPTER 11

International Financial Markets

Opening Case 11: Foreign Investors Load Up with Asia's Shares

Since May 21, 2003, US and other foreign investors have begun to pile funds back into Asia because they believe that the region will once again prove to be a leveraged bet on US growth (figure 11.1). That newfound taste for Asian shares, however, could sour as the same factors that make stocks in the region attractive leave them vulnerable should US recovery expectations prove premature.

Investors purchased Asia-focused funds as they switched out of fixed-income securities back into stocks, reasoning that shares in Asia will rise faster and further in front of a US recovery, as they have in the past. Another reason for a current Asian markets boom is the return of investor interest in so-called cyclical stocks, whose prices rise and fall with overall economic performance. In Asia, entire markets tend to be cyclical as they follow the ups and downs of the US economy.

The flipside of being a leveraged bet on US growth is Asia's predilection to fall harder when that growth slows. Asian leaders would prefer that the region lessen its reliance on the hot and cold flows of global trade and rely more on domestic consumption and trade within Asia for growth. That, they reason, would make growth more stable over the long term and make Asia less of a cyclical play for investors. However, Geoffrey Banker, chief Asian economist for HSBC Bank in Hong Kong, says those desires have yet to be translated into concrete changes in Asian economies. Most Asian countries have become more reliant on exports in the past few years, he said. And that leaves them more vulnerable to disappointment should a US recovery not materialize soon.

Source: P. Day, "Foreign Investors Load Up with Asia's Shares," *The Wall Street Journal*, July 17, 2003, p. C12.

The recent stock rally has been more significant for tech-heavy Asian stock market indexes and the NASDAQ than for the Dow Jones Industrial Average. At left, index performance since May 20; in US-dollar terms. At right, growth in total assets through new investment in Asian regional funds compared with growth in international fund assets in general* since May 21.

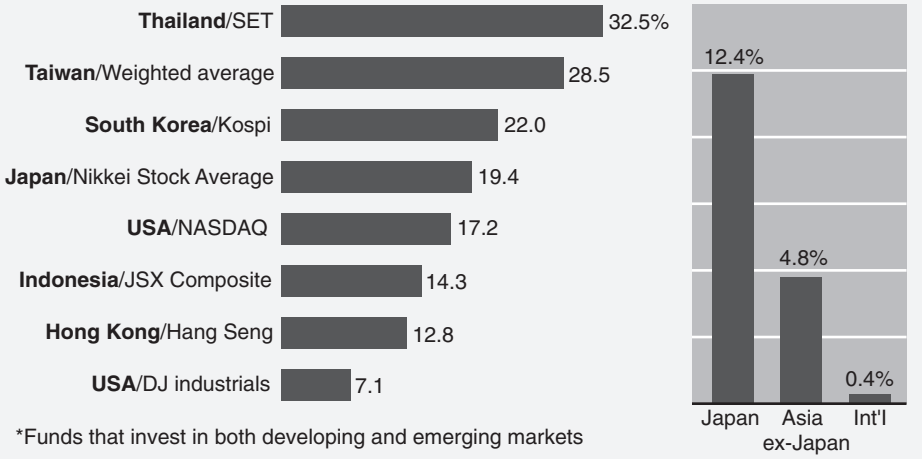


Figure 11.1 Asian markets boom as foreigners pile in

Source: P. Day, "Foreign Investors Load Up with Asia's Shares," *The Wall Street Journal*, July 17, 2003, p. C12.

International financial markets are a major source of funds for international transactions. Most countries have recently internationalized their financial markets to attract foreign business.

Recent financial globalization is being driven by advances in data processing and telecommunications, liberalization of restrictions on cross-border capital flows, deregulation of domestic capital markets, and greater competition among these markets for a share of the world's trading volume. This globalization involves both a harmonization of rules and a reduction of barriers that will allow for the free flow of capital and permit all firms to compete in all markets. In other words, financial market imperfections have declined because of this global integration of money and capital markets. Yet, there are still excellent opportunities for companies to lower their cost of capital and for investors to increase their return through international financial markets. This chapter examines the three financial markets – Eurocurrency, international bond, and international equity – that allow companies to serve customers around the world.

11.1 Eurocurrency Markets

The **Eurocurrency market** consists of banks that accept deposits and make loans in foreign currencies outside the country of issue. These deposits are commonly known as Eurocurrencies. Thus, US dollars deposited in London are called Eurodollars; British pounds deposited in New York are called Eurosterling; and Japanese yen deposited in London are called Euroyen.

Because Eurodollars are the major form of Eurocurrency, the term "Eurodollar" frequently refers to the entire Eurocurrency market. **Eurodollars** could be broadly defined as dollar-

denominated deposits in banks all over the world except in the United States. These banks may be foreign banks or foreign branches of US banks. However, many experts narrowly define Eurodollars as dollar-denominated deposits in Western European banks or foreign branches of US banks in Western Europe. Hence, they distinguish between Eurodollars and petrodollars in the Middle East, or between Eurodollars and Asian dollars in Hong Kong or Singapore. The dominant Eurocurrency remains the US dollar. More recently, however, the euro (€) has become an important currency for denominating Eurocurrency loans and Eurobonds as the US dollar has weakened during 2002.

Eurocurrency markets are very large, well organized, and efficient. They serve a number of valuable purposes for multinational business operations. Eurocurrencies are a convenient money market device for MNCs to hold their excess liquidity. They also are a major source of short-term loans to finance corporate working capital needs and foreign trade. In recent years, the so-called "Eurobond markets" have developed as a major source of long-term investment capital for MNCs.

11.1.1 The creation of Eurodollars

Many MNCs and governments have learned to use the Eurodollar market as readily as they use the domestic banking system. Major sources of Eurodollars are the dollar reserves of oil-exporting countries, foreign governments or business executives preferring to hold dollars outside the US, foreign banks with dollars in excess of current needs, and MNCs with excess cash balances. Once Eurodollars come into existence, they can create themselves through the lending and investing activities of commercial banks.

Because there are usually no legal reserves against Eurodollar deposits, we may argue that Eurodollar deposits could expand indefinitely. Who creates this infinite expansion of Eurodollars? Three parties do so jointly: (1) public and private depositors, by always keeping their money in non-US banks on deposit; (2) banks, by keeping none of their Eurodollar deposits in the form of cash; and (3) public and private borrowers, who make it possible for the banks to find Eurodollar loans. However, there are a number of checks to this expansion. First, public and private depositors may hold a portion of their money in the form of nondeposit cash. Second, banks may retain a part of their Eurodollar deposits as a liquid reserve. Third, borrowers may convert the dollars borrowed into local currency. This conversion will not only stop the further expansion of Eurodollar deposits, but it may actually reduce the volume of outstanding Eurodollar deposits.

USES OF EURODOLLARS European banks with Eurodollars may use these funds in a number of ways. First, they may redeposit their Eurodollars in other European banks or in European branches of a US bank. Second, they may make loans to nonbank users such as MNCs. These MNCs use the dollars to meet their dollar obligations or to buy local currencies. Third, they may transfer their dollars to Eurodollars in European branches of a US bank, which in turn would lend these funds to the US home office.

Heavy borrowers in the Eurodollar market are governments and commercial banks. Many countries have recently been suffering problems related to foreign loans. Hence, they want Eurodollars to improve their international reserves. Many commercial banks rely on Eurodollars to grant credit to exporters and importers. Eurobanks frequently swap Eurodollars with local currencies in order to make loans to domestic companies. In addition, international development

banks have been regular borrowers in the market. European countries outside the Group of Ten, Latin America, and Asia are the three largest users of Eurodollars.

Many of the private nonbank borrowers continue to be companies engaged in international operations, such as exporters, importers, and investors. They are attracted by the size of the market and the importance of the US dollar as an international reserve. A second advantage of Eurodollar loans is that there are no restrictions about the deployment of funds raised in the external market. In contrast, funds raised in national money markets are subject to restrictions in almost all cases. Finally, international money markets provide MNCs with flexibility in many ways such as terms, conditions, and covenants.

11.1.2 Eurodollar instruments

The two major types of instrument used in the Eurodollar market are Eurodollar deposits and Eurodollar loans.

EURODOLLAR DEPOSITS Eurodollar deposits are either fixed-time deposits or negotiable certificates of deposit. Most Eurodollar deposits are in the form of time deposits.

Time deposits are funds being placed in a bank for a fixed maturity at a specified interest rate. In contrast to the US practice, Eurobanks do not maintain checking accounts (demand deposits) for their customers. While the maturities of these time deposits range from 1 day to a few years, most of them have a maturity of less than 1 year. Time deposits are for fixed periods, but Eurobanks are frequently flexible if the depositor desires to withdraw his deposits early.

A **certificate of deposit (CD)** is a negotiable instrument issued by a bank. In other words, negotiable CDs are formal negotiable receipts for funds left with a bank for a specified period of time at a fixed or floating rate of interest. The important advantage of a CD over a time deposit is its liquidity, because the holder of a CD can sell it on the secondary market at any time before the maturity date. Eurobanks issue negotiable CDs to attract idle funds from MNCs, oil-exporting countries, and wealthy individuals.

Negotiable CDs for Eurodollars were first introduced in 1966 by the London branch of First National City Bank of New York (now Citicorp). Currently, most major Eurobanks issue negotiable CDs, whose safety and liquidity are assured by an active secondary market. The secondary market consists of broker/dealer firms that are members of the International CD Market Association. This association was established in London in 1968 to provide customers with the highest quality of services.

EURODOLLAR LOANS Eurodollar loans range from a minimum of $500,000 to $100 million, typically in multiples of $1 million. Their maturities range from 30 days to a few years. Short-term Eurodollar financings represent the major part of the Eurodollar lending business. Short-term Eurodollar loans are usually conducted under prearranged lines of credit. Under such an arrangement, the Eurobank establishes a maximum loan balance (line of credit) after investigation of its client's credit standing. Although the commitment period is typically 1 year, advances under a line of credit are normally made against notes with maturities of 90 or 180 days. Lines of credit are renewable after a thorough review process. These short-term Eurodollar loans are usually made on an unsecured basis and repaid at the maturity date.

Eurobanks also provide international concerns with medium-term loans. Two major forms of medium-term Eurodollar loans are revolving Eurodollar credits and Eurodollar term loans. A

revolving credit is a confirmed line of credit beyond 1 year. Maturities of Eurodollar term loans range from 3 years to 7 years. These term loans are a less popular form of medium-term Eurodollar loans than revolving Eurodollar credits.

INTEREST RATES Two sets of interest rates are Eurodollar deposit interest rates and Eurodollar loan interest rates. Eurodollar deposit and loan rates are determined by forces of supply and demand. More specifically, these rates depend on the rates in a corresponding home currency, spot and forward exchange rates, domestic and Eurocurrency rates in other currencies, and the inflation rate in various countries. Many economists have assumed that Eurodollar deposit rates depend on US money market rates. In other words, US CD rates provide an effective floor for Eurodollar deposit rates.

Interest rates on Eurodollar deposits are usually higher than those on deposits in the USA. Interest rates on Eurodollar loans are generally lower than similar loan rates in the USA. With deposit rates higher and lending rates lower in the Eurodollar market than in the US market, Eurobanks must operate on a narrower margin. A number of factors enable Eurobanks to operate profitably on narrower margins than domestic markets.

1 Eurobanks, being free of reserve requirements, can lend a larger percentage of their deposits.
2 Eurobanks have very little or no regulatory expenses, such as deposit insurance fees.
3 Eurodollar loans are characterized by high volumes and well-known borrowers; these two features reduce the costs of information gathering and credit analysis.
4 Many Eurodollar loans take place out of tax-haven countries.
5 Eurobanks are not forced to lend money to borrowers at concessionary rates, which are usually lower than prevailing market rates.

Eurobanks usually establish their lending rate at some fixed percentage above the 6-month London Interbank Offered Rate. The **London Interbank Offered Rate (LIBOR)** is the British Bankers' Association average of interbank offered rates for dollar deposits in the London market, based on quotations at 16 major banks. The LIBOR is an important reference rate in intentional finance. For example, many loans to developing countries have been priced as LIBOR plus some number of percentage points. The development of the LIBOR concept has created a number of imitators: the Euro Interbank Offered Rate (EIBOR), the Kuwait Interbank Offered Rate (KIBOR), the Singapore Interbank Offered Rate (SIBOR), and the Madrid Interbank Offered Rate (MIBOR). The two latest imitators are the Euro LIBOR and the EURIBOR. The Euro LIBOR (**London Interbank Offered Rate**) is the British Bankers' Association average of interbank offered rates for euro deposits in the London market, based on quotations at 16 major banks. The EURIBOR (**Euro Interbank Offered Rate**) is the European Banking Federation sponsored rate among 57 eurozone banks.

In the absence of tight controls on international financial transactions, arbitrage and risk differences affect the relationship between rates in the internal market (the US market) and in the external market (the Eurodollar market). An absence of government controls on international capital flows results in arbitrage between internal and external segments of the market for dollar credit. The arbitrage keeps the spread between internal and external rates within a narrow margin. In general, risks on external dollar deposits are somewhat greater than those on internal dollar deposits. Table 11.1 shows several money rates that appeared in *The Wall Street Journal* on June 22, 2004. These money rates include interest rates of short-term loans and money market instruments, many of which are discussed in this and other chapters.

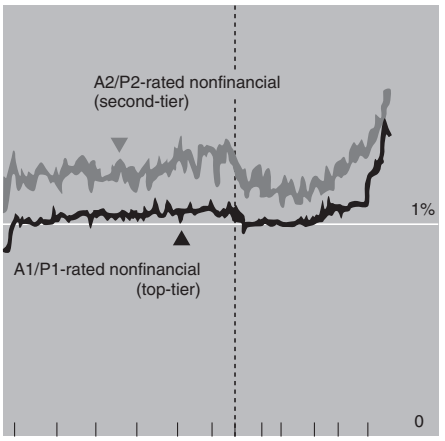
Table 11.1 Money market instruments

Money rates Monday, June 21, 2004

The key US and foreign annual interest rates below are a guide to general levels but don't always represent actual transactions.

Commercial paper

Yields paid by corporations for short-term financing, typically for daily operation



Source: Federal Reserve

Prime Rate: 4.00% (effective 06/27/03). The base rate on corporate loans posted by at least 75% of the nation's 30 largest banks.

Discount Rate (Primary): 2.00% (effective 06/25/03).

Federal Funds: 1.031% high, 0.969% low, 1.000% near closing bid, 1.031% offered. Effective rate: 1.00%. Source: Prebon Yamane (USA) Inc. Federal-funds target rate: 1.000% (effective 06/25/03).

Call Money: 2.75% (effective 06/30/03).

Commercial Paper: Placed directly by General Electric Capital Corp.: 1.21% 30 to 59 days; 1.32% 60 to 87 days; 1.48% 88 to 94 days; 0.80% 95 to 113 days; 1.59% 114 to 139 days; 1.69% 140 to 174 days; 1.79% 175 to 206 days; 1.89% 207 to 231 days; 1.98% 232 to 270 days.

Euro Commercial Paper: Placed directly by General Electric Capital Corp.: 2.04% 30 days; 2.06% two months; 2.08% three months; 2.11% four months; 2.14% five months; 2.17% six months.

Dealer Commercial Paper: High-grade unsecured notes sold through dealers by major corporations: 1.24% 30 days; 1.35% 60 days; 1.43% 90 days.

Certificates of Deposit: 1.25% one month; 1.50% three months; 1.81% six months.

Bankers' Acceptances: 1.23% 30 days; 1.36% 60 days; 1.49% 90 days; 1.60% 120 days; 1.71% 150 days; 1.80% 180 days. Source: Prebon Yamane (USA) Inc.

Eurodollars: 1.25%–1.22% one month; 1.39%–1.36% two months; 1.52%–1.49% three months; 1.63%–1.59% four months; 1.73%–1.69% five months; 1.82%–1.79% six months. Source: Prebon Yamane (USA) Inc.

London Interbank Offered Rates (LIBOR): 1.2850% one month; 1.55938% three months; 1.86375% six months; 2.40188% one year. Effective rate for contracts entered into two days from date appearing at top of this column.

Euro Libor: 2.07725% one month; 2.12300% three months; 2.20700% six months; 2.44725% one year. Effective rate for contracts entered into two days from date appearing at top of this column.

Euro Interbank Offered Rates (EURIBOR): 2.078% one month; 2.124% three months; 2.211% six months; 2.448% one year. Source: Reuters.

Foreign Prime Rates: Canada 3.75%; European Central Bank 2.00%; Japan 1.375%; Switzerland 2.14%; Britain 4.50%.

Treasury Bills: Results of the Monday, June 21, 2004, auction of short-term US government bills, sold at a discount from face value in units of $1,000 to $1 million: 1.315% 13 weeks; 1.675% 26 weeks. Tuesday, June 15, 2004 auction: 1.070% 4 weeks.

Overnight Repurchase Rate: 0.97%. Source: Garban Intercapital.

Freddie Mac: Posted yields on 30-year mortgage commitments. Delivery within 30 days 5.97%, 60 days 6.04%, standard conventional fixed-rate mortgages: 2.875%, 2% rate capped one-year adjustable rate mortgages.

Fannie Mae: Posted yields on 30 year mortgage commitments (priced at par) for delivery within 30 days 6.02%, 60 days 6.10%, standard conventional fixed-rate mortgages; 3.45%, 6/2 rate capped one-year adjustable rate mortgages. Constant Maturity Debt Index: 1.475% three months; 1.797% six months; 2.274% one year.

Merrill Lynch Ready Assets Trust: 0.53%.

Consumer Price Index: May, 189.1, up 3.1% from a year ago. Bureau of Labor Statistics.

Source: *The Wall Street Journal*, June 22, 2004, p. C16.

Table 11.2 Euronote issue facilities (billions of US dollars)

	1997	*1998*	*1999*	*2000*	*2001*
Euronotes	73.5	61.6	84.8	270.5	154.6
Euro commercial paper	110.4	132.7	175.2	223.3	243.1
Total	183.8	194.3	260.0	493.8	397.7

Source: The Bank for International Settlement, *International Banking and Financial Market Developments*, June 1999 and June 2002, various pages.

11.1.3 Euronote issue facilities

Euronote issue facilities (EIFs), a recent innovation in nonbank short-term credits, are notes issued outside the country in whose currency they are denominated. EIFs consist of Euronotes, Euro commercial paper, and Euro medium-term notes. These facilities are popular because they allow borrowers to go directly to the market rather than relying on financial intermediaries such as banks.

Euronotes are short-term debt instruments underwritten by a group of international banks called a "facility." An MNC makes an agreement with a facility to issue Euronotes in its own name for a number of years. Euronotes typically have maturities from 1 month to 6 months, but many MNCs continually roll them over as a source of medium-term financing. Euronotes are sold at a discount from face value and pay back the full value at maturity. **Euro commercial paper (ECP)**, like domestic commercial paper, consists of unsecured short-term promissory notes sold by finance companies and certain industrial companies. These notes are issued only by the most creditworthy companies, because they are not secured. Their maturities range from 1 month to 6 months. Like Euronotes, Euro commercial paper is sold at a discount from face value. Table 11.2 shows the year-end value of the Euronote and Euro commercial paper market in billions of US dollars from 1997 to 2001.

Euro medium-term notes (EMTNs) are medium-term funds guaranteed by financial institutions with short-term commitments by investors. The main advantage of the EMTN is that banks underwrite or guarantee the funds for a period of 5–7 years. If the borrower cannot sell all or part of their notes, the banks will then buy all or part of them. At the same time, the borrower does not have to issue new notes every time their old notes mature. Consequently, the EMTN provides a medium-source of funds, without the obligation to pay the interest on the debt when the funds are not needed. In this type of arrangement, the borrower raises funds in the form of short-term notes with maturities of 30 days, 3 months, or even longer. These short-term notes are distributed to investors by financial institutions. At the maturity of these notes, the borrower reissues the notes. At this point, the investors may buy the new notes or take their funds back. This process is repeated at every maturity of the notes.

11.2 The Eurocurrency Interbank Market

The Eurocurrency interbank market plays a major role in channeling funds from banks in one country to banks in another country. The interbank market has over 1,000 banks from 50 different countries, but about 20 major banks dominate the entire interbank market. Although

transactions in US dollars still dominate the interbank market, there are flourishing interbank markets in euros, Swiss francs, Japanese yen, and British pounds.

11.2.1 An overview of the Eurocurrency interbank market

THE FUNCTIONS OF THE INTERBANK MARKET The Eurocurrency interbank market has at least four related functions. First, the interbank market is an efficient market system through which funds move from banks in one country to banks in other countries. Second, the interbank market gives banks an efficient mechanism to buy or sell foreign-currency assets and liabilities of different maturities in order to hedge their exposure to interest rate and foreign-exchange risks. Third, the interbank market is a convenient source of additional loans when banks need to adjust their balance sheets either domestically or internationally. Fourth, because of this market, banks sidestep regulations on capital adequacy and interest rates prevalent in many domestic banking markets.

RISKS OF PARTICIPATING BANKS Participating banks in the Eurocurrency interbank market face at least five different risks: (1) credit or default risk, (2) liquidity risk, (3) sovereign risk, (4) foreign-exchange risk, and (5) settlement risk. First, credit risk is the risk that a borrowing bank may default on its interbank loan. This risk is a concern because interbank loans and deposits are not secured. Second, liquidity risk is the risk that other banks may withdraw their interbank deposits suddenly. Here, the bank may have to sell off illiquid assets for less than their face value to meet its deposit drain. Third, sovereign risk is the risk that a foreign country may prevent its banks from repaying interbank loans or deposits received from banks in other countries. Fourth, foreign-exchange risk is the risk that a bank participant in this market will gain or lose due to changes in exchange rates. Fifth, settlement risk is the risk of a breakdown or nonsettlement on the major wire-transfer systems.

Regulators and analysts have expressed some concern about the stability of this market for two major reasons. First, interbank funds have no collateral. Second, central bank regulations are inadequate. These two factors expose the market to potential "**contagion**"; problems at one bank affect other banks in the market. This kind of contagion ultimately threatens the market's stability and its function.

MINIMUM STANDARDS OF INTERNATIONAL BANKS With the global crisis created by the collapse of several international banks in the 1980s, bank regulators throughout the world agreed that something had to be done to protect against future massive failures. The Basel Committee, under the auspices of the Bank for International Settlements and the central-bank governors of the "Group of Ten" countries, reached an agreement on minimum standards in 1988 for international banks and their cross-border activities. The **Bank for International Settlements** is a bank in Switzerland that facilitates transactions among central banks. This agreement established an international bank capital standard by recommending that globally active banks had to maintain capital equal to at least 8 percent of their assets by the end of 1992. The accord distinguishes between more and less risky assets, so that more capital would be held against investments with greater risk. As a result, the 8 percent standard called for in the accord applies not to a bank's total assets but to its risk-weighted assets. Safe government bonds or cash, for example, receive a zero weight in calculating aggregate risk exposure, whereas long-term lending to banks and industrial companies in emerging markets receives a 100 percent weight. Such minimum capital standards are meant to work in conjunction with direct supervision of banks and basic market discipline to restrain excessive risk-taking by banks that have access to the safety net.

Several important limitations of the current framework have become apparent over time. For example, one major drawback of the current capital adequacy standard has to do with the fact that the regulatory measure of bank risk (risk-weighted assets) can differ significantly from actual bank risk. Because the current framework provides only a crude measure of bank risk, it sets minimum capital requirements that do not necessarily reflect a bank's true economic risks and thus are inappropriate for regulatory purposes. In order to address such shortcomings, the Basel Committee proposed a new capital adequacy framework in 1998. This proposal consists of three pillars: minimum regulatory capital requirements that expand upon those in the 1988 Accord, direct supervisory review of a bank's capital adequacy, and the increased use of market discipline through public disclosure to encourage sound risk management practices.

In April 2003, the Basel Committee on Banking Supervision released for public comment the new Basel Capital Accord, which will replace the 1988 Capital Accord. These international agreements among banking regulators attempt to set regulatory capital requirements that are comparable across countries. On July 11, 2003, the Federal Reserve of the US issued an interagency advance notice of proposed rulemaking to seek public comments on the implementation of the new Basel Capital Accord in the USA. The new accord, popularly known as Basel II, rests on the three "pillars" described in the above paragraph. Basel II, to be implemented in 2006, maintains the 8 percent equity capital as the minimum standard, but it changes the way in which the capital standard is computed in order to consider certain risks.

THE "THREE CS" OF CENTRAL BANKING The recent movement toward a highly integrated global financial system has caused bankers to develop "three Cs" of central banking: consultation, cooperation, and coordination. Central banks are important participants in the consultation, cooperation, and coordination process due to their key role in monetary and exchange rate policies (see Global Finance in Action 11.1).

Consultation involves not only an exchange of information, but also an explanation of current economic conditions and policies. By reducing the information uncertainty, this process enhances the understanding of what is going on in the world at large and it can successfully contribute to the policy-making process.

In cooperation, countries retain full national sovereignty, but decide voluntarily to allow the actions of the other countries to influence their own decisions. While the central banks make sovereign decisions, they may agree to certain mutually advantageous courses of action and even engage in certain joint efforts that are agreeable to all parties.

Finally, central bank coordination requires individual central banks to relinquish some or all decision-making powers to other countries or international institutions. Some loss of national sovereignty is inevitably involved.

Global Finance in Action 11.1

International Interest Rate Linkages

A change in the federal fund rate target often prompts observers to comment that other central banks are likely to follow suit by changing their own targeted interest rates. **Federal funds** are reserves traded among US commercial banks for overnight use. Figure 11.2 shows that central banks of different countries often change inter-

est rates in the same direction, at about the same time. This is especially true for central banks of countries with close economic ties.

There are at least three reasons why central banks might tend to change their interest rate targets in a similar fashion.

1 Countries react similarly to "common shocks." In making monetary policy, central banks consider the state of the economy, including international prices of oil and other key commodities. Changes in such prices tend to affect countries in the same way, leading to similar changes in monetary policy.
2 Countries may desire to maintain stable exchange rates. By raising and lowering interest rates in tandem, central banks might minimize swings in the external value of their currencies.
3 Economic conditions in one country affect those in other countries through trade and capital flows. A US recession that leads to lower US interest rates might also slow its trading partners' growth, prompting their central banks to lower rates as well.

The latter two reasons might explain why the interest rate changes of larger countries generally precede those of their smaller trading partners. Conditions in larger countries, such as the USA, affect conditions in smaller trading partners. Thus, smaller countries are more likely to consider external factors when making monetary policy.

Because the Federal Reserve has conducted monetary policy for the largest economy in the world, it has been less concerned with external factors than most central banks. As a result, it has frequently been a "leader" in international rate movements. For example, figure 11.2 shows that the Federal Reserve led the way for other central banks by starting a series of interest rate reductions in January 2001.

Source: C. J. Neely, "International Interest Rate Linkages," *International Economic Trends*, The Federal Reserve Bank of St. Louis, Aug. 2001, p. 1.

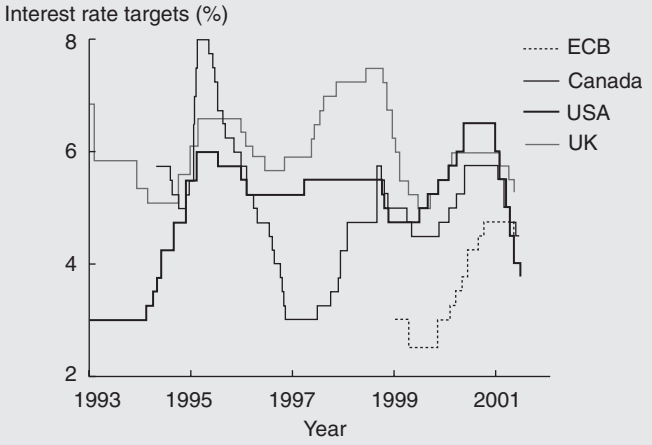


Figure 11.2 International interest rate linkages

Source: Interest rate target data were obtained from the respective central banks.

11.2.2 The role of banks in corporate governance

Market-based and bank-based systems of corporate governance reflect the relative importance of public and private capital markets to a nation's economy. In the USA, increasing restrictions on commercial banking has coincided with the growth of public capital markets. However, banks have been the main source of capital in Japan for several reasons. First, the Bank of Japan provides major industries with long-term loans at favorable rates through commercial banks. Second, Japanese banks have ample funds for loans because of the country's high savings rates and huge trade surpluses. Third, there are few restrictions on commercial banking in Japan.

THE USA: A MARKET-BASED SYSTEM OF CORPORATE GOVERNANCE Several pieces of legislation enacted in the wake of the Depression (1929–33) fundamentally altered the role of financial institutions in corporate governance. The legislation caused the fragmentation of financial institutions and institutional portfolios, thereby preventing the emergence of powerful large-block shareholders who might exert pressure on management. In contrast, countries such as Germany and Japan, which do not operate under the same constraints, developed systems that allowed banks to play a larger role in firms' affairs.

Traditionally, US banks have faced the following prohibitions on equity-related activities. First, banks cannot own stock for their own account. Second, banks cannot actively vote shares held in trust for their banking clients. Third, banks cannot make a market in equity securities. Fourth, banks cannot engage in investment banking activities (Butler 1997).

However, US Congress and regulatory agencies have recently started to relax some constraints. For example, interstate banking was legalized in 1994; full interstate branch banking has been permitted since 1997. In addition, US banks, securities firms, insurance companies, and asset managers have been allowed to freely enter each other's businesses or merge since early 2000. These recent changes generated fierce competition among financial institutions and reduced the number of commercial and investment banks. Consequently, the surviving banks are bigger, better capitalized, and better prepared to serve companies in creative ways.

Most financial analysts expect that these recent changes will eventually create universal banks in the USA. A **universal bank** is one in which the financial corporation not only sells a full scope of financial services but also owns significant equity stakes in institutional investors. Although it originated in Europe, universal banking is similar to the Japanese keiretsu.

JAPAN: A BANK-BASED SYSTEM OF CORPORATE GOVERNANCE The national difference in corporate governance results in dissimilar financial structures for corporate control. The bank-based systems in Japan and Germany, for example, rely on a concentrated ownership in the hands of a main bank and/or the business partners for both debt and equity capital. Large Japanese companies use a higher degree of leverage than US companies. The ability to take on such large amounts of debt stems in part from the vast mutual-aid networks – keiretsu – that most Japanese companies can tap. **Keiretsu** is a Japanese word that stands for a financially linked group of companies that play a significant role in the country's economy.

Keiretsu, usually with the main bank at the center, form the backbone of corporate Japan. Keiretsu ties constitute a complex web of tradition, cross-shareholdings, trading relationships, management, cooperative projects, and information swapping. The keiretsu provides financial support, management advice, and favorable contracts to its members. A key mission of the keiretsu is to provide a safety net when corporate relatives get into trouble. Moreover, Japanese

banks, unlike their US counterparts, can hold the borrowing company's common stock. Thus, the main bank has access to information about the company and has a say in its management. In most countries, this sort of bank influence on corporate affairs would be unacceptable.

However, recent economic problems and deregulations in Japan have changed the country's financial structures. These changes include reduced bank borrowing, more capital market financing, the erosion of main bank power in corporate affairs, the reduction of cross-shareholdings, and a weaker keiretsu system. These changes are likely to reduce the role of banks in corporate governance in Japan.

POLITICAL DYNAMICS There is a growing consensus that corporate governance reform should be a matter of global concern. Although some countries face more serious problems than others, existing governance mechanisms have failed to effectively protect investors in many countries. For example, executives and politicians faced public uproar after the US corporate scandals of 2001 and 2002. Other countries, such as the United Kingdom, have also experienced a spate of corporate scandals in recent years. The Sarbanes–Oxley Act in the USA, passed in 2002, is designed to reform three areas: (1) accounting regulation, (2) audit committee, and (3) executive responsibility.

The US government is not the only organization that proposes changes in the corporate governance system. Indeed, groups such as the Business Roundtable (made up of corporate executives), the US Chamber of Commerce, the Securities Industry Association, and the New York Stock Exchange (NYSE) have made their own proposals for change. One particularly influential group is the NYSE, which can enact standards for firms that choose to list on the exchange. As the NYSE is generally considered the most prestigious exchange in the world in which to be listed, it has the power to influence the corporate system not only in the USA but also around the world. Observers believe that these corporate governance reforms of the USA will accelerate the governance reform of the banking sector in the USA and Japan (discussed in the above section).

11.3 The Asian Currency Market

In 1968, an Asian version of the Eurodollar came into existence with the acceptance of dollar-denominated deposits by commercial banks in Singapore. Singapore was an ideal location for the birth of the Asian currency market. It had an excellent communication network, important banks, and a stable government. Because the US dollar accounts for most of the foreign-currency transactions in Singapore, the term "Asian dollar market" can be used to represent the Asian currency market.

The Asian currency market developed when the Singapore branch of the Bank of America proposed that the monetary authority of Singapore relax taxes and restrictions. The monetary authority accepted these proposals and extended a number of important incentives to foreign banks so that dollar accounts could be held in Singapore. They included: (1) the removal of an existing 40 percent tax on interest payments on foreign-currency deposits; (2) the reduction of the tax rate on interest earned from offshore loans; (3) the abolition of stamp duties on CDs and bills of exchange; and (4) the abolition of the 20 percent reserve requirements for Asian Currency Units. An **Asian Currency Unit (ACU)** is a section within a bank that has authority and separate accountability for Asian currency market operations.

On October 1, 1968, the Bank of America was authorized to start its ACU operations. In 1969, a number of other banks, such as the Chartered Bank, Citibank, the Hong Kong and Shanghai Bank, and the United Chase Merchants Bank, obtained permission to set up ACUs in Singapore. Since 1969, other leading domestic and foreign banks in Singapore have kept up their own ACUs. There are several guidelines within which ACUs are required to operate:

1 They can accept foreign-currency deposits from foreigners without the prior approval of the authorities.
2 They can lend to individuals or companies outside the British Commonwealth countries without the prior approval of the authorities.
3 They cannot lend to residents of Singapore or British Commonwealth countries without the prior approval of the authorities.

In theory, several reasons explain the development of the Asian currency market in Singapore. First, Asian dollar deposits would attract other deposits, increase banking activities, and earn income from these financial services. These earnings would also improve Singapore's balance of payments and develop a service-oriented industry. Second, Singapore might obtain a degree of additional political security. The existence of foreign deposits and foreign banks in Singapore might build support for its neutrality and increase its importance as an Asian financial center. Third, the presence of the Asian currency market in Singapore would enhance its publicity and prestige. Fourth, most Southeast Asian countries need large amounts of capital for their economic development. Because Singapore is located at the center of this area, it is a logical place for the development of the Asian currency market.

Currently, approximately 150 banks or other financial institutions have licenses from the Monetary Authority of Singapore to operate ACUs. Most deposits in ACUs are in US dollars, but other foreign currencies such as British pounds, Swiss francs, euros, and Japanese yen are also accepted. Domestic residents are normally prohibited from participating in the offshore market. Similarly, offshore financial institutions are restricted in their dealings with the domestic market.

There are no taxes on interest paid on foreign-currency deposits and no restrictions applied to capital outflows and inflows. Regular foreign-currency deposits are accepted in amounts as low as $25,000. Although the minimum deposit maturity is 1 month, the market offers depositors options of varying maturities. Citicorp introduced negotiable CDs in 1970, but the active market for negotiable CDs really developed in 1977 with the issuance of US$25 million, 3-year floating-rate CDs by the Dai-Ichi Kangyo Bank. Fixed-rate CDs were introduced in 1978 with maturities of 6–9 months. Since 1978, numerous issues of both floating-rate and fixed-rate CDs have attracted the attention of investors outside the Asian area.

The Asian currency market is primarily an interbank market. Interest rates for Asian currency loans are based on either the Singapore Interbank Offered Rate (SIBOR) or the London Interbank Offered Rate (LIBOR). The LIBOR was preferred by both banks and customers in the early years of the market's development, but in recent years the SIBOR has been used more frequently. Asian dollar interest rates closely follow those in the Eurodollar market.

In the 35 years of its existence, the Asian currency market has obtained a major status. It has expanded beyond its original base in Singapore, but Singapore remains its leading center in terms of cross-border trading volume, which rivals the International Banking Facilities of the USA and the Japan Offshore Market. While the funds deposited with banks in the Asian currency market are primarily lent to Asian borrowers, close links join this market to non-Asian financial centers.

With the Asian currency market, the Eurocurrency market, like the foreign-exchange market, has come to operate on a 24-hour basis.

11.4 The International Bond Market

The **international capital market** consists of the international bond market and the international equity market. Table 11.3 shows selected indicators at year-end 2001 on the size of the capital markets around the world. Several inferences can be drawn from this table. First, the world's stock market capitalization was almost as big as the world's gross domestic product (GDP). Second, the US GDP was only 1.4 times as big as the combined GDP of some 130 emerging market countries, but its stock market capitalization was 7.1 times as big as the combined stock market capitalization of these emerging market countries. Third, G-5 countries (the USA, Japan, Germany, the UK, and France) accounted for 61 percent of the world's GDP, 71 percent of the world's total equity market capitalization, and 75 percent of the world's total debt securities.

These statistics indicate how powerful these G-5 countries are in terms of their wealth and capital market activities.

11.4.1 Types of international bonds

International bonds are those bonds that are initially sold outside the country of the borrower. International bonds consist of foreign bonds, Eurobonds, and global bonds. An important issue with bond financing has to do with the currency issue. The currency of issue is not necessarily the same as the country of issue, although the two may coincide. For example, if a US company sells a yen-denominated bond in Japan, the currency of issue is that of the country of issue. However, if a US company sells a dollar-denominated bond in Japan, the currency of issue is not that of the country of issue. In the former of these situations, the bond is called a foreign bond; in the latter, the bond is called a Eurobond. A global bond is hybrid in nature, because it can be sold inside as well as outside the country in whose currency it is denominated. For example, a

Table 11.3 Selected indicators on the size of the capital markets, 2001 (billions of US dollars)

Country	*Gross domestic product*	*Stock market capitalization*	*Debt securities*
USA	10,082	13,827	18,504
Japan	4,165	2,294	6,295
Germany	1,855	1,072	3,060
UK	1,423	2,165	1,748
France	1,312	1,068	1,681
Emerging markets	7,212	1,947	2,345
All others	4,946	6,502	8,159
World total	30,995	28,875	41,792

Source: The International Monetary Fund, *Global Financial Stability Report*, Washington, DC, Mar. 2003, p. 121.

dollar-denominated bond tradable in New York (domestic market) and Tokyo (Eurobond market) is called a global bond. Let us provide a more general description of these three international bonds: foreign bonds, Eurobonds, and global bonds.

FOREIGN BONDS Bonds sold in a particular national market by a foreign borrower, underwritten by a syndicate of brokers from that country, and denominated in the currency of that country are called **foreign bonds**. Of course, foreign bonds fall under the regulatory jurisdiction of national or domestic authorities. Dollar-denominated bonds sold in New York by a Mexican firm are foreign bonds; these bonds should be registered with the US Securities and Exchange Commission (SEC). Foreign bonds are similar in many respects to the public debt sold in domestic capital markets, but their issuer is a foreigner.

The first foreign bond was issued in 1958. Most large foreign-bond issues have been floated in the USA, the UK, and Switzerland. The weakening British pound in the late 1950s reduced the importance of the domestic British capital market for foreign firms. The Interest Equalization Tax (1963–74) of the USA effectively stopped New York's usefulness as a capital market for new foreign bonds. Thus, international borrowers and investors shifted their activities from the USA to Europe. This shift caused the Eurobond market to develop.

EUROBONDS Bonds underwritten by an international syndicate of brokers and sold simultaneously in many countries other than the country of the issuing entity are called **Eurobonds**. In other words, since the term "foreign bonds" refers to those bonds that are issued in the external sectors of financial markets – sectors that fall outside the regulatory environment of national authorities – Eurobonds are, therefore, issued outside the country in whose currency they are denominated. The Eurobond market is almost entirely free of official regulation, but is self-regulated by the Association of International Bond Dealers. For example, dollar-denominated bonds sold outside the USA are Eurobonds; these bonds are not registered under the US Securities Act and may not be offered or sold to Americans as part of the distribution.

The first Eurobond issue was launched in 1963. Eurobonds are direct claims on leading MNCs, governments, or governmental enterprises. They are sold simultaneously in many countries through multinational syndicates of underwriting brokers. The Eurobond market is similar to the Eurodollar market in one respect. Both markets are "external," because obligations available in these markets are denominated in foreign currencies outside the country of issue.

There are a number of important differences between the Eurodollar market and the Eurobond market. First, the Eurodollar market is an international money market, but the Eurobond market is an international capital market. Second, the Eurodollar market is a financial intermediation market; major world banks operate as intermediaries between depositors and borrowers of Eurodollars. By contrast, the Eurobond market is a direct market in which investors hold the securities issued by the final borrowers; in other words, Eurobonds are issued directly by the final borrowers.

The Eurobond market has a number of attractive factors. First, interest income earned on Eurobonds is usually not subject to a withholding tax. The absence of this tax makes Eurobonds attractive to those investors who either want to evade taxes or who cannot recover taxes withheld. Second, the Eurobond market is often described as a market free from national regulations. Many countries, including the USA, tend to strictly regulate the access of foreign borrowers to their domestic capital markets. But these countries are often more flexible about securities denominated in foreign currencies and sold to their residents who already possess those foreign cur-

rencies. Moreover, disclosure requirements in the international bond market are less stringent than those of the USA.

GLOBAL BONDS As noted above, there is some separation between the Eurobond market and the domestic bond market. An issue normally must choose on which bond market to sell. Demand for the bond is thus constrained by the barriers between the markets. In the past few years, an instrument known as the global bond has been developed to overcome this segmentation.

Global bonds are bonds sold inside as well as outside the country in whose currency they are denominated. For example, dollar-denominated bonds sold in New York (domestic bond market) and Tokyo (Eurobond market) are called dollar global bonds. Similarly, pound-denominated bonds sold in London and Los Angeles are pound global bonds. While global bonds follow the domestic market practice of registration of bonds, they follow the Eurobond market practice regarding their distribution. Dollar global bonds combine SEC registration and US clearing arrangements with separate clearing on the Eurobond market.

The World Bank issued the first such bonds in September 1989 and still remains the leading issuer of global bonds. The Bank raised $1.5 billion through a dollar global bond issue that was offered in the USA as well as in Eurobond markets. It has issued in US dollars, euros, Japanese yen, and British pounds. On July 15, 1992, Japan's Matsushita Electric Industrial issued the first global bond by a corporate borrower. A number of sovereigns have also issued global bonds. Among the "Group of Ten" countries, Italy and Sweden have used this technique. Sweden issued $2 billion in dollar global bonds in February 1993; and Italy issued $5 billion in dollar global bonds in September 1993. Some developing countries have just begun to issue global bonds. For example, in early September 1997 Venezuela sold $4 billion of new 30-year global bonds to investors from around the world. This issue was described as the largest global bond deal issued by a developing country.

By allowing issuers to solicit demand for a variety of markets and to offer greater liquidity to investors, global bonds have potential to reduce borrowing costs. Such cost savings might be, however, offset by the fixed costs of borrowing through the global format, such as registration and clearing arrangements. These costs for global bonds are presumably higher than for comparable Eurobond issues.

11.4.2 The international bond market size and its currency denomination

Table 11.4 shows that the outstanding amount of international debt securities reached a historical high of $10,266 billion in 2003. Eurobonds account for approximately 70 percent of the international bond market, whereas foreign bonds and global bonds account for only 30 percent of the market. Industrial countries account for approximately 85 percent of the international bond market, while developing countries accommodate the remaining 15 percent of the market.

International bonds are denominated in various currencies: British pounds, euros, Japanese yen, Swiss francs, US dollars, and composite units of currencies. These multiple-currency bonds may be classified as currency option bonds and currency cocktail bonds. Table 11.4 shows the currency composition of international bond issues from 1996 to 2003. In 2003, 28 percent was denominated in US dollars, 41 percent was denominated in euros, and the remaining 31 percent was denominated in either other single currencies or composite units of currencies. International

Table 11.4 Outstanding amounts of international debt securities (billions of US dollars)

	1996	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*
Outstanding debts	**2,939**	**3,285**	**4,055**	**4,999**	**5,875**	**7,113**	**8,344**	**10,266**
All currencies	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
US dollar	33.9	43.7	45.2	47.2	49.5	50.8	47.6	27.9
ECU/euro	2.5	2.0	3.9	29.0	30.1	32.2	35.9	41.4
Other currencies	63.6	54.3	50.9	23.8	20.4	17.0	16.5	30.7

Source: The International Monetary Fund, *Global Financial Stability Report*, Washington, DC, various issues.

bond issues denominated in ECU/euros expanded sharply from $74 billion in 1996 to $4,250 billion in 2003. This was a growth rate well above the average for the international market, and it was reflected in a rise of the euro share from 2.5 percent in 1996 to 41.4 percent in 2003. The **European Currency Unit (ECU)** was a weighted value of a basket of 12 European Community currencies and the cornerstone of the European Monetary System; the euro replaced the ECU as a common currency for the European Union in January 1999.

CURRENCY OPTION BONDS The holders of **currency option bonds** are allowed to receive their interest income in the currency of their option from among two or three predetermined currencies at a predetermined exchange rate. The original bond contract contains the currencies of choice and the exchange rates. The currency option enhances the exchange guarantee for the investor. Thus, the investor will make some gain if all currencies included in the contract do not depreciate against the desired currency.

CURRENCY COCKTAIL BONDS Bonds denominated in a standard "currency basket" of several different currencies are called **currency cocktail bonds**. A number of these bonds have been developed to minimize or hedge foreign-exchange risk associated with single-currency bonds. Some popular forms of such bonds include special drawing rights and euros, both of which are described in chapter 4. The currency diversification provided by these bonds can be replicated by individual investors. Thus, currency cocktail bonds have never gained wide acceptance with Euromarket borrowers.

11.4.3 Types of international bonds

Five types of international bonds are straight (fixed-rate) bonds, floating-rate notes, convertible bonds, bonds with warrants, and other bonds.

STRAIGHT BONDS These bonds have fixed maturities and carry a fixed rate of interest. Straight bonds are repaid by amortization or in a lump sum at the maturity date. The **amortization method** refers to the retirement of a long-term debt by making a set of equal periodic payments. These periodic payments include both interest and principal. Alternatively, a borrower may retire his or her bonds by redeeming the face value of the bonds at maturity. Under this method, a fixed interest on the face value of the bonds is paid at regular intervals.

Fixed-rate bonds are technically unsecured, debenture bonds, because almost all of them are not secured by any specific property of the borrower. Because of this, debenture bondholders become general creditors in the event of default; they look to the nature of the borrower's assets, its earning power, and its general credit strength.

Perhaps the greatest advantage of all types of international bonds for individual investors is that interest income on them is exempt from withholding taxes at the source. Investors must report their interest income to their national authorities, but both tax avoidance and tax evasion are extremely widespread. Official institutions hold a large portion of investment in international bonds and are not liable for tax. Another large class of investors in international bonds consists of private institutions. These private institutions legally avoid tax by being in tax-haven countries.

FLOATING-RATE NOTES These notes are frequently called floating-rate bonds. The rate of return on these notes is adjusted at regular intervals, usually every 6 months, to reflect changes in short-term market rates. Because one of their main objectives is to provide dollar capital for non-US banks, most floating-rate notes are issued in dollars.

Like other international bonds, floating-rate notes are issued in denominations of $1,000 each. They usually carry a margin of 1/4 percent above the LIBOR, and this margin is normally adjusted every 6 months. The link between the rate of return on floating-rate notes and LIBOR rates is intended to protect the investor against capital loss.

CONVERTIBLE BONDS Bonds of this type are convertible into parent common stock. The conversion price is usually fixed at a certain premium above the market price of the common stock on the date of the bond issue. Investors are free to convert their fixed-income securities into common stock at any time before the conversion privilege expires; the borrowing company is obliged to issue new stock for that purpose.

The convertible provision is designed to increase the marketability of fixed-rate Eurobonds. Convertible bonds provide investors with a steady income and an opportunity to participate in rising stock prices. Thus, their interest rates have been 1.5 to 2 percent below those on fixed-rate bonds. Because international investors are inflation-conscious, they prefer convertible bonds, which maintain the purchasing power of money.

BONDS WITH WARRANTS Some international bonds are issued with warrants. A **warrant** is an option to buy a stated number of common shares at a stated price during a prescribed period. Warrants pay no dividends, have no voting rights, and become worthless at expiration unless the price of the common stock exceeds the exercise price. Convertible Eurobonds do not bring in additional funds. When they are converted, common stock increases, and the convertible securities are retired. When warrants are exercised, common stock and cash increase simultaneously.

OTHER BONDS A major portion of other bonds consists of **zero-coupon bonds**, which provide all of the cash payment (interest and principal) when they mature. These bonds do not pay periodic interest, but are sold at a deep discount from their face value. The return to the investor is the excess of the face value over the market price.

Zero-coupon bonds have several advantages over conventional bonds. First, there is immediate cash inflow to the issuing company but no periodic interest to pay. Second, a big tax advantage exists for the issuing company, because any discount from the maturity value may be amortized for tax purposes by the company over the life of the bond.

Table 11.5 The percentage breakdown of the total bond market by instrument (billions of US dollars)

Instruments	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*
Straight bonds	71.9	72.3	71.2	70.7	70.6	71.5	75.2
Floating-rate notes	21.1	22.5	24.2	25.1	25.4	25.0	21.5
Convertible bonds	4.6	4.6	4.3	3.9	3.8	3.4	3.2
Bonds with warranties	2.4	0.4	0.0	0.1	0.2	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: The Bank for International Settlements, *International Banking and Financial Market Developments*, various issues.

THE PERCENTAGE BREAKDOWN OF THE TOTAL BOND MARKET BY INSTRUMENT Table 11.5 shows the instrument composition of international bond issues and their percentage breakdown during the period from 1997 to 2003. In 2003, the percentage breakdown of the total bond market by instrument was 75 percent for straight bonds, 22 percent for floating-rate bonds, and 3 percent for convertible bonds. Straight bonds are most popular because their two major features, fixed maturities and a fixed rate of interest, eliminate uncertainty in the eyes of investors. It is fair to assume that the percentages for the two types of bonds discussed just above – bonds with warrants and other bonds – are negligible.

11.5 The International Equity Market

Besides debt instruments such as the Eurodollar and bond markets, the equity capital market is another important source of financing. Evidence indicates that the final decade of the twentieth century will go down in history as the period in which much of the world discovered the stock market as a major source of funds for their global expansion. Companies will increasingly turn to the stock market to raise money. This section focuses on how ownership in publicly owned corporations is traded throughout the world. The stock market consists of the primary market and the secondary market. The **primary market** is a market in which the sale of new common stock by corporations to initial investors occurs. The **secondary market** is a market in which the previously issued common stock is traded between investors.

11.5.1 New trends in the stock markets

In recent years, a number of new trends have begun to emerge in the stock markets around the world: (1) alliance, (2) crosslisting, and (3) concentration.

STOCK MARKET ALLIANCES There are some 150 stock exchanges in the world. Within the past 10 years, these stock exchanges have scrambled to align with each other. Markets in Paris, Amsterdam, and Brussels have agreed to form Euronext, while a group of Scandinavian markets has agreed to form Norex. Those deals prompted the London Stock Exchange and Frankfurt's Deutsche Bourse to consider a merger into a new market, but that deal fell through in Septem-

ber 2000. In 2001, the Lisbon Exchange decided it would join Euronext. NASDAQ has joint ventures and alliances in Japan, Hong Kong, Australia, Canada, the UK, and Germany. In September 2002, Euronext and the Tokyo Stock Exchange signed an alliance for cooperation and investor protection. In November 2002, the New Zealand Stock Exchange and the Hong Kong Stock Exchange signed an information-sharing agreement. The New York Stock Exchange has recently discussed alliances with markets in Canada, Latin America, Europe, and Asia.

There is a variety of reasons for this consolidation of stock exchanges: the growing speed and power of telecommunication links, big and small investors' keen interest in stocks from all parts of the world, and the fear of being left behind. Moreover, if national exchanges do not take the initiative, they could be bypassed by new electronic trading systems. These same forces have caused the burgeoning of online trading and have pushed national securities firms to expand their business overseas.

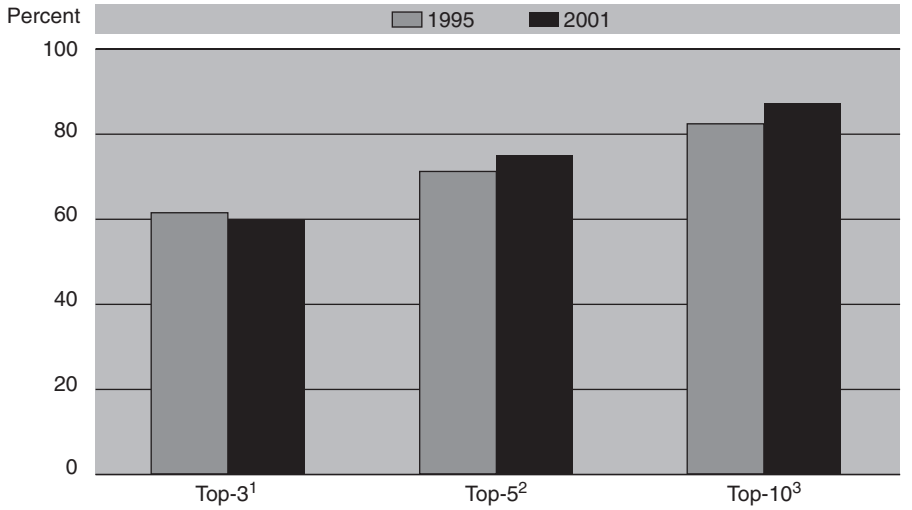
In addition, these same factors have caused another wave of stock markets becoming publicly traded on the different stock exchanges. In 2001, the London Stock Exchange and the Deutsche Bourse went public and are traded on their markets, while the Toronto Stock Exchange and Spain's four regional stock exchanges went public in 2002. In December 2002, the Chicago Mercantile Exchange, the world's second largest futures market, became publicly traded on the New York Stock Exchange.

CROSSLISTING With the rise of cross-border mergers during the 1990s and the early 2000s, there arises a need for companies to crosslist their stocks on different exchanges around the world. By crosslisting its shares on foreign exchanges, an MNC hopes to:

1 Allow foreign investors to buy their shares in their home market.
2 Increase the share price by taking advantage of the home country's rules and regulations.
3 Provide another market to support a new issuance.
4 Establish a presence in that country in the instance that it wishes to conduct business there.
5 Increase its visibility to its customers, creditors, suppliers, and the host government.
6 Compensate local management and employees in the foreign affiliates.

Companies are obligated to adhere to the securities regulations of all countries where their shares are listed. A decision to crosslist in the USA means that any company, domestic or foreign, must meet the accounting and disclosure requirements of the US Securities and Exchange Commission. Rules for listing requirements differ markedly from country to country, but analysts regard US requirements as the most restrictive in the world. Reconciliation of a company's financial statements to US standards can be a laborious process. Some foreign companies are reluctant to disclose hidden reserves and other pieces of company information. It might not appear too difficult for US companies to crosslist on certain foreign exchanges because their listing requirements are not that restrictive, but certain barriers still exist, such as a foreign country's specific rules and reporting costs.

STOCK MARKET CONCENTRATION European stock markets have become more integrated since the European Union's decision to switch their monetary union from the European Currency Unit to the euro, which was launched in 1999. Increasing integration, as reflected in converging price dynamics across markets, results from various structural changes in European stock markets. There is already a large amount of crosslisting and trading among exchanges. Competition among



Note: The data used are from the World Federation of Exchanges (market capitalization in US$ millions, end of period) and are subject to price changes between 1995 and 2001.
1 1995: NYSE, Tokyo Stock Exchange (TSE), and London Stock Exchange (LSE). 2001: NYSE, NASDAQ, and TSE.
2 1995: NYSE, TSE, LSE, NASDAQ, and Deutsche Börse. 2001: NYSE, NASDAQ, TSE, LSE, and Euronext.
3 1995: NYSE, TSE, LSE, NASDAQ, Deutsche Börse, Paris Bourse, Swiss Exchange, Toronto Stock Exchange, Hong Kong Stock Exchange and Clearing, and Amsterdam Exchange. 2001: NYSE, NASDAQ, TSE, LSE, Euronext, Deutsche Börse, Toronto Stock Exchange, Borsa Italiana, Swiss Exchange, and Hong Kong Stock Exchange and Clearing.

Figure 11.3 Major stock exchanges as a share of world stock market capitalization
Source: OECD, *Financial Market Trends*, Mar. 2003, p. 109.

exchanges for listing and order flow has long characterized European securities markets. In addition, exchanges have become subject to competition for order flow from alternative trading systems. Because there are benefits from achieving large size and attracting liquidity, another important response to competitive pressures has consisted of mergers among exchanges.

The concentration of stock market capitalization is not an "EU phenomenon," but reflects a worldwide trend toward a single global market for certain instruments. Figure 11.3 shows the share of the three, five, and 10 largest stock exchanges of total world stock market capitalization. The three largest stock markets accounted for 60 percent of the total market capitalization in 1995 and 2001. Furthermore, the share of the five and 10 largest stock markets has increased from 1995 to 2001. These statistics indicate a trend toward concentration of the world stock markets.

11.5.2 Privatization

In November 1996, Deutsche Telekom – a government-owned telecommunications company in Germany – raised $13.3 billion through its initial public offering. During the 1990s, the rolling-

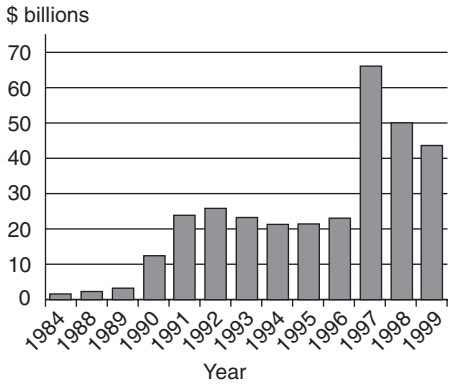


Figure 11.4 Developing countries' privatization revenues
Source: The World Bank, *Global Economic Prospects*, 2003, p. 96.

back of state ownership in the economy through privatization gathered considerable pace both in OECD countries and outside the OECD arena. The OECD – the Organization for Economic Cooperation and Development – is an organization of 29 countries and most of these countries are industrialized.

Privatization is a situation in which government-owned assets are sold to private individuals or groups. In recent years, even many developing countries have been selling government-owned enterprises to private investors. For example, the amount of money raised through privatization by the Indian government increased from $100 million in 1996 to $1,234 million in 1999. In May 2000, the Indian government announced that it would privatize most of the government-owned enterprises, including Air India, which is the international flag carrier for India. Figure 11.4 shows that the global amount of money raised through privatization by developing countries surged from almost nothing in the early 1980s to $67 billion in 1997, before decreasing to $42 billion in 1999. The World Bank estimates that cumulative privatization revenues worldwide have exceeded $1 trillion by 2000. Privatization could play an important role in the ongoing transformation of emerging capital markets: due to its high profile, privatization may facilitate a switch from investment in bonds to investment in equities.

Why privatize? First, governments try to assist the development of capital markets by increasing market capitalization and liquidity. Second, a closely related motive is to widen share ownership and to create a "shareholder culture" in the population at large. Third, governments use privatization to raise money. Fourth, by replacing public-sector decision-making and control with those of the private sector, privatization is inducing notable changes in the corporate governance structure in important segments of the economy. Finally, privatization enables governments to use their resources more efficiently. By 1990, state-owned enterprises (SOEs) consumed nearly 20 percent of gross domestic investment in developing economies, while producing just more than 10 percent of gross domestic product: "Overall, privatization has dramatically improved the performance of former SOEs" (The World Bank 2003b, p. 96).

How is it done? Privatization takes many forms. First, a government sells state-owned companies directly to a group of ultimate investors. Second, the government divests itself of a company it owns through public offerings of equity in the primary market. The primary market is a market in which the sale of new securities occurs. Third, the government may sell residual

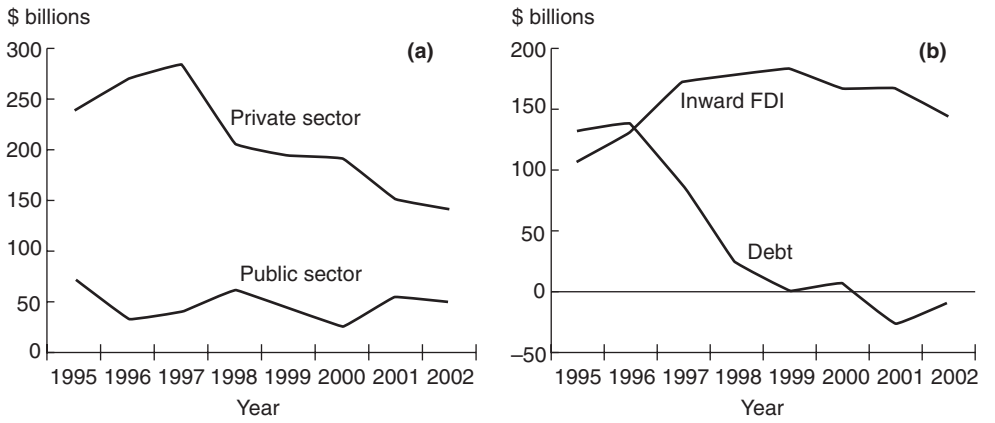


Figure 11.5 (a) Net financial flows to developing countries, 1995–2002; (b) net financial flows to developing countries from the private sector, 1995–2002

Source: The World Bank.

stocks of partly privatized companies in the secondary market. The secondary market is a market for securities that have already been issued and sold. Finally, other privatization methods include leasing, joint ventures, management contracts, and concessions. In 1998, direct sales of government-owned enterprises by developing countries accounted for almost 75 percent of privatization revenues and public offerings contributed to most of the remaining sales.

What are the essential elements for a successful privatization? Any successful privatization involves at least three elements. First, a government needs a political agreement to sell all or part of a company it owns. Second, the company should have the potential to transform itself into a profit-making entity rather than a government-subsidized burden. Third, the government has to find underwriters who will distribute and market the shares domestically and internationally.

11.6 Long-Term Capital Flows to Developing Countries

Figure 11.5(a) shows that long-term capital flows to developing countries have declined since 1998, mainly due to the Asian financial crisis of 1997–8 and the recent slowdown of the global economy. New long-term flows totaled $261 billion in 2002, $83 billion below the peak in 1997. Sharp declines in private capital market flows in recent years – bank loans, bonds, and portfolio equity flows – account for nearly all of this decline. As a result, the share of emerging markets in global capital market financing fell to 3 percent in 2002, compared to 6.4 percent in 1998 and 11 percent in 1997. Figure 11.5(b) shows that even foreign direct investment (FDI), which tends to be more resilient than capital market flows, has slowly but steadily declined since 1999.

11.6.1 Rotation from debt to equity

The weakness in the growth of private-sector debt flows is unprecedented in the post-1965 period. In the decade of the 1970s, developing-country debt posted a compound annual growth

Table 11.6 Developing countries' debt-to-equity ratios, 1997 and 2002

	External debt		
Region	*1997*	*2002*	*% GDP*
East Asia and Pacific	218%	134%	65.0%
Europe and Central Asia	505%	293%	66.8%
Latin American and the Caribbean	284%	162%	67.7%
Middle East and North Africa	394%	371%	42.5%
South Asia	968%	613%	30.5%
Sub-Saharan Africa	515%	303%	90.6%
All developing countries	316%	196%	61.7%

Source: The World Bank, *Global Development Finance*, Washington, DC, 2003 and 2004.

rate of 24 percent. The Latin American debt crisis of the early 1980s slowed this growth but did not end it. Since the middle of 1998, however, the whole context for development financing has shifted. As borrowers have chosen, or been required by their creditors, to pay down their debts, the external debt of developing countries has fallen in dollar terms. As debt is being repaid to private-sector creditors, net equity flows to developing countries remain significant, mainly though the route of FDI.

The shifting pattern of private flows – debt down, equity up – has had an important implication for the associated stock of debt (see table 11.6). While the stock of developing country external debt outstanding from all sources has fallen since 1998, the stock of equity capital owned and controlled by foreigners has risen over the past decade. Table 11.6 shows that the drop in the external debt-to-equity ratio, from 316 percent in 1997 to 196 percent in 2002, has been spread across all regions of the developing world. The World Bank highlighted three aspects of the shift in its 2004 *Global Development Finance*. First, the shift is partly driven by investor preferences. Debt investors have become more wary of holding debt claims on developing countries, while MNCs have increasingly come to believe that the developing world offers significant growth opportunities. Second, the shift is privately driven by the preferences of developing country policy-makers. To protect against debt crises, such as the Asian financial crisis of 1997–8, countries have strengthened their precautionary reserve holdings and shifted their liabilities to more stable form of investment, especially FDI. Finally, on balance, the shift is a positive development. This rotation from debt to equity is best seen as a constructive development, because it puts development finance on a stable footing.

SUMMARY

The international financial market consists of the Eurodollar market, the international bond market, and the international equity market. Eurodollars are dollar-denominated deposits in banks all over the world except the USA. The Eurodollar market is the truly international money market, undisturbed by the rules and restrictions of any national authority. Eurodollars have become a major

source of short-term loans for MNCs to finance their working capital needs and foreign trade. With the growth in availability of Eurodollars, Eurobanks have begun to extend medium-term Eurodollar loans for MNCs to finance their medium-term needs.

Although the international bond and equity markets are of a more recent vintage, they parallel the importance of multinational financial management and mainly facilitate expansion involving fixed asset commitment. During the 1990s, the rolling-back of state ownership in the economy through privatization gathered considerable pace in the world. Privatization may play an important role in the ongoing transformation of capital markets in the world: due to its high profile, privatization may facilitate a switch from investment in bonds to investment in equities.

Questions

1 Explain the globalization of financial markets.
2 How has technology affected the globalization of financial markets?
3 Why has the Eurocurrency market grown so rapidly?
4 If Germany imposes interest rate ceilings on German bank deposits, what is the likely effect of this regulation on the euro interest rate?
5 Why have bank regulators and market analysts expressed some concern about the stability of the interbank market?
6 What is the difference between Eurobonds and foreign bonds?
7 What is the difference between currency option bonds and currency cocktail bonds?
8 Describe two new instruments: Euronotes and global bonds.
9 Explain the Basel Accord of 1988.
10 What is the major difference in the role of commercial banks in corporate governance between the USA and Japan?
11 How can a government privatize state-owned companies?
12 In April 2003, the Basel Committee on Banking Supervision released for public comment the new Basel Capital Accord, which will replace the 1988 Capital Accord. What are the three pillars of this new proposal?
13 What are some reasons for a company to crosslist its shares?
14 The World Bank highlighted three aspects of the recent developing-country shift from debt to equity in its 2003 *Global Development Finance*. Briefly describe these three aspects of the shift.

Problems

1 Fill in the following blank spaces with a reserve ratio of 20 percent:

	Acquired reserves	Required reserves	Excess reserves	Amount bank can lend
Bank 1	$100.00	$20.00	$80.00	$80.00
Bank 2				
Bank 3				
Bank 4				
Bank 5				
Bank 6				
Bank 7				
Bank 8				
Bank 9				
Bank 10				
Bank 11				
Bank 12				
Bank 13				
Total amount loaned				

2 Assume that an international bank has the following simplified balance sheet. The reserve ratio is 20 percent:

Assets		1	2	Liabilities and net worth	1	2
Reserves	$4,400	–	–	Demand deposits $20,000	–	–
Securities	7,600	–	–			
Loans	8,000					

(a) Determine the maximum amount that this bank can safely lend. Show in column 1 how the bank's balance sheet will appear after the bank has loaned this amount.
(b) By how much has the supply of money changed?

(c) Show the new balance sheet in column 2 after checks drawn for the entire amount of the new loans have been cleared against this bank.
(d) To what extent will this lending alter the supply of money?
(e) Aside from the leakage of required reserves at each stage of the lending process, there are some other leakages of money from the lending process. List and discuss them.
(f) Assume: (1) an American citizen transfers $2,000 of his deposits from a US bank to a Eurobank, and (2) Eurobanks as a whole keep 5 percent of their Eurodollar deposits in vault cash. Determine the maximum amount of Eurodollar supply that Eurobanks can create on the basis of $2,000.

3 A multinational company holds a $1,000 zero-coupon bond with a maturity of 15 years and a yield rate of 16 percent. What is the market value of the zero-coupon bond?

4 A multinational company has issued a 10-year, $1,000 zero-coupon bond to yield 10 percent.
(a) What is the initial price of the bond?
(b) If interest rates dropped to 8 percent immediately upon issue, what would be the price of the bond?
(c) If interest rate rose to 12 percent immediately upon issue, what would be the price of the bond?

5 A multinational company has common stock outstanding. Each share of the common stock pays $3.60 dividends per year, and the stockholder requires a 12-percent rate of return. What is the price of the common stock?

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Case Problem 11: The Rise and Fall of the US Stock Market

The USA and Japan have long been like an old married couple. The USA likes to borrow and spend, while Japan likes to save and invest. And for almost 20 years, this odd relationship has endured, but not without strain. By the late 1990s, however, a new question came to the forefront: whether the world's biggest saver would continue to provide relatively cheap capital to the world's biggest spender.

It is no secret that the US economic expansion of the 1990s had been sustained with borrowed money abroad. American companies accrued huge debts, often to buy back company shares. American consumer debt is enormous, and continues to grow with no end in sight. And the spending boom has generated record trade deficits, including $500 billion in 2002. To finance current-account deficits, the USA has been forced to borrow approximately $2 billion every working day, most of which comes from foreign investors. For many years, only a small number of gloomy economists and investors worried aloud about this, but to no avail. By the late 1990s, however, many Japanese investors and policy-makers believed that US financial markets were in a bubble (see figure 11.6). US stock prices relative to earnings were high by historical standards. Various studies of stock market valuations concluded that by past standards the main US stock indices could be overvalued by some 20–40 percent. On the other hand, most Americans thought that US financial markets reflected fundamentals, until the US stock market collapsed in March 2000.

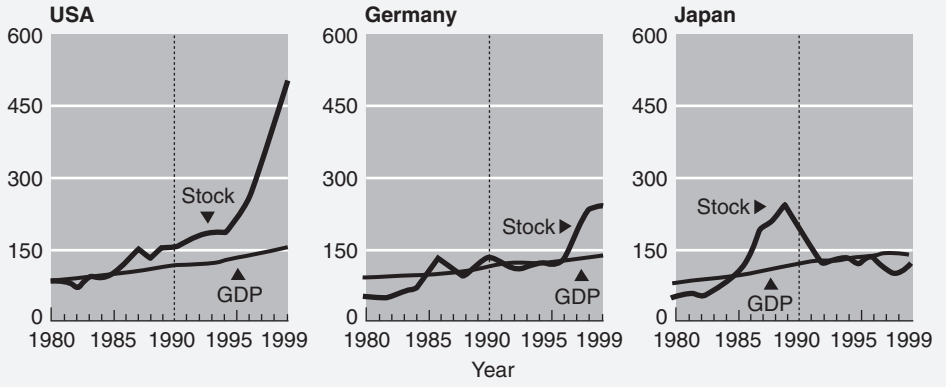

Figure 11.6 Stock prices and gross domestic product, inflation-adjusted, logarithmic scale, 1985 = 100

Source: The International Monetary Fund, Washington, DC.

Table 11.7 The performance of the major US stock indexes

Index	*2003*	*2002*	*2001*	*2000*	*1999*
Dow Jones	+0.25	–0.17	–0.7	–0.6	+0.25
Standard & Poor's 500	+0.26	–0.23	–0.13	–0.10	+0.20
NASDAQ Composite	+0.50	–0.31	–0.21	–0.39	+1.02

Source: "Stocks Post First Winning Year Since 1999," www.cnn.com, Jan. 1, 2004.

Japanese and other foreign investors continue to fund the US economy even today, but the boom in the US economy and its stock market ended in March 2000. In addition, as war and terrorism fears mount, nobody thinks that this kind of inflow can be sustained indefinitely – a change that may boost the inflation rate and hurt corporate profits, the US dollar, and investment returns. The financial reversal would also bring the collapse of the US security policy and of its calculated strategy of world pacification.

In 2003, all US stock indexes recorded their strongest rally since the Internet bubble burst in March 2000. Table 11.7 shows that all three major stock indexes – the Dow Jones, Standard & Poor's 500, and the NASDAQ Composite – posted their first annual gains since 1999. Nevertheless, the NASDAQ Composite Index of 2,000 at the end of 2003 was still 60 percent lower than its peak of 5,000 in 1999. Furthermore, some portfolio managers, such as Richard Bernstein of Merrill Lynch, argued that US stocks were so overpriced that they could fall as much as 14 percent in 2004. No wonder some pros continue to feel uncomfortable as they return from the beach. The worry is that investors have overdone things again. The stock market appears to feel like "the mania-inspired environment of the late 1990s," a time in which investors ignored repeated warning signs. Factors such as rising interest rates, over-aggressive earnings forecasts, and more violence in Iraq could ruin the stock market rally again.

There are new concerns that the current US economy may follow Japan's trail of the 1990s. Figure 11.7 shows that the patterns of the Nikkei 225 and the NASDAQ indices before and after their booms and bursts are strikingly similar. Lingering possibilities of deflation and low interest rates intensify the worry. Some experts say that the US economy is different from Japan's in several ways and thus will not follow Japan's trail.

Case Questions

1 What is a bubble?
2 Japanese investors and policy-makers believed that the US financial markets of the late 1990s were in a bubble. On the other hand, most Americans thought that US financial markets reflected market fundamentals. Why were Japanese people so sensitive to asset bubbles?

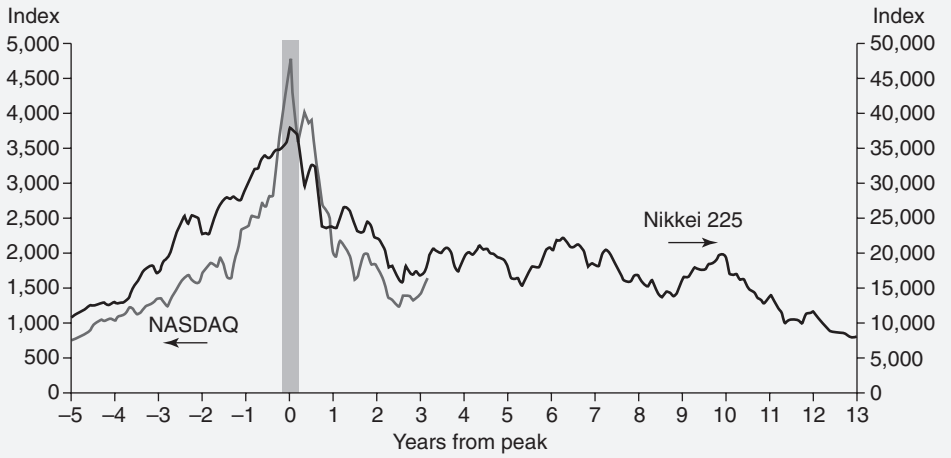

Figure 11.7 The boom and bust of the US and Japanese stock markets: the shaded area represents the peaks of the US and Japanese stock markets, in March 2000 and December 1989, respectively

Source: The Tokyo Stock Exchange, NASDAQ.

3 Why did most Americans think that the US financial markets of the 1990s reflected market fundamentals?
4 List and discuss a number of major differences between the US economy and Japan's economy.
5 Describe the Japanese-style capitalism that had worked well up until 1990. How has Japan tried to revive its sluggish economy?
6 The website of the US State Department, www.state.gov/background_notes, and the website of the US Central Intelligence Agency, www.odci.gov/cia/publications/factbook, provide a variety of economic information about most countries around the world. Use these two websites to perform a comparative economic analysis of the USA and Japan.

Sources: E. S. Browning, "After Hot Summer for Stocks, Time to Study," *The Wall Street Journal*, Sept. 2, 2003, pp. C1, C3; "Does the US economy follow the Japanese Path?" *Southwest Economy*, Federal Reserve Bank of Dallas, July/Aug. 2003, p. 10; L. E. Ohanian, "When the Bubble Bursts: Psychology or Fundamentals?" *Business Review*, Federal Reserve Bank of Philadelphia, Jan./Feb. 1996, pp. 1–14; J. Sapsford, "Japanese Exodus From Overseas Banking Picks Up Speed and Prestigious Names," *The Wall Street Journal*, Nov. 13, 1998, p. A15; M. R. Sesit, "Japan Gets Ready to Flood Bond Markets as Other Global Offers are Drying Up," *The Wall Street Journal*, Jan. 24, 2000, pp. C1, C23; B. Spindle, "A Flip of the Coins: Yen Dances, Euro Won't," *The Wall Street Journal*, May 19, 2000, pp. A21, A23; and B. Wysocki, "Investment Bears Fret Over Goldiblocks," *The Wall Street Journal*, Sept. 27, 1999, p. A1.

CHAPTER 12

International Banking Issues and Country Risk Analysis

Opening Case 12: Argentina's Currency Crisis

From December 2001 to January 2002, Argentina experienced tumultuous currency devaluation, sovereign debt default, and a freeze on bank accounts that followed a 10-year period during which the country pegged its peso one-to-one with the US dollar. During this period, Argentina took steps to privatize state-owned enterprises and open itself to international trade – especially with Brazil, which became Argentina's largest trading partner through the Mercosur customs union. In the 1990s, foreign companies purchased numerous privatized enterprises and foreign investors acquired large holdings of private and sovereign debt from Argentina. For these foreign owners to repatriate interest and profits, Argentina would have to generate substantial export earnings.

However, one big obstacle to Argentine exports was the appreciation of the dollar, which caused the peso to appreciate against other major currencies since 1995. That is, prices in Argentina, combined with the one-to-one exchange rate with the dollar, made Argentine goods relatively expensive to the rest of the world. Argentina and Brazil were at least in the same boat during the mid-1990s, when Brazil also pegged its real to the US dollar. In contrast to the European Union, however, the Mercosur customs union did not impose exchange rate commitments between the member countries, and Brazil unilaterally devalued the real in January 1999. Depreciation of the nominal exchange rate would have been the most direct way for Argentina also to reduce the high real exchange value of the peso. With the exchange rate straitjacket in place, however, the only way market forces could reduce the real exchange value of the peso was for prices in Argentina to fall relative to prices in the USA. However, it was not easy for prices in Argentina to fall below those in the USA, given the US productivity boom, which held down US inflation and elevated real rates of return.

With the fixed exchange rate, nominal interest rates in Argentina could not fall below those in the USA, although they could be higher due to default risk. This interest rate floor meant that any fall in prices relative to the USA implied correspondingly higher real borrowing costs in Argentina's domestic credit markets. Between November 1994 and September 2001, for example, the price level in Argentina fell 16.2 percent relative to the price level in the USA. The resulting real borrowing costs hindered any economic recovery that would have reduced Argentina's unemployment rate from double-digit levels. Nevertheless, figure 12.1 shows that not even this painful decrease in relative prices between Argentina and the USA was sufficient to prevent substantial appreciation of the real exchange value of the peso relative to the Brazilian real following Brazil's devaluation in January 1999. This evolution of the Argentine economy – one step forward and two steps backward – satisfied no constituency: neither domestic borrowers, labor unions, and exporters, nor foreign creditors. In such circumstances, domestic politics generally holds the trump card, whereupon default and devaluation became the inevitable outcome.

Source: M. J. Dueker, "Argentina Agonists," *International Economic Trends*, Feb. 2002, p. 1.

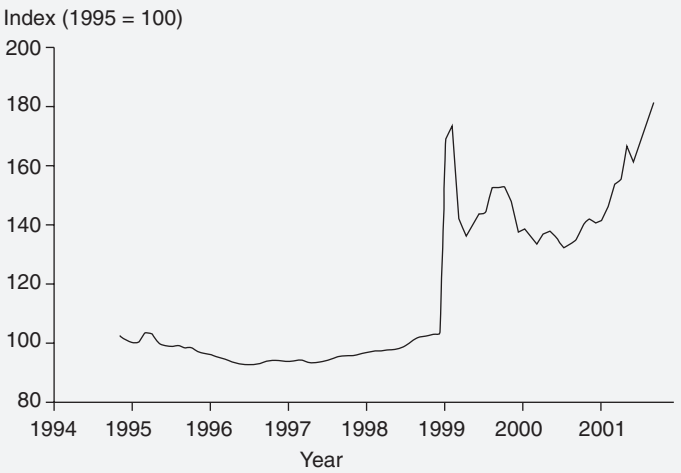

Figure 12.1 The real exchange rate between Argentina and Brazil: higher values indicate that Argentine exports are more expensive

World banking has grown with the unprecedented expansion of economic activity since World War II because banks have followed customers abroad. Recent events in developing countries have compelled analysts and investors to question international bankers about loans to economically risky countries. Consequently, international banks have recently reduced their loans to some developing countries, while developing countries have begun to use capital markets as their main

source of funds since the early 2000s. Bank loans, however, are still the dominant source of funds for most developing countries, because their capital markets are underdeveloped. Thus, international banks must reduce the impact of country risk through systematic assessment and management.

This chapter has three major sections. The first section discusses international banking operations. This section describes the types of foreign banking offices and interbank clearinghouse systems. The second section describes developing-country loans and their problems. This section focuses on causes and policy responses for the two international lending crises: the Latin American debt crisis of the 1980s and the Asian financial crisis of 1997–8. The third section looks at how banks and other investors assess unique risks of their foreign operations and how these risks can be incorporated into routine operations.

12.1 International Banking Operations

International banks perform many vital tasks to help international transactions of multinational companies. They finance foreign trade and foreign investment, underwrite international bonds, borrow and lend in the Eurodollar market, organize syndicated loans, participate in international cash management, solicit local currency deposits and loans, and give information and advice to clients. Commercial banks establish multinational operations for a variety of reasons (Rugman & Kamath 1999). First, managerial and marketing knowledge developed at home can be used abroad with low marginal costs. Second, foreign bank subsidiaries have a knowledge advantage over local banks, because they can draw on their parent's knowledge of personal contacts and credit investigations. Third, large international banks have high-perceived prestige, liquidity, and deposit safety that can be used to attract clients abroad. Fourth, foreign bank subsidiaries have a regulatory advantage over local banks, because they are often not subject to the same regulations as domestic banks. Fifth, growth prospects in a home market may be limited by a market that is largely saturated with the services offered by domestic banks. Sixth, international banking operations may reduce risk because greater stability of earnings is possible with international diversification. Seventh, banks follow their multinational customers abroad to prevent the erosion of their client base to foreign banks.

12.1.1 The world's largest financial companies

Table 12.1 lists the world's 10 largest financial companies and the world's 10 largest economies as of December 31, 2002. The United States and Japan each claimed three of the world's 10 largest financial companies in terms of assets. The remaining four companies on the top 10 list were from Germany (two), the United Kingdom (one), and Switzerland (one). The so-called G-5 group (the USA, Japan, Germany, the UK, and France) took the first top five spots in rankings of the world's 10 largest economies.

China appears to be on its way to becoming the new center of global economic power. In dollar terms, China's economy is about 10 percent of the US economy and 20 percent of Japan's. However, after adjusting for differences in the cost of living (purchasing power parity), China's economy is more than half as large as the US economy and surpasses Japan to become the world's second-largest economy; in 2002, the gross domestic product was $10.1 trillion for the USA, $6

Table 12.1 The world's 10 largest financial companies and the world's 10 largest economies (billions of US dollars as of December 31, 2002)

Financial companies			*Countries*		
Ranking	*Name*	*Assets*	*Ranking*	*Name*	*GDP*
1	Mizuho Financial Group	$1,128	1	USA	$10,082
2	Citigroup	1,097	2	Japan	4,166
3	Allianz	894	3	Germany	1,856
4	Fannie Mae	887	4	UK	1,454
5	Sumitomo Mitsui Financial Group	880	5	France	1,310
6	UBS	853	6	China	1,179
7	Mitsubishi Tokyo Financial Group	834	7	Italy	1,074
8	Deutsche Bank	791	8	Canada	689
9	HSBC Holdings	759	9	Brazil	595
10	J. P. Morgan Chase	758	10	Mexico	574

Sources: *The Wall Street Journal*, Sept. 24, 2003, pp. R1–R12 and "Total GDP 2002," World Bank, www.worldbank.org/GDP.pdf, Sept. 31, 2002.

trillion for China, and $3.6 for Japan. It grew 7.3 percent in 2001 and by an average of about 9 percent annually between 1980 and 2000. China expects its economy to grow at an annual rate of 6–7 percent over the next 10 years. In 2002, China attracted more foreign direct investment than the USA. China's membership of the World Trade Organization represents another great step as it continues to move toward a more capitalistic economy. It will increase the opportunities for Chinese growth and will help China play an increasingly large role in the global economy. All of these trends together point to the emergence of China as a dominant, if not the dominant, economic power for the coming century.

Leaders of developing countries understand that international banks perform vital tasks for their governments and local companies. Despite this understanding, some critics argue, using a few selected statistics, that host governments are powerless over large international financial institutions. For example, in 2002 only six countries had gross domestic products (GDP) greater than the total assets of Mizuho Financial Group of Japan. Table 12.1 indicates that this statement must be true. In fact, when we compare these two (banks and economies), the grand total assets of the world's 10 largest financial companies are greater than the combined GDP of the eight largest economies, excluding the USA and Japan. However, a nation's GDP and a company's assets are not comparable, because GDP is a measure of value added, while a company's assets are the total book value of all outstanding assets.

12.1.2 Types of foreign banking offices

There are six major types of foreign banking offices: representative offices, correspondent banks, branch banks, subsidiaries, agencies, and banking consortia. The list of alternatives also should include Edge Act corporations, international banking facilities, and export trading companies, which are discussed in other chapters.

REPRESENTATIVE OFFICES National banks may establish offices in foreign countries when their parent bank is doing business in these countries or in neighboring countries. These offices do not have traditional banking functions such as deposits, loans, letters of credit, drafts, and Eurodollar markets.

Representative offices obtain information, give advice, and arrange local contacts for their parent bank's business customers. They help local business executives initiate inquiries about the parent bank's services and introduce visiting executives to local banks. They put clients of parent banks in contact with government officials or local business firms. They also provide their parent bank with credit analyses of local firms and political information about the country.

CORRESPONDENT BANKS Most major national banks maintain correspondent banking relationships with local banks in many major foreign cities of the world. The **correspondent banking system** is an informal arrangement in which a bank in a country maintains deposit balances with banks in foreign countries and looks to them for services and assistance.

Local correspondent banks accept drafts and honor letters of credit. They also provide credit information. Finally, they collect or pay foreign funds from import or export transactions.

BRANCH BANKS Foreign **branch banks** do not have a corporate charter, a board of directors, or shares of common stock outstanding. Thus, they are an operational part of the parent bank; their assets and liabilities are, in fact, those of the parent bank.

Foreign branch banks provide a full range of banking services under the name and guarantee of the parent bank. They attract big local borrowers because legal loan limits depend on the size of the parent bank.

FOREIGN SUBSIDIARY BANKS In spite of the fact that **foreign subsidiary banks** have their own charter, their own board of directors, their own stockholders, and their own managers, they are owned completely or in major part by a foreign parent bank. They must comply with the laws of the host country.

Because foreign subsidiary banks maintain their status as local institutions with local ownership and management, they are able to attract additional local deposits and have greater access to the local business community. In addition, they are more likely to appeal to the foreign business community than a local bank because they have permanent relations with their foreign part owner.

AGENCIES Agencies of foreign banks can offer only a limited range of banking services. They cannot accept transaction deposits from residents of their own country, and they must deal exclusively with commercial customers. Their primary function is to finance both exports and imports that originate from companies in their own country. Agencies also actively participate in interbank credit markets and some other loans to companies in their own country.

CONSORTIUM BANKS A **consortium bank** is a permanent group of banks that handles large international loans. It has its own charter, but it is a joint venture owned by two or more shareholder–parent banks, usually with different nationalities.

Consortium banks develop their business and take customers that the parent bank suggests. They arrange global syndicates for large international loans. Syndicates in large international loans spread risk and overcome the inability of a single bank to handle a large loan alone. Consortium banks also underwrite corporate securities and arrange mergers and acquisitions.

Table 12.2 Characteristics of US foreign banking offices

Type of bank	*Physical location*	*Accept foreign deposit?*	*Make loans to foreigners?*	*Engage in investment banking?*	*Subject to Federal Reserve requirement?*	*FDIC insured deposit?*	*Separate legal entity?*
Domestic bank	USA	No	No	No	Yes	Yes	No
Representative office	Foreign	No	No	No	Yes	Yes	No
Correspondent bank	USA	N/A	N/A	Yes	No	No	N/A
Branch bank	Foreign	Yes	Yes	No	No	No	No
Subsidiary bank	Foreign	Yes	Yes	Yes	No	No	Yes
Agency	Foreign	No	No	No	No	No	No
Consortium bank	Foreign	Yes	Yes	Yes	No	No	Yes
Edge Act Bank	USA	Yes	Yes	Yes	No	No	Yes
International banking facilities	USA	Yes	Yes	No	No	No	No

Table 12.2 summarizes the organizational structure and characteristics of foreign banking offices from the perspective of the USA. This table includes Edge Act corporations and international banking facilities, which we will discuss in chapter 15.

12.1.3 Interbank clearinghouse systems

This section describes three key clearinghouse systems of interbank fund transfers. These three systems transfer funds between banks through wire rather than through checks.

The **Clearing House Interbank Payments System (CHIPS)** is used to move dollars among New York offices of about 150 financial institutions that handle 95 percent of all foreign-exchange trades and almost all Eurodollar transactions.

The **Clearing House Payments Assistance System (CHPAS)** began its operation in 1983 and provides services similar to those of the CHIPS. It is used to move funds among the London offices of most financial institutions.

The **Society for Worldwide Interbank Financial Telecommunications (SWIFT)** is an interbank communication network that carries messages for financial transactions. It was founded in 1973 by European and North American banks. Since 1973, its membership has expanded to include many Asian and Latin American banks. The SWIFT network represents a common denominator in the international payment system and uses the latest communication technology. The network has vastly reduced the multiplicity of formats used by banks in different parts of the world. Banks can execute international payments more cheaply and efficiently than ever before, because of the common denominator in the international payment system and the speed of electronic transactions. Currently, 6,000 live network users send 10 million messages daily through the SWIFT; its usage increases at an annual average growth rate of 15 percent. Messages transferred through this system include bank transfers, customer transfers, and special messages.

12.2 International Loans

Large international loans to developing countries have become extremely important for European, Japanese, and US banks. For some banks, international loans have become as impor-

tant as their domestic banking operations. On the other hand, recent global debt problems have raised serious questions about large loans to developing and former Eastern-bloc countries.

12.2.1 The international debt crisis of the 1980s

Developing countries dramatically increased their borrowing from lenders in the Western industrial countries from 1973 to 1982. The total external debt of those developing countries that are not oil-producing increased from $130 billion in 1973 to $840 billion in 1982, a 6.5-fold increase. Over this 10-year period, the debt grew at an average compound rate of 20 percent per year. At the outset, few people worried as the external debts of these countries mounted in the 1970s. Several poor countries in Africa experienced difficult servicing problems. Yet, by the early 1980s, more developed borrowers such as Poland, Mexico, Brazil, and Argentina had difficulty in servicing their huge external debts.

The first major blow to the international banking system came in August 1982, when Mexico announced that it could not meet its regularly scheduled payments to international creditors. Shortly thereafter, Brazil and Argentina were in the same situation. By spring 1983, about 25 developing countries could not make regularly scheduled payments and negotiated reschedulings with creditor banks. These countries accounted for two-thirds of the total debt owed to private banks by those developing countries that do not produce oil.

A worldwide recession compounded the lending crisis. It put downward pressure on oil prices and on OPEC's revenues. OPEC – the Organization of Petroleum Exporting Countries – is an organization established by a number of oil-exporting countries to formulate uniform policies, such as selling prices on their oil-export sales. In 1980, OPEC contributed almost $42 billion to the loanable funds of the international banks, but by 1982, OPEC nations had withdrawn $26 billion from these loanable funds.

THE MAJOR CAUSES OF THE DEBT CRISIS Officials of developing countries often argue that the international lending crisis arose solely because of global economic dislocations. Still, policymakers of the creditor countries suggest that mismanagement by the debtor countries caused the crisis. The truth is, of course, somewhere in the middle of these positions.

Several developments in the 1970s turned banks into the predominant suppliers of funds to those developing countries that do not produce oil and to Eastern-bloc nations. First, there were growth and investment opportunities in these countries, because economies began to open and to rise in the second half of the 1960s. Second, the 1973–4 oil shock, when higher oil prices and the subsequent world recession skyrocketed the current-account deficit of the borrowing nations, accelerated bank loans to these countries. Third, many developing countries began to incur large balance-of-payments deficits during the early 1980s, because the worldwide recession of 1979–82 compelled industrial countries to reduce their imports from developing countries. Fourth, observers argue that capital flight, prompted by political and economic uncertainty, caused the debt crisis. The World Bank estimates that capital flight from Latin American debtor countries to industrial countries exceeded $70 billion between 1979 and 1982.

SOLUTIONS Observers feared that the debt crisis would provoke an international banking crisis and a global depression. Thus, lenders, borrowers, the International Monetary Fund (IMF), and the World Bank worked together to overcome this crisis through rescheduling, refinancing, addi-

tional loans, and restrictive economic policies. The management of this debt crisis exemplified successful international policy coordination.

The international lending problem faced attacks on many fronts. First, international banks took steps to reduce their burden of developing-country debts. They increased their equity-capital base, raised loan-loss reserves, avoided new loans to developing countries, and sold exposed loans at a big discount to investors.

Second, many debtor countries took steps to alleviate their external debt problems. They increased exports, reduced imports, attracted more foreign investment, adopted restrictive economic policies, and used debt–equity swaps. In **debt–equity swaps**, creditors exchange their loans for equity in local companies.

Third, the policy-makers of the creditor nations, the World Bank, and the IMF have worked together to provide partial debt relief for countries in the most extreme difficulties. Under this plan, a portion of a country's external debt was forgiven permanently. The country received new concessionary loans from commercial banks and international financial institutions by promising to pursue sound growth and reform-oriented policies. Between 1982 and 1993, official creditor nations canceled a total of $20 billion.

BRADY BONDS The above three measures were not sufficient to solve the 7-year-old debt crisis completely. In 1989, US Treasury Secretary Nicholas Brady put forth a set of principles, known as the Brady Plan, to resolve the problem. The Brady Plan offered three options to the creditor banks: (1) convert their loans to marketable bonds with a face value equal to 65 percent of the original loan amount; (2) convert their loans into new guaranteed bonds with a reduced interest rate of 6.5 percent; or (3) keep their old loans, but provide additional funds equal to 25 percent of their original loan amount. As you might imagine, most banks chose either the first or the second option, while only a few banks took the third option.

Those bonds that originated from the second option under the Brady Plan have come to be called Brady bonds. This option included the following provisions: (1) extend the debt maturities by 25–30 years; (2) compel the debtor countries to purchase zero-coupon US Treasury bonds to guarantee the bonds; and (3) make these bonds marketable. In 1992, 20 debtor nations, including Argentina, Brazil, Bulgaria, Mexico, Nigeria, Poland, and the Philippines, had issued Brady bonds. These debtor countries had converted approximately $100 billion in bank debt into Brady bonds. These Brady bonds are largely credited with solving the decade-long global debt crisis of the 1980s.

12.2.2 The Asian financial crisis of 1997–8

Despite prompt and concerted action by developing countries, industrialized countries, and international organizations to contain it, the Asian crisis of 1997–8 spread quickly and ferociously to north Asian, Latin American, and Eastern European economies to varying degrees. In fact, the Asian crisis pushed one-third of the globe into recession during 1998. The Asian crisis is the third developing-country financial crisis. The first major blow to the international financial system took place in August 1982, when Mexico announced that it could not meet its regularly scheduled payments to international creditors. The second crisis came on December 20, 1994, when the Mexican government announced it would devalue the peso against the dollar by 14 percent.

All three crisis episodes occurred under fixed exchange rate regimes. Economic theory suggests that a pegged exchange rate regime can become vulnerable when cross-border capital flows

are highly mobile. A central bank that pegs its exchange rate to a hard currency implicitly guarantees that any investors can exchange their local currency assets for that hard currency at the prevailing exchange rate. If investors suspect that the government will not or cannot maintain the peg, they may flee the currency; this capital flight, in turn, depletes hard-currency reserves and forces the devaluation that they fear.

A THAI CRISIS SPREAD THROUGHOUT THE WORLD International capital flows have caused "booms and busts" for Thailand's economy. How could an economic crisis in an emerging economy, such as that of Thailand, spread throughout the world? Thailand's economy surged until early 1997, partly because the Thais found they could borrow dollars at low interest rates overseas more cheaply than they could the baht at home. By late 1996, foreign investors began to move their money out of Thailand, because they were worried about the Thais' ability to repay. In February 1997, foreign investors and Thai companies rushed to convert their baht to dollars. The Thai central bank responded by buying baht with its dollar reserves and raising interest rates.

The rise in interest rates drove prices for stocks and land downward. This dynamic situation drew attention to serious problems in the Thai economy: a huge foreign debt, trade deficits, and a banking system weakened by the heavy burden of unpaid loans. The Thai central bank ran out of dollars to support the baht. On July 2, 1997, the central bank stopped the baht's fixed value against the dollar. And then the currency lost 16 percent of its value in a single day.

Investors and companies in the Philippines, Malaysia, Indonesia, and Korea realized that these economies shared all of Thailand's problems. So, investors and companies rushed to convert local currencies into dollars. And then, the peso, ringgit, rupiah, and won toppled in value like dominos in a row. In the fourth quarter of 1997, the IMF arranged emergency rescue packages of $18 billion for Thailand, $43 billion for Indonesia, and $58 billion for Korea.

By the end of 1998, the Asian crisis of 1997 had spread to Russia, Brazil, and many other countries. Again, the IMF arranged bailout packages, of $23 billion for Russia in July 1998 and $42 for Brazil in November 1998. This means that from fall 1997 to fall 1998, IMF-led rescue packages for Asia, Russia, and Brazil racked up some $184 billion to keep world markets safe.

In theory, capital is a boon, enabling developing countries to reduce poverty and raise living standards. But the theory does not always work smoothly. Countries can mismanage their inflows. Banks can be rife with favoritism or incompetence; bad loans are made. Moreover, multinational companies may build too many factories. Speculation may also propel stock prices to unrealistic heights. Finally, ample foreign exchange provided by overseas investors may support a spending spree on imports.

If capital inflows slow or reverse, a boom may collapse. This is precisely what happened in Thailand, where the Asian crisis started. The construction of unneeded office buildings was halted; bad loans mushroomed at finance companies and banks; and the stock market took a dive. Similar problems afflicted other Asian economies, and losses extended to their foreign trading partners and investors beyond Asia.

A number of plausible answers come to mind when we ask why the dominos toppled in rapid succession, even though in some cases they were nowhere near each other (Phillips 1999). Countries are increasingly connected by trade and investment, so a downturn in one hurts exports and investment in another. Countries also compete against one another. When one country devalues its currency, others may feel pressured to do the same in order to keep their exports and inward investment competitive. Commodity prices provide another link among troubled economies. For example, as Asia sank into recession, its businesses and consumers cut their pur-

chases of oil. That, in turn, accelerated the collapse in the price of crude oil and slashed the revenue for oil-exporting countries such as Russia.

THE CAUSES OF THE CRISIS During the second half of 1997, currencies and stock markets plunged across East Asia, while hundreds of banks, builders, and manufacturers went bankrupt. More specifically, figures 12.2 and 12.3 show that currency values and stock prices of Thailand, the Philippines, Malaysia, Indonesia, and Korea fell from 40 percent to 80 percent apiece from July 1997 to early 1998. This crisis in Asia caught nearly everyone by surprise, because Asia's fundamentals looked very good.

Although many explanations have been offered on the causes of the Asian crisis, Neely (1999) argues that most views fall into one of two theories: the "fundamentalist" view and the "panic" view. The fundamentalist view focuses on how borrowing countries' policies and practices fed the crisis, whereas the panic view focuses on the role that lenders played (see Global Finance in Action 12.1).

THE FUNDAMENTALIST VIEW The fundamentalist view holds that flawed financial systems were at the root of the crisis and its spread. The seeds of the financial crisis were actually sown several years before currency pressures began. Most East Asian countries had tied their currencies to the dollar. This tie served them well until 1995 because it promoted low inflation, supported currency stability, and boosted exports. However, the appreciation of the dollar against the yen and other major currencies after 1995 meant that East Asian countries began to lose their competitiveness in export markets.

Meanwhile, the maturity mismatch and the currency mismatch – the use of short-term debt for fixed assets and unhedged external debt – made banks and firms vulnerable to sudden swings in international investors' confidence. Many economists believe that these two types of mismatch were caused by moral hazard, because most East Asian companies and financial institutions operated with implicit or explicit government guarantees.

An increasing portion of foreign capital inflows to the region consisted of liquid portfolio investment (short-term bank loans and security investment) rather than long-term direct investment. Most of these liquid capital flows were directed into long-term, risky investments, such as real estate. Frequently, these same assets were used for collateral and investment, driving the value of existing collateral up, which in turn spurred more lending and increased asset prices. Risk was further heightened when local banks – in response to low interest rates abroad and fixed exchange rates at home – began to borrow foreign exchange abroad. These local banks converted the foreign exchange to domestic currency and lent the proceeds to their domestic customers in domestic currency, thereby assuming all the exchange rate risk.

The fundamentalist view holds that such a bubble was about to burst in the face of a shock. By late 1996, asset prices fell, causing nonperforming loans to rise and the value of collateral to fall; domestic lending then declined and asset prices fell yet again. When capital started to flow out of the region, monetary authorities raised interest rates to defend their currency pegs. However, these higher interest rates boosted the cost of funds to banks and made it more difficult for borrowers to service their debts. These monetary authorities soon ran out of hard currencies, thereby causing them to abandon the pegs. The currency depreciations led to widespread bankruptcies and slow economic growth, because practically none of some $275 billion in foreign loans owed by Thailand, the Philippines, Malaysia, Indonesia, and Korea was hedged.

The loss of export competitiveness and the moral hazard in lending combine to explain the severity of the Asian crisis. Appreciation of the dollar and depreciation of the yen and yuan slowed

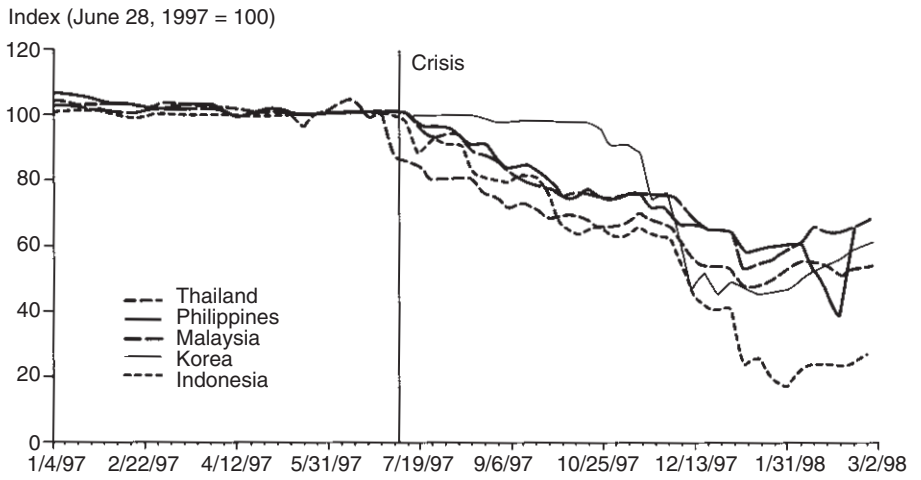

Figure 12.2 Currency devaluations for five crisis countries

Source: "What Does the Asian Crisis Mean for the US Economy?" *Southwest Economy*, The Federal Reserve Bank of Dallas, Mar./Apr. 1998, p. 2.

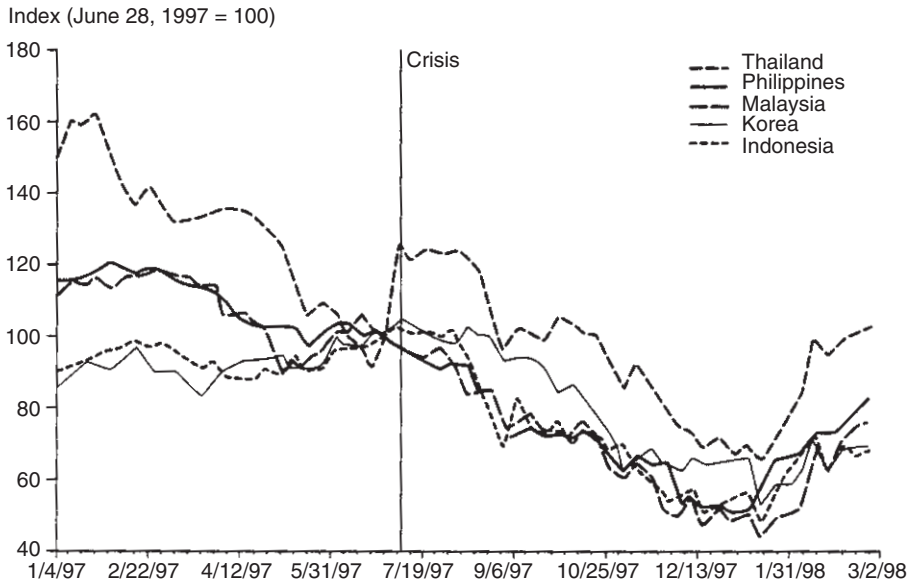

Figure 12.3 Stock market drops for five crisis countries

Source: "What Does the Asian Crisis Mean for the US Economy?" *Southwest Economy*, The Federal Reserve Bank of Dallas, Mar./Apr. 1998, p. 2.

Global Finance in Action 12.1

The Asian Financial Crisis and the International Monetary Fund (IMF)

Between 1990 and 1996, capital inflows to emerging market countries rose from $60 billion to $194 billion. No one carefully monitored these capital flows. When problems developed in Asia in 1997, neither the IMF nor the private lenders knew the true magnitude of the debts of some of these countries. Firms borrowed directly and through their subsidiaries. Often, the total was not shown on any balance sheet. The provision of the IMF Articles of Agreement requiring surveillance and the decision to strengthen surveillance following the 1995 Mexican crisis proved to be of little use. Though important, the IMF's failure to monitor seems small beside the elementary mistakes of private lenders. The lenders ignored three principles of prudent behavior that history has shown repeatedly to be a major reason for financial failure.

First, Asian banks and other Asian borrowers used short-term renewable credits from foreign banks to finance long-term loans (maturity mismatch). All banks do this to some extent, but the extent matters a great deal. When foreign loans were not renewed, the Asian banks and corporations faced large defaults. Second, Asian banks and corporations borrowed in foreign currencies and loaned in local currency (currency mismatch). They accepted the exchange risk without hedging. They failed to realize that the difference in interest rates included the risk of currency depreciation. Third, many international bankers did not ask to see consolidated balance sheets. They did not monitor the total assets and liabilities of the borrowers.

The IMF and the principal governments lent a total of $119 billion to Indonesia, Korea, and Thailand so that they could pay the interest on the existing bank loans or repay the principal. Extending new credit helped the Asian banks to avoid default, but money went to the foreign banks. International bank loans were in dollars, yen, and other hard currencies. Instead of taking large losses like the holders of currency, stocks, and bonds, the international banks collected their loans with relatively small losses. And in exchange for extending repayment, the banks collected fees for renegotiating the loans. They demanded government guarantees of the loans they made to banks, financial institutions, and private companies. Allen Metzer believes that this policy is the fourth mistake, because it may invite a larger financial crisis in the future.

Source: Allen H. Metzer, "Asian Problems and the IMF," *The Cato Journal*, Winter 1998, pp. 267–8.

Asian economic growth and hurt corporate profits. These slow economic growth and low corporate profits turned ill-conceived and overleveraged investments in property developments and industrial complexes into financial disasters. The crisis was then touched off when local investors began to dump their own currencies for dollars and foreign lenders refused to renew their loans. It was aggravated by politicians in these affected countries, who preferred to blame foreigners for their problems rather than seek structural reforms of their economies. Both domestic and foreign investors, already nervous, lost yet more confidence in these nations and dumped more of their currencies and stocks, driving them to record lows.

THE PANIC VIEW Subscribers to the panic view admit that there were vulnerabilities: increasing current-account deficits, falling foreign-exchange reserves, fragile financial systems, highly leveraged corporations, and overvaluation of the real exchange rate. Still, these vulnerabilities were not enough to explain the abruptness and depth of the crisis. They argue that economic fundamentals in Asia were essentially sound.

Developing countries that had experienced financial crises in the past, such as the Mexican peso devaluation of 1994 and the Latin American debt crisis of the 1980s, typically shared a number of common macroeconomic imbalances. These imbalances included large budget deficits, large public debt, high inflation caused by a rapid growth in money supply, slow economic growth, low savings rates, and low investment rates. By contrast, most Asian economies engulfed by the crisis had enjoyed low budget deficits, low public debt, single-digit inflation rates, rapid economic growth, high savings rates, and high investment rates. In other words, the Asian crisis differed from previous developing country crises in which financial decisions in the public sector were the main sources of difficulties. Public borrowing played a limited role in the Asian crisis.

The absence of the macroeconomic imbalances typical of past crises led some to argue that the Asian crisis was not caused by problems with economic fundamentals. Rather, a swift change in expectations was the catalyst for the massive capital outflows that triggered the crisis. The panic view holds that problems in Thailand were turned into an Asian crisis because of international investors' irrational behavior, and because of overly harsh fiscal and monetary policies prescribed by the IMF once the crisis broke.

Several factors support the premise that the crisis was panic-induced. First, no warning signs were visible, such as an increase in interest rates on the region's debt, or downgradings of the region's debt by debt-rating agencies. Second, prior to the crisis, international banks made substantial loans to private firms and banks even though they did not have government guarantees or insurance. This fact alone contradicts the idea that moral hazard was so pervasive that investors knowingly made bad deals, assuming that they would be bailed out. It is consistent, however, with the notion that international investors panicked in unison and withdrew money from all investments – good or bad.

Third, once the crisis was under way, the affected countries experienced widespread credit crunches. For example, even viable domestic exporters with confirmed sales could not obtain credit, again suggesting irrationality on the part of lenders. Finally, the trigger for the crisis was not the deflation of asset values, as fundamentalists argue; instead, the sudden withdrawal of funds from the region triggered the crisis. Radelet and Sachs (1998) state that some of the conditions the IMF imposed on these crisis countries for financial assistance added to, rather than alleviated, the panic. A key feature of the financial crises since the 1980s has been the existence of contagion. The panic view is consistent with the concept of **financial contagion**, which occurs

when: (1) events in one financial market trigger events in other markets; and (2) the magnitude of the response in the other markets appears unfounded in economic fundamentals. In all three crisis episodes discussed above, a crisis that began in one country quickly spread beyond its borders. In some cases, the next victims were neighbors and trade partners; in others, they were countries that shared similar policies or suffered common economic shocks. At times, as in the summer of 1998, changes in investor sentiment and increased aversion to risk contributed to contagion within and across regions.

POLICY RESPONSES Just like the previous developing-country crises, lenders, borrowers, and international financial institutions worked together to overcome the crisis. External payments were stabilized through IMF-led aid programs, the rescheduling of short-term foreign debts, and reductions in foreign borrowings through painful reversals of current-account deficits. The IMF has established new financing packages to encourage the adoption of policies that could prevent crises in selected developing countries.

East Asian countries closed many ailing banks, cleaned up nonperforming loans, encouraged surviving banks to merge with other banks, and compelled these banks to meet the capital adequacy ratio set by the Bank for International Settlements. Corporate-sector reforms included capital structure improvement through debt reduction, business restructuring to remove excess capacity, the reorientation of conglomerates on core specialists, and the upgrading of corporate governance standards. These countries also implemented market-opening measures to facilitate foreign investment.

These and other policy responses strengthened financial systems, enhanced transparency of policies and economic data, restored economic competitiveness, and modernized the legal and regulatory environment for more stringent regulatory oversight and consistent application of accounting standards. A modest rebound in exports, stock market prices, and capital investment began to take place in 1999 as a result of these policy responses to the Asian crisis.

12.2.3 Syndicated loans

A **syndicated loan** is a credit in which a group of banks makes funds available on common terms and conditions to a particular borrower. Perhaps one of the most important developments in the field of international lending for the past two decades (the 1980s and 1990s) has been the rapid growth of syndicated loans. In the Euromarket, syndicated loans compose almost half of bank lending to nonbank borrowers. Syndication is the device a group of banks adopt to handle large loans that one bank is unable or unwilling to supply. In other words, syndication differs from a direct commercial loan in that several banks participate at the outset. For example, Kuwait signed a $5.5 billion loan accord with 81 banks from 21 countries on December 13, 1991. This 5-year reconstruction deal was described as the largest syndicated loan ever extended to a sovereign borrower.

A syndicated loan must, therefore, be structured and packaged so that it satisfies the demands of the lenders and the needs of the borrowers. This type of loan has become increasingly popular because of: (1) the increasing size of individual loans; (2) the need to spread risks in large loans; (3) the attractiveness of management fees; (4) the publicity for participating banks; and (5) the need to form profitable working relationships with other banks.

Table 12.3 International syndicated loans (billions of US dollars)

Year	*Amount*	*Year*	*Amount*
1994	502	1998	820
1995	703	2000	1,465
1996	893	2001	1,398
1997	1,081	2002	1,343

Source: *Global Financial Stability Report*, The International Monetary Fund, Washington, DC, Mar. 2003 and Mar. 2004 issues.

Table 12.4 The total external debt of 138 developing countries (billions of US dollars)

Year	*Total external debt*	*Year*	*Total external debt*
1980	609	1998	2,395
1990	1,460	2000	2,364
1993	1,812	2002	2,339
1996	2,126	2003	2,433

Source: The World Bank, *Global Development Finance*, Washington, DC, various issues.

As shown in table 12.3, the total value of syndicated loans increased from $502 billion in 1994 to $1,081 billion in 1997, with an annual growth rate of 29 percent. The ample supply of funds in securities markets in 1997 intensified competition and maintained thin margins in international loan markets. Nevertheless, international syndicated credits rose 21 percent in 1997, driven by refinancing operations, mergers and acquisitions, and project financing. However, the Asian financial crisis of 1997–8 caused syndicated loans to fall by 24 percent in 1998 on a gross basis. Table 12.3 indicates that the total value of syndicated loans since 1999 appeared to recover from its big drop in 1998.

12.2.4 *The evaluation of international loans*

Traditionally, banks have been the dominant source of funds for developing countries, but bond markets have been an increasingly important source of funding in recent years (see Global Finance in Action 12.2). Nevertheless, the international banking community still seems fragile and vulnerable because of the sheer magnitude of the global debt outstanding. As shown in table 12.4, the external debt of 138 developing countries reached a total of $2,433 billion at the end of 2003. Loans from the world's private banks to more than 100 developing countries that do not produce oil represent half the total external debt of these countries. The number of banks holding this debt ranges from 800 to 1,000, and includes most of the major banks in the industrial countries.

Global Finance in Action 12.2

Asian Companies Turn to Capital Markets for Funds

Traditionally, capital markets have been the main source of funds for US and British companies, while banks have been the main source of funds for Asian companies. However, Asia appears to be growing less dependent on bank loans for funding as companies have increasingly turned to the stock and bond markets to raise money. Primary figures for 1999, for example, suggest a decided shift in the way Asian companies and governments obtain financing in the wake of the Asian financial crisis.

As of December 16, 1999, Asia-Pacific companies had raised more than $102.5 billion in share offerings in 1999, compared with a meager $68.6 billion in 1998, $94.5 billion in 1997 – the year the crisis broke out in Asia – and $67.8 billion in 1996. The bumper crop for 1999 included a $15 billion placing of shares in Japan's Nippon Telegraph & Telephone, a $10.3 billion placement by Australian phone company Telstra, and a $4.3 billion share offering by a fund run by the Hong Kong government.

The volume of new bonds for Asia-Pacific issuers rose to $98.1 billion in 1999 as of December 16, 1999, from $70.9 billion in 1998. The 1999 total is much less than 1997's $111.5 billion, but surpassed for a second straight year the amount that Asian companies raised through syndicated bank loans. The big bond issues in 1999 from outside Japan included a $1 billion deal for Korea Development Bank, a $1 billion deal for Malaysia, and a $1.6 billion deal for Thailand's Ministry of Finance.

Syndicated loans totaled $88 billion in 1999, well below the 1997 peak. Syndicated lending in the region for 1999 was about the same level as the previous year, but about half of 1997's level.

Of course, this shift away from bank lending has been born partly of necessity. For years, companies in Asia borrowed heavily from local and international banks. But a wave of Asian currency depreciations in 1997 and 1998 left many companies in the region unable to service their debts. Banks in the region were saddled with a mountain of nonperforming loans. Foreign lenders have been reluctant to lend money to Asian companies since the Asian financial crisis of 1997–8. With bankers still working out how to restructure or recoup these loans, plenty of banks are cautious about making new commitments.

Source: "More Asian Companies Turn to Markets for Funds and Away from Bank Loans," *The Wall Street Journal*, Dec. 30, 1998, p. C14.

On the one hand, international loans have some advantages for banks:

1 International loans have been very profitable for many large banks, and have had a significant impact on the earnings of these international banks.
2 Many banks have improved risk–return performance because they can diversify international loans by country, by type of customer, and by currency.

3 Several safeguards have reduced the risk of international loans. They include credit insurance programs in the lenders' own countries, guarantees by parent companies on loans to affiliates, and guarantees by host governments on loans to private companies within their country.

On the other hand, international loans have many disadvantages for banks:

1 Country risk analysis is extremely complex, because it depends on many variables.
2 International bankers recently did not anticipate dramatic increases in country risk.
3 Critics question the ability of debtor countries to service their external debt, because many loans are short-term variable loans.
4 If borrowing countries are unable to meet their obligations on time, banks will be forced to roll over their loans indefinitely.
5 The ultimate purpose of some loans is to finance balance-of-payments deficits. This type of loan does not improve the debtor country's ability to generate foreign-exchange earnings.

12.3 Country Risk Analysis

Sovereign or **country risk** refers both to the possibility of default on foreign loans and to unanticipated restrictions of cash flows to the parent country. There are two major differences between domestic loans and foreign loans. First, because repayment of international loans must go through the exchange market, international banks must assess prospects for exchange rates and for controls on capital flows. Second, a common legal system or an ultimate arbitrator does not exist to settle disputed claims. Under this condition, some debtor countries are unlikely to accept the decisions of Western-oriented international legal frameworks. Thus, country risk assessment is critical for commercial banks to safeguard their international loans against country risk.

12.3.1 The nature of country risk assessment

Many international bankers have undertaken country risk analysis for many years. They are now working on a second or third generation of country risk models. These bankers have modified the original models on the basis of experience and their knowledge of other banks' procedures. These modified models could result in better decisions by more informed businesspersons and less risk in international loans than before.

Country risk is nothing more than an assessment of economic opportunity against political odds. Thus, country risk assessment requires that international bankers analyze political and economic indicators. While political factors reflect a country's willingness to pay its debt, economic indicators measure the country's ability to pay its debt. This means that any rating system of a country's risk must combine both economic and political risks.

Several country risk assessment models are available in academic journals or from commercial sources. Yet factors to be considered in country risk analysis vary from forecaster to forecaster. The country risk rating system should meet several criteria for use at a bank. First, lending officers should be able to understand and use the system easily. Second, the system should rank all developing countries with foreign loans. Third, the system should have both short-term and

medium-term horizons. Fourth, the system should be effective in forecasting which countries are likely to reschedule their debts.

Country risk assessment serves a number of useful purposes for international banks. First, it permits international banks to assess relative conditions of diverse countries on the basis of common criteria. Second, because it is based on a common set of criteria, it often offsets individual biases. Third, a country's risk ranking is a useful "straw vote" rating.

12.3.2 How to assess country risk

Country risk is the possibility that borrowers in a country will not honor past obligations. Bank managers must develop a systematic approach for evaluating country risk. Approaches now depend on the type of borrower, such as the host government, an industrial firm, or a private bank. The same variables apply to all three types of clients, although the relative weight assigned to each variable may differ considerably. Country risk may be assessed by various debt ratios, the general creditworthiness of a country, and sovereign-government bond ratings.

DEBT RATIOS Debt burdens vary from one developing country to another. For some countries, external debt and debt-service payments are insignificant both in absolute amounts and in relation to gross national product (GNP) or exports of goods and services. In these countries, therefore, the burden of external debt does not cause hardship in the economy. For other countries, the debt burden is so large that it hampers growth-oriented policies. Developing countries that fall between these two categories are not seriously burdened by their external debt, but remain vulnerable.

The World Bank classifies the debt burden of developing countries according to a set of two ratios: (1) the ratio of present value of total debt service in 2001 to average GNP in 1999, 2000, and 2001; and (2) the ratio of present value of total debt service in 2001 to average exports in 1999, 2000, and 2001.

According to *Global Development Finance*, issued in 2003 by the World Bank, the ratios of many developing countries are extremely high. This report focuses on the policy implications of heavy burdens for three groups: severely, moderately, and less indebted countries. A country is classified as severely indebted if either of these two ratios exceeds a critical value: 80 percent for present value of debt service to GNP and 220 percent for present value of debt service to exports. A country is classified as moderately indebted if either ratio exceeds a critical value: 48 percent for present value of debt service to GNP and 132 percent for present value of debt service to exports. A country is classified as less indebted if neither is true. Countries are further classified as low-income countries if their GNP per capita was no more than $745 in 2001 and as middle-income countries if their GNP per capita was somewhere between $745 and $9,205 in 2001. Low- and middle-income countries are usually called **developing countries**.

Using these ratios, the World Bank identified 37 severely indebted low-income countries (SILICs), 13 severely indebted middle-income countries (SIMICs), 15 moderately indebted low-income countries (MILICs), 26 moderately indebted middle-income countries (MIMICs), 14 less indebted low-income countries (LILICs), and 33 less indebted middle-income countries (LIMICs). Table 12.5 shows five countries in each of these six classes.

Ratio analysis is sometimes problematic. For example, debt ratios must be used carefully when a country's debt situation is examined, because debt ratio analysis has its limitations. The two

Table 12.5 Classification of developing countries by debt ratios

Classification	*Countries*
SILICs	Angola, Ethiopia, Indonesia, Nigeria, and Pakistan
SIMICs	Argentina, Brazil, Jordan, Peru, and Yugoslavia
MILICs	Ghana, Haiti, Cambodia, Uganda, and Zimbabwe
MIMICs	Bulgaria, Chili, Hungary, Malaysia, and Russia
LILICs	Armenia, Eritrea, Georgia, India, and Vietnam
LIMICs	China, Czech Republic, El Salvador, Mexico, and Poland

Source: The World Bank, *Global Development Finance*, Washington, DC, 2003, p. 235.

debt ratios used by the World Bank have at least two drawbacks. First, they present the debt situation of a country in a particular reference year. The economic measures of that reference year may not be representative. For example, a temporary rise in commodity prices may increase the value of exports and therefore lower the debt-service ratio, but it will not significantly improve a country's long-term creditworthiness. Second, these ratios are static. The debt ratios developed for a particular country at a given time have little meaning unless they are compared with some standards.

Historical (future) standards and world standards are two criteria used. To analyze the debt situation of a country, one should compare its current ratios with its past or future ratios. A ratio may fluctuate considerably over time, so that sole reliance on a single ratio may at times give a misleading indication of a country's debt situation. When ratios are calculated over several years and compared with one another, analysts may find whether the country's debt situation is improving or worsening. To alleviate this problem, since 1999 the World Bank has used the average of GNP and exports for the last 3 years.

The second standard that analysts can use to examine a country's debt situation is world average ratios. It is important to remember that countries of the same size with the same income should be compared. The increasing diversity of national economies, the accelerated tempo of changes in technology and product development, and rapid changes in income level have made it extremely difficult to identify a particular country with a given country-group of about the same size. Proper classification by country and size is necessary for ratio analysis because the ratios vary from country to country and from size to size. To minimize this problem, the World Bank calculates the average ratios by country groups based on region and income.

OVERALL COUNTRY CREDITWORTHINESS The combined impact of economic, political, and other indicators may be used to rate country risk. For example, *Euromoney* country risk rankings are based on the following nine categories: political risk, economic performance, debt indicators, debt in default or rescheduled, credit ratings, access to bank finance, access to short-term finance, access to capital markets, and discount on forfaiting. These views based on historical data are supplemented by two subjective risk factors: economic and political. The economic risk factor is the prospective view of economic performance for each country by a panel of economists. The political risk factor is the prospective view of political stability for each country by a panel of political risk specialists.

Table 12.6 Country risk rankings

Ranking	*Least risky country*	*Score*	*Most risky country*	*Score*
1	Luxembourg	99.4	Congo	18.4
2	Norway	97.7	New Caledonia	18.2
3	Switzerland	97.5	Micronesia	13.9
4	USA	96.6	Somalia	13.2
5	Denmark	95.3	Cuba	12.0
6	UK	93.9	Liberia	11.6
7	Finland	93.8	Marshall Islands	10.7
8	Sweden	93.8	Afghanistan	7.8
9	The Netherlands	93.5	Iraq	4.3
10	Austria	92.4	North Korea	3.2

Source: www.euromoney.com, Mar. 2004.

Table 12.7 Bond ratings by Moody's and Standard & Poor's

Moody's	*S&P*	*Description*
Aaa	AAA	Highest quality
Aa	AA	High quality
A	A	Upper medium grade
Baa	BBB	Medium grade
Ba	BB	Lower medium grade/some speculative elements
B	B	Speculative
Caa	CCC	
Ca	CC	More speculative; higher risk of default
C	C	
–	D	In default

Table 12.6 presents a portion of *Euromoney*'s country risk ratings in March 2004: the 10 least risky countries and the 10 most risky countries. The lowest-ranking countries are those that have experienced war (Iraq and Afghanistan) or civil unrest (Congo), current communist countries (Cuba and North Korea), and countries facing economic difficulty (Somalia and Liberia).

SOVEREIGN-GOVERNMENT BOND RATINGS There are several ways to analyze or compare the quality of bonds. Two financial service firms – Standard & Poor's (S&P) and Moody's Investor Service – assign letter ratings to indicate the quality of bonds. Table 12.7 shows bond ratings by these two firms.

Triple A and double A are extremely safe. Single A and triple B bonds are strong enough to be called "investment grade": these bonds are the lowest-rated bonds that many banks and other institutional investors are allowed by law to hold. Double B and lower bonds are speculative; they are **junk bonds**, with a fairly high probability of default. Many financial institutions are prohibited from buying these junk bonds. During the peak of Asian currency crisis in December 1997, S&P and Moody's downgraded the credit ratings on Thailand, Indonesia, and South Korea to junk-bond status. This move sparked widespread sales of Asian bonds by portfolio man-

Table 12.8 Sovereign ratings by Moody's and Standard & Poor's

Moody's		*Standard & Poor's*	
Canada	Aaa	Canada	AAA
Liechtenstein	Aaa	Liechtenstein	AAA
Norway	Aaa	Norway	AAA
UK	Aaa	UK	AAA
USA	Aaa	USA	AAA
Indonesia	B3	Indonesia	B–
Lebanon	B2	Lebanon	B–
Romania	B1	Romania	BB
Pakistan	B3	Pakistan	BB–
Turkey	B1	Turkey	B

Sources: www.moodys.com and www.standardpoor.com, May 2004.

agers, because they are restricted to holding only investment-grade debt securities. Bond ratings are important to both investors and issuers, because they have a direct, measurable influence on the bond's interest rate and the borrower's cost of debt.

Since the early 1900s, US domestic bonds have been assigned quality ratings by S&P and Moody's that reflect their probability of default. These two rating agencies now provide credit ratings on many international bond issues. Sovereign-governments issue a sizable portion of all international bonds. In rating a country's credit risk, their analysis centers on an examination of economic risk and political risk.

Economic risk is assessed on the basis of a country's external financial position, balance of payments, economic structure and growth, economic management, and economic prospects. Political risk is assessed on the basis of the country's political system, social environment, and international relations.

Country credit ratings usually represent the ceiling for ratings that S&P and Moody's will assign obligations of all entities domiciled within that country. For example, 20 Korean banks lost investment-grade status of their bonds in late December 1997 as S&P and Moody's cut Korea's rating to junk-bond status. Table 12.8 shows sovereign ratings by these two rating agencies for selected countries: five countries with the highest credit rating and five countries with junk-bond status.

A SUMMARY OF COUNTRY RISK RATINGS Recent developing-country debt crises – the debt crisis of the 1980s, the Mexican peso crises of 1994 and 1995, and the Asian crisis of 1997–8 – have dramatized the importance of country risk analysis. Thus, we can understand why international bankers have searched for more systematic means of evaluating and managing country risk. They have recently increased resource commitments, employed more qualified analysts, and adopted more sophisticated methods to assess country risk. Although country risk will never disappear, its systematic assessment and management can significantly decrease its impact. A variety of ratios, country-credit ratings by some consulting companies, sovereign-government bond ratings by Moody's and S&P, and procedures established by an individual bank may be used to reduce the possibility of defaults on foreign loans and interest.

SUMMARY

This chapter has discussed international banking operations, international loans, and country risk analysis. The management of international banks is more complex than that of domestic banks. Country risk analysis illustrates this problem. Recent events in many debtor countries have brought analysts and investors to question international bankers about loans to economically risky countries. For some banks, international lending can be as important as their domestic operations. Thus, international banks must reduce the impact of country risk through systematic assessment and management.

Questions

1 Discuss the types of functions that international banks perform.
2 Discuss the types of foreign banking offices.
3 What were the two major causes of the Asian financial crisis of 1997–8?
4 What are major differences between domestic and foreign loans?
5 What were the major causes of the international debt crisis of the 1980s?
6 Explain the various steps taken by debtor countries and international banks to solve the international debt problems of the 1980s.
7 What is syndicated lending? Why do banks sometimes prefer this form of lending?
8 What is country risk? How can we assess country risk?
9 Describe policy responses to solve the Asian crisis.

Problems

1 In addition to the two debt ratios described in this chapter, the World Bank recommends the use of four additional debt ratios in assessing a country's risk: the ratio of total external debt to GNP, the ratio of total external debt to exports, the debt-service ratio (accrued debt service to exports), and the interest-service ratio (accrued interest service to exports). In 1998, Mexico had $380 billion in gross national product (GNP), $160 billion in total external debt, $140 billion in exports, and $29 billion in accrued debt service, and $13 billion in accrued interest service. Calculate the above four debt ratios for Mexico.
2 In 1998, Poland had $157 billion in GNP, a debt-to-GNP ratio of 0.32, a debt-to-export ratio of 1.12, a debt-service ratio of 0.11, and an interest-service ratio of 0.06. Calculate

Poland's total external debt, exports, accrued debt service, and accrued interest service for 1998.

3 Assume that the total external debt of 138 developing countries increased from $609 billion in 1980 to $2,332 billion in 2001.
   (a) Determine the annual compound growth rate of the total external debt for these 138 developing countries from 1980 to 2001.
   (b) Determine the annual simple growth rate of the total external debt for these 138 developing countries from 1980 to 2001.

4 Table 12.3 shows that syndicated loans increased from $502 billion in 1994 to $1,398 billion in 2001.
   (a) Determine the annual compound growth rate of the syndicated loans from 1994 to 2001.
   (b) Determine the annual simple growth rate of the syndicated loans from 1994 to 2001.

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Case Problem 12: The World Bank

Representatives of 44 governments founded the World Bank on July 1, 1944, during their conference at Bretton Woods, New Hampshire. The Bank is a sister institution to the International Monetary Fund (IMF), but has a separate, distinct objective. The Bank was largely the brainchild of the economist John Maynard Keynes, who envisioned an institution that would initially focus on postwar reconstruction in Europe and Asia and then shift to focusing on development of poor countries. As such, the Bank's overriding modern purpose is to spur development worldwide through loans and grants to underdeveloped countries. To help stress this goal, the mission statement of the Bank is the elegant and simple sentence: "Our dream is a world free from poverty."

The Bank consists of 184 countries that all share this goal. Membership of the Bank is only allowed for countries that are first members of the IMF. Typically, countries join both organizations. Member countries are shareholders who carry ultimate decision-making power in the World Bank. Each member nation appoints a Governor and an Alternate Governor to carry out these responsibilities. The Board of Governors, who are usually officials such as Ministers of Finance or Planning, meets annually at the Bank's Meetings each fall. The chairperson of the Board of Governors is the President of the World Bank. The governors decide on key Bank policy issues, admit or suspend country members, decide on changes in the authorized capital stock, determine the distribution of income, and endorse financial statements and budgets.

Specifically, their policy discussions during the annual meetings cover a variety of issues, such as poverty reduction, international economic development, and global development finance. This annual gathering provides a forum for international cooperation and enables the Bank to better serve its member countries. The meetings are traditionally held in Washington two years out of three and, in order to reflect the international character of the two institutions (the World Bank and the IMF), every third year in a different member country.

Because these ministers meet only once a year, the bulk of the Governors' powers are delegated throughout the year to the Board of Executive Directors. Every member government of the World Bank Group is represented at the Bank's headquarters in Washington, DC, by an Executive Director. The five largest shareholders – France, Germany, Japan, the UK, and the USA – each appoint an Executive Director, while the other member countries are represented by 19 Executive Directors who are elected by groups of countries (constituents). Some countries – China, Russia, and Saudi Arabia – have formed single-country constituencies, while others have joined together in multi-country constituencies. The 24 Executive Directors normally meet twice a week to oversee the Bank's business, such as loan applications and guarantees, new policies, the administrative budget, country assistance strategies, and borrowing and financial decisions.

The World Bank is part of a larger organization, the World Bank Group. The World Bank Group consists of five closely associated institutions, all owned by member countries that carry ultimate decision-making power. As explained below, each institution plays a distinct role in the mission to fight poverty and improve living standards for people in the developing world.

The term "World Bank Group" encompasses all five institutions. The term "World Bank" refers specifically to two of the five, the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). Table 12.9 shows a brief summary of each organization that makes up the World Bank Group.

The Bank has taken some specific actions that it rightly boasts about. It has become the world's largest external funder of education. Since its education funding began in 1963, the World Bank has provided some $31 billion in loans and credits, and it currently finances 158 education projects in 83 countries. It is also the largest external funder of the fight against AIDS/HIV. As a co-sponsor of UNAIDS, which coordinates the global response to the epidemic, the Bank has committed more than $1.7 billion to combating the spread of HIV/AIDS around the world. The Bank has pledged that no country with an effective HIV/AIDS strategy will go without funding and, in partnership with African governments, it has launched the Multi-Country HIV/AIDS Program (MAP), which makes significant resources available to civil society organizations and communities.

Case Questions

1 Table 12.9 summarizes the five organizations of the World Bank Group, and this chapter has discussed the Asian financial crisis. How might each part of the World Bank Group have helped after the crisis started?

Table 12.9 The organization of the World Bank Group

Title	*Start date*	*Cumulative lending*	*Mission*
The International Bank for Reconstruction and Development (IBRD) (184 members)	1945	$360 billion	The IBRD aims to reduce poverty in middle-income and creditworthy poorer countries by promoting sustainable development, through loans, guarantees, and analytic and advisory services.
The International Development Association (IDA) (162 members)	1960	$135 billion	The IDA provides interest-free credits to the world's poorest countries. These countries have little or no capacity to borrow on market terms. Each year, the cutoff to qualify for IDA credits is determined. In 2002, the operational cutoff for eligibility was a 2000 GNI (gross national income) per capita of $885.

Table 12.9 (continued)

Title	*Start date*	*Cumulative lending*	*Mission*
The International Finance Corporation (IFC) (175 members)	1956	N/A – has a committed portfolio of $21.6 billion	The IFC's mandate is to promote economic development through the private sector. Working with business partners, it invests in sustainable private enterprises in developing countries and provides long-term loans, guarantees, and risk management/advisory services.
The Multilateral Investment Guarantee Agency (MIGA) (157 members)	1988	$10.34 billion in guarantees	The MIGA helps encourage foreign investment in developing countries by providing guarantees to foreign investors against losses caused by noncommercial risks, such as expropriation, currency inconvertibility and transfer restrictions, and war and civil disturbances.
The International Center for Settlement of Investment Disputes (ICSID) (134 members)	1966	N/A – 103 cases registered	The ICSID helps to encourage foreign investment by providing international facilities for conciliation and arbitration of investment disputes; in this way, it helps to foster an atmosphere of mutual confidence between states and foreign investors.

2 Many critics claim that the World Bank Group is too large and attempts to do too much. Additionally, they claim that many of the Bank's activities overlap with the work of the World Trade Organization, the International Monetary Fund, and the United Nations. How valid do you find this criticism?
3 Imagine that you are the President of the World Bank. Who are your most powerful constituents? How much power do you have? Would you want this job?
4 What are the major differences between the IMF and the World Bank?
5 Visit the World Bank's website, www.worldbank.org, to discover its current projects.

Sources: J. Einhorn, "The World Bank's Mission Creep," *Foreign Affairs*, Vol. 80, No. 5, pp. 22–35; M. M. Phillips, "World Bank Rethinks Strategy for Poor: Political Change is Necessary, Not Economic Growth Alone, a Study Suggests," *The Wall Street Journal*, Sept. 13, 2000, p. A2; and www.worldbank.org.

CHAPTER 13

Financing Foreign Trade

Opening Case 13: US Export–Import Bank Seeks Private Investors

The official US export finance agency is seeking private investors to help it provide billions of dollars in loan guarantees and risk insurance for American exporters. On February 16, 2000, the Export–Import Bank (Ex–Im Bank) asked investment banks, commercial banks, insurance companies, and other financial institutions for proposals on how they might share the risks and rewards from future Ex–Im Bank financial deals. The Ex–Im Bank, which supported almost $17 billion in US sales overseas in 1999, hopes to raise $1 billion or more through this new proposal.

In essence, the Ex–Im Bank wants to sell, to one or more partners, stakes in future export-financing deals, in the hopes of making its own resources go further at a time when the US trade deficit is piling on the records. The agency is leaving it up to the private financial institutions – American or foreign – to come up with a creative way to structure the deal. The idea is for a private partner to put a certain amount of money or credit at Ex–Im Bank's disposal, and then share in Ex–Im Bank's fees. The financial institution might limit how that investment can be used – perhaps setting a dollar limit for a particular country – but not approve or reject individual Ex–Im Bank decisions.

In an unusual move, the agency put 1,500 pages of its own financial and institutional information on a website to make it easier for potential investors to perform due-diligence research. Hoping for quick action, the Ex–Im Bank held a pre-proposal conference on March 7, 2000. Ex–Im Bank officials first conceived of the idea in 1997. Private institutions showed interest, but pulled back soon after the Asian financial crisis sent US banks and investors fleeing the developing markets. Ex–Im Bank revived the concept after the crisis subsided.

Source: M. M. Philips, "Ex–Im Bank Seeks Investors for Guarantees," *The Wall Street Journal*, Feb. 16, 2000, p. B10.

This book emphasizes financial problems that arise when managing multinational operations. However, the financial manager of a multinational company (MNC) must be familiar with certain mechanics of financing foreign trade, because most MNCs are frequently engaged in foreign trade activities.

This chapter consists of three major sections. The first section discusses three basic documents involved in foreign trade: the draft, the bill of lading, and the letter of credit. The second section analyzes the various payment terms of foreign trade. The third section describes the major sources of financing foreign trade.

13.1 Basic Documents in Foreign Trade

Three important documents involved in foreign trade are:

1 A draft, which is an order to pay.
2 A bill of lading, which is a document involved in the physical movement of the merchandise by a common carrier.
3 A letter of credit, which is a third-party guarantee of the importer's creditworthiness.

13.1.1 Basic objectives of documentation

Documentation in foreign trade is supposed to assure that the exporter will receive the payment and the importer will receive the merchandise. More specifically, a number of documents in foreign trade are used to eliminate noncompletion risk, to reduce foreign-exchange risk, and to finance trade transactions.

NONCOMPLETION RISK The risk of noncompletion is greater in foreign trade than in domestic trade. This is why exporters want to keep title to the goods until they are paid and importers are reluctant to pay until they receive the goods. Foreign trade and domestic trade use different instruments and documents. Most domestic sales are on open-account credit. Under this credit, a buyer does not need to sign a formal debt instrument, because credit sales are made on the basis of a seller's credit investigation of the buyer. Buyers and sellers are typically farther apart in foreign trade than in domestic trade. Thus, the sellers are seldom able to ascertain the credit standing of their overseas customers. The buyers may also find it difficult to determine the integrity and reputation of the foreign sellers from whom they wish to buy. Much of this noncompletion risk is reduced through the use of three key documents: the draft, the bill of lading, and the letter of credit.

FOREIGN-EXCHANGE RISK Foreign-exchange risk arises when export sales are denominated in a foreign currency and are paid at a delayed date. In international trade, the basic foreign-exchange risk is a transaction risk. Transaction risk is the potential exchange loss from outstanding obligations as a result of exchange rate fluctuations. Forward contracts, futures contracts, currency options, and currency denomination practices can be used to reduce foreign-exchange risk associated with foreign trade.

TRADE FINANCING Because all foreign trade involves a time lag, funds are tied up in the shipment of goods for some period of time. Most trade transactions are free of noncompletion and foreign-exchange risks due to well-drawn trade documents and forward contracts. Banks are thus willing to finance goods in transit or even prior to shipment. Financial institutions at both ends of the cycle offer a variety of financing alternatives that reduce or eliminate either party's (exporter or importer) working capital needs.

13.1.2 Drafts

A **draft** or a **bill of exchange** is an order written by an exporter that requires an importer to pay a specified amount of money at a specified time. Through the use of drafts, the exporter may use its bank as the collection agent on accounts that the exporter finances. The bank forwards the exporter's drafts to the importer directly or indirectly (through a branch or a correspondent bank) and then remits the proceeds of the collection back to the exporter.

A draft involves three parties: the drawer or maker, the drawee, and the payee. The **drawer** is a person or business issuing a draft. This person is ordinarily the exporter who sells and ships the merchandise. The **drawee** is a person or business against whom the draft is drawn. This person is usually an importer who must pay the draft at maturity. The **payee** is a person or business to whom the drawee will eventually pay the funds. A draft designates a person or bank to whom payment is to be made if the draft is not a negotiable instrument. Such a person, known as the payee, may be the drawer himself or a third party such as the drawer's bank. However, this is generally not the case, because most drafts are a bearer instrument. Drafts are negotiable if they meet a number of conditions:

1 They must be in writing and signed by the drawer–exporter.
2 They must contain an unconditional promise or order to pay an exact amount of money.
3 They must be payable on sight or at a specified time.
4 They must be made out to order or to the bearer.

If a draft is made to order, the funds involved should be paid to the person specified. If it is made to the bearer, the funds should be paid to the person who presents it for payment.

When a draft is presented to a drawee, the drawee or his bank accepts it. This acceptance acknowledges in writing the drawee's obligation to pay a sum indicated on the face of the draft. When drafts are accepted by banks, they become bankers' acceptances. Because bankers' acceptances are highly marketable, the exporter can sell them in the market or discount them at his bank. Whenever they are sold or discounted, the seller adds his endorsement on the back of the draft. In the event an importer fails to pay at maturity, the holder of the draft will have recourse for the full amount of the draft from the last endorser.

Drafts are used in foreign trade for a number of reasons:

1 They provide written evidence of obligations in a comprehensive form.
2 They allow both the exporter and the importer to reduce the cost of financing and to divide the remaining cost equitably.
3 They are negotiable and unconditional; that is, drafts are not subject to disputes that may occur between the parties involved.

TYPES OF DRAFTS Drafts can be either sight (demand) drafts or time (usance) drafts. A sight draft is payable upon demand to the drawee–importer. Here the drawee must pay the draft immediately or dishonor it. A time draft is payable a specified number of days after presentation to the drawee. When a time draft is presented to the drawee, she may have her bank accept it by writing or stamping a notice of acceptance on its face. When a draft is drawn on and accepted by a bank, it becomes a bankers' acceptance.

Drafts may also be documentary drafts or clean drafts. Documentary drafts require various shipping documents, such as bills of lading, insurance certificates, and commercial invoices. Most drafts are documentary, because all these shipping documents are necessary to obtain the goods shipped. The documents attached to a documentary draft are passed on to an importer either upon payment (for sight drafts) or upon acceptance (for time drafts). If documents are to be delivered to an importer upon payment of the draft, the draft is known as a D/P (documents against payment) draft. If the documents are passed on to an importer upon acceptance, the draft is called a D/A (documents against acceptance) draft.

When a time draft is accepted by an importer, it becomes a trade acceptance or a clean draft. When clean drafts are used in foreign trade, the exporter usually sends all shipping documents directly to the importer and only the draft to the collecting bank. In this case, the goods shipped are surrendered to the importer regardless of payment or acceptance of the draft. The clean draft, therefore, involves a considerable amount of risk. This is why clean drafts are generally used in cases in which there is a considerable amount of faith between the exporter and the importer, or in cases in which multinational firms send goods to their foreign subsidiaries.

13.1.3 Bills of lading

A **bill of lading** is a shipping document issued to an exporting firm or its bank by a common carrier that transports the goods. It is simultaneously a receipt, a contract, and a document of title. As a receipt, the bill of lading indicates that the specified goods have been received by the carrier. As a contract, it is evidence that the carrier is obliged to deliver the goods to the importer in exchange for certain charges. As a document of title, it establishes ownership of the goods. Thus, the bill of lading can be used to insure payment before the goods are delivered. For example, the importer cannot take title to the goods until she obtains the bill of lading from the carrier.

TYPES OF BILLS OF LADING Bills of lading are either straight bills of lading or order bills of lading. A straight bill of lading requires that the carrier deliver the goods to the designated party, usually the importer. It is used when the goods have been paid for in advance; thus, it is not a title to the goods. An order bill of lading provides that the carrier deliver the goods to the order of a designated party, usually the exporter. The exporting firm retains title to the goods until it receives payment. Once payment has been made, the exporting firm endorses the order bill of lading in blank or to its bank. The endorsed document can be used as collateral against loans. It accompanies a documentary draft that requires such other documents as the bill of lading, commercial invoices, and insurance certificates. The procedures to handle these two types of bills of lading are well established. Commercial banks and other financial institutions in almost every country handle these documents efficiently.

Bills of lading can also be either on-board bills of lading or received-for-shipment bills of lading. An on-board bill of lading indicates that the goods have actually been placed on board

the vessel. On-board bills of lading are important because some insurance coverage, such as war risk, is effective only if goods are on board. By contrast, a received-for-shipment bill of lading merely acknowledges that the carrier has received the goods for shipment but does not guarantee that the goods have been loaded on the vessel. The cargo could sit on the dock for some time before it is shipped. This bill of lading is thus unsatisfactory when seasonal or perishable goods are involved. A received-for-shipment bill of lading can easily be converted into an on-board bill of lading by an appropriate stamp that shows the name of the vessel, the date, and the signature of an official of the vessel.

Finally, bills of lading may be either clean bills of lading or foul bills of lading. A clean bill of lading suggests that the carrier has received the goods in apparently good condition. The carrier does not have any obligation to check the condition of the cargo beyond external visual appearance. On the other hand, a foul bill of lading bears a notation from the carrier that the goods appeared to have suffered some damage before the carrier received them for shipment. Because a foul bill of lading is generally not acceptable under a letter of credit, it is important that the exporter obtains a clean bill of lading.

13.1.4 Letters of credit

A **letter of credit** is a document issued by a bank at the request of an importer. In the document, the bank agrees to honor a draft drawn on the importer if the draft accompanies specified documents such as the bill of lading. In a typical use, the importer asks that his local bank write a letter of credit. In exchange for the bank's agreement to honor the demand for payment that results from the import transaction, the importer promises to pay the bank the amount of the transaction and a specified fee.

ADVANTAGES OF LETTERS OF CREDIT The letter of credit is advantageous to both exporters and importers because it facilitates foreign trade. It gives a number of benefits to exporters. First, they sell their goods abroad against the promise of a bank rather than a commercial firm. Because banks are usually larger and have better credit risks than most business firms, exporters are almost completely assured of payment if they meet specific conditions. Second, they can obtain funds as soon as they have such necessary documents as the letter of credit and the bill of lading. When shipment is made, the exporter prepares a draft on the importer in accordance with the letter of credit and presents it to his local bank. If the bank finds that all papers are in order, it advances the funds – the face value of the draft less fees and interest.

Although its major beneficiaries are exporters, the letter of credit also gives a number of benefits to importers. First, it assures them that the exporter will be paid only if he provides certain documents, all of which will be carefully examined by the bank. If the exporter is unable or unwilling to make proper shipment, recovery of the deposit is easier from the bank than from the exporter. Second, the letter of credit enables the importer to remove commercial risk to the exporter in exchange for other considerations. Thus, the importer can bargain for better terms, such as a lower price. Moreover, it is less expensive to finance the goods under a letter of credit than by borrowing.

TYPES OF LETTERS OF CREDIT Letters of credit can be irrevocable or revocable. Most credits between unrelated parties are irrevocable. An irrevocable letter of credit can be neither cancelled

nor modified by the importer's bank without the consent of all parties. A revocable letter of credit can be revoked or modified by the importer's bank at any time before payment. This letter of credit is used as a method of arranging payment, but it does not carry a guarantee of payment. Most banks do not favor revocable letters of credit; some banks refuse to issue them because they may become involved in resulting litigation.

Letters of credit may also be confirmed or unconfirmed. A confirmed letter of credit is a letter of credit confirmed by a bank other than the issuing bank. An exporter might want a foreign bank's letter of credit confirmed by a domestic bank when the exporter has some doubt about the foreign bank's ability to pay. In this case, both banks are obligated to honor drafts drawn in accordance with the letter of credit. An unconfirmed letter of credit is a guarantee of only the opening bank. Thus, the strongest letter of credit is a confirmed, irrevocable letter of credit. Such a letter of credit cannot be canceled by the opening bank, and it requires both the opening and confirming banks to guarantee payment on drafts issued in connection with an export transaction.

Finally, letters of credit are either revolving or nonrevolving. A revolving letter of credit is a letter of credit whose duration may revolve weekly or monthly. A $50,000 revolving credit, for example, might authorize an exporter to draw drafts up to $50,000 each week until the credit expires. The revolving letter of credit is often used when an importer must make frequent and known purchases. However, most letters of credit are nonrevolving. In other words, letters of credit are typically issued and valid for a single transaction – one letter for one transaction.

13.1.5 Additional documents

In addition to the three documents described here – the draft, the bill of lading, and the letter of credit – other documents must generally accompany the draft as specified in the letter of credit. Some additional documents commonly required in international trade are commercial invoices, insurance documents, and consular invoices. These and some other documents are required to obtain the goods shipped; they are also essential to clear the merchandise through customs and ports of entry and departure.

THE COMMERCIAL INVOICE Issued by the exporter, a **commercial invoice** contains a precise description of the merchandise, such as unit prices, quality, total value, financial terms of sale, and shipping features. Some shipping features are FOB (free on board), FAS (free alongside), C&F (cost and freight), and CIF (cost, insurance, freight). The commercial invoice may also include some other information, such as the names and addresses of both the exporter and the importer, the number of packages, transportation and insurance charges, the name of the vessel, the ports of departure and destination, and any export or import permit numbers.

INSURANCE DOCUMENTS All shipments in international trade are insured. Most insurance contracts used today automatically cover all shipments made by the exporter. The risks of transportation range from slight damage to total loss of merchandise. In most cases, insurance coverage, provided by the carrier up to the port of destination, is sufficient. But most ocean carriers do not have any responsibility for losses during the actual transportation, except for those directly attributed to their negligence. Therefore, some form of marine insurance should be arranged to protect both the exporter and the importer. Additional coverage ranges from such limited coverage as collision, fire, and sinking to the broad coverage of all risks.

CONSULAR INVOICES Exports to many countries require a **consular invoice** issued by the consulate of the importing country. The consular invoice provides customs officials with information and statistics for the importing nation. More specifically, a consular invoice is necessary to obtain customs clearance; it also provides customs officials with information necessary to assess import duties. The consular invoice does not carry any title to the goods, and it is not negotiable.

OTHER DOCUMENTS Other documents might be required by the importer or might be necessary in clearing the goods through ports of entry or exit. These documents include certificates of origin, weight lists, packing lists, and inspection certificates. A certificate of origin certifies the country in which the goods are grown or manufactured. A weight list itemizes the weight of each item. A packing list identifies the contents of individual packages. An inspection certificate is a document issued by an independent inspection company to verify the contents or quality of the shipment.

13.1.6 A typical foreign trade transaction

As shown in figure 13.1, there are many steps and documents in the entire process of completing a foreign trade transaction. Each step or document is a subsystem of the entire transaction process, which itself is closely connected by a variety of other subsystems. Thus, the successful completion of a trade transaction may be viewed as an integral unit of many parts, which are directly or indirectly interrelated. A typical trade transaction might require the following 14 steps:

1 Importer places an order for a $1 million worth of machines, with an inquiry if Exporter is willing to ship under a letter of credit.
2 Exporter agrees to ship under a letter of credit and thus Importer arranges to have its bank open a letter of credit in favor of Exporter.
3 Importer's bank issues the letter of credit (L/C) in favor of Exporter and sends it to Exporter's bank.
4 Once Exporter's bank receives the L/C, it will notify Exporter.
5 Exporter ships the machines to Importer through a common carrier that issues an order bill of lading.
6 Exporter prepares a 60-day draft on Importer in accordance with the L/C and presents it to Exporter's bank along with such other documents as the bill of lading. At the same time, Exporter endorses the order bill of lading so that a title to the machines goes with the holder of the documents.
7 Exporter's bank forwards the draft and other documents to Importer's bank for acceptance. When the draft is accepted by Importer's bank, it becomes a bankers' acceptance (B/A). This means that Importer's bank has promised to pay the draft in 60 days.
8 Exporter instructs its bank to have the B/A discounted by Importer's bank. Alternatively, Exporter's bank receives the B/A from Importer's bank and then it may sell the B/A to an investor at a discount. Another alternative is that Exporter's bank may hold the B/A for 60 days and present it to Importer's bank for payment.
9 If Exporter's bank has discounted the B/A with Importer's bank, it transfers the proceeds less any fees and discount to Exporter.

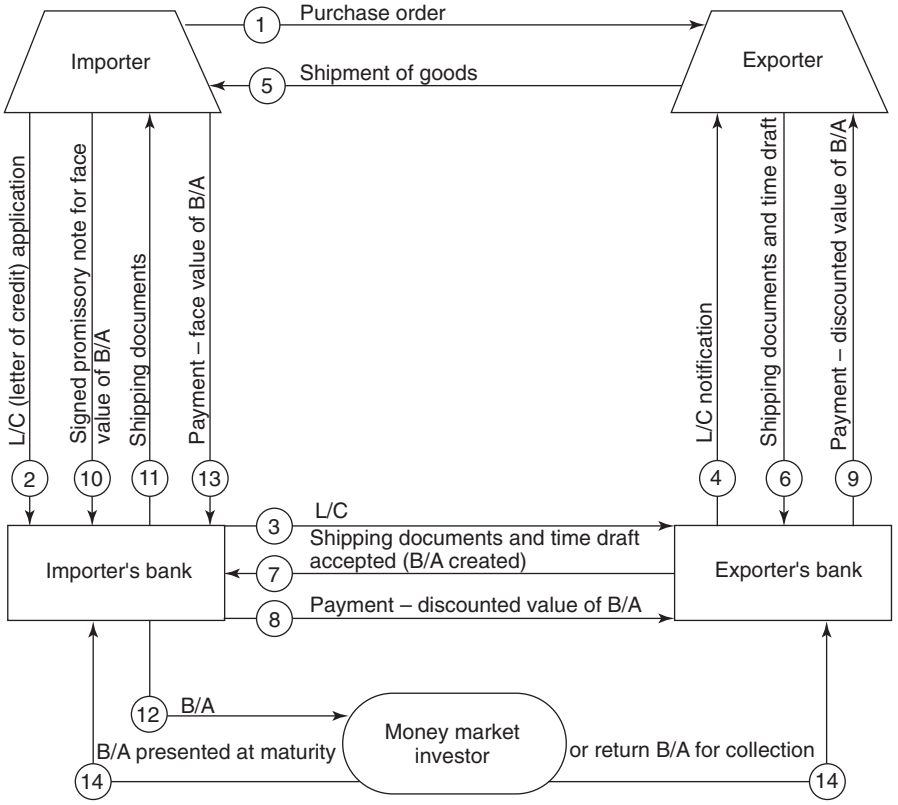

Figure 13.1 The process of a typical trade transaction

10 Importer's bank notifies the arrival of the documents to Importer. Importer signs a promissory note to pay its bank for the machines in 60 days.
11 Then Importer's bank releases the shipping documents so that Importer can claim the shipment.
12 Importer's bank may sell the B/A in the money market to an investor.
13 In 60 days, Importer's bank receives the funds from Importer to cover the maturing B/A.
14 On the same day, the holder of the B/A presents it to Importer's bank for payment. Or, the holder of the B/A may return it to Exporter's bank for collection through normal banking channels.

13.2 The Payment Terms of Export Transactions

Because trade competition has become increasingly severe, MNCs must know how best to finance their foreign trade. The terms and conditions under which foreign trade takes place vary significantly. They range from cash before delivery to sales in a foreign currency with credit terms over

1 year. Supply and demand conditions at the time of sale determine the actual terms and conditions of any particular transaction. But most foreign transactions involve longer credit terms than domestic transactions.

13.2.1 Countertrade

Countertrade refers to world trade arrangements that are variations on the idea of a barter. Modern countertrade covers various international trade arrangements in which the sale of goods and services by an exporter is linked to an import purchase of other goods and services. It became popular in the 1960s and 1970s as a way for communist countries to finance their international trade without money. In recent years, countertrade has gained new stature in international trade.

World trade continues to grow faster than world production because of increased countertrade. Unfortunately, no reliable figures on the volume of countertrade are available, because there is so much secrecy involved. In the 1980s and 1990s, countertrade increased within the nonsocialist world. In 1972, there were just 14 countries engaged in countertrade. By 1979, the list had increased to 27 countries, by 1984, 88, by 1989, 94, and by 1995, over 140 countries (Stevens 1995). The countries engaged in countertrade today range from developing nations, such as China and India, to industrialized nations, such as the United Kingdom and Japan. By the year 2000, the International Monetary Fund, the World Bank, and the US Department of Commerce estimated that countertrade would account for half of all world trade transactions (Anyane & Harvey 1995).

There is no way to determine the actual magnitude of countertrade, but some analysts estimate that it accounts for a third of world trade. In the past, the United States and international organizations frowned on countertrade as an inefficient form of commerce. However, the USA has been forced to recognize the cold fact that countertrade is growing in importance. The Omnibus Trade and Competitiveness Act of 1988 created a Finance and Countertrade Division within the International Trade Administration of the Department of Commerce, to monitor trends for government. The Countertrade Division also disseminates information to US companies concerning countertrade opportunities and assists firms desiring to engage in countertrade commerce.

We discuss several forms of countertrade below: simple barter, the clearing arrangement, the switch trade, counterpurchase, the compensation agreement, and the offset agreement.

SIMPLE BARTER Foreign trade, like domestic trade, is conducted in terms of money. However, foreign trade without money is possible through a barter system. **Simple barter** is a direct exchange of goods between two parties without the use of any currency as a medium of exchange. Most barter arrangements are one-time transactions carried out under a single contract. Barter terms are usually arranged between two countries on a bilateral trading agreement. For example, in one recent year General Electric traded its turbine generator to Romania in exchange for Romanian products.

Of course, individual transactions are made within the framework of intergovernmental trade agreements. Such barter deals are popular among nonmarket countries. Barter deals allow countries with a shortage of foreign exchange to obtain their deficit goods in return for their surplus goods. They also allow companies in countries that are short on foreign currency to obtain goods that they would not be able to obtain otherwise.

THE CLEARING ARRANGEMENT A **clearing arrangement** is a form of barter in which any two countries agree to buy a certain amount of goods and services from one another within a given period of time. Both parties set up clearing accounts with each other that are debited whenever one country imports from the other. At the end of an agreed-upon period of time, any account imbalances are cleared by a hard-currency payment or by the transfer of additional goods.

Payments for exports to nonmarket countries are often made through clearing arrangements whereby sales are balanced with purchases from importing countries. This clearing arrangement has led to many bilateral trading agreements that try to identify the goods each country will trade and to set overall trade limits. For instance, in 1994, China and Saudi Arabia had a clearing agreement of $1 billion to exchange goods and services. Their agreement contained a provision that any account imbalances would be settled for hard currency.

THE SWITCH TRADE A **switch trade** is a trading arrangement under which a third party purchases any account imbalance between the two countries. In other words, the third party will purchase the imbalance from the surplus country on behalf of the deficit country; the imbalance is then resold. Thus, switch trading is not really a separate form of countertrade but, rather, the inclusion of a middleman who serves to multilateralize the barter arrangement. The basic purpose of switch trading is to eliminate the imbalance in barter trade between two countries. Unfortunately, one of the countries frequently fails to sell sufficient goods to its trading partner. In this case, a shortage in clearing funds will be incurred for the deficit country. Hence, one country becomes a creditor, and the other becomes a debtor. When this occurs, the bilateral trading agreement tends to break down.

A breakdown is harmful to both countries, but there are two practical methods to avoid this breakdown. First, the bilateral trading agreement may specify that the debtor country pay amounts in excess of the allowable variations in the form of gold or convertible currency to the creditor country. This type of solution is known as a clearing arrangement. Second, to reconcile the imbalance in barter transactions between the two countries, they may agree to utilize a switch trade broker.

Example 13.1

Assume that Russia has agreed to trade its machinery for Cuban sugar. Russian machinery and Cuban sugar are then given arbitrary unit prices in clearing dollars. The agreement specifies that $1 million in commodities will be exchanged during the following year. By the end of the year, Russia finds that it has accumulated $400,000 in unneeded sugar.

To meet its obligations as well as to dispose of the unwanted goods, Russia may seek the services of a switch trader. Russia calls one of the switch trade brokers and offers her $400,000 worth of sugar in the clearing account at a discount of 30 percent. Once the actual value of the sugar has been ascertained by the broker, she calls sugar dealers who might pick up the credit. Eventually, she finds a buyer who offers 75 percent of the credit. Russia receives 70 percent of its $400,000 credit in hard currency for the unneeded sugar, the broker takes 5 percent on the deal, and the buyer purchases the sugar for $400,000

minus a 25 percent discount. Russia, the switch-trade broker, and the buyer benefit from the deal, but Cuba may find that it has undersold its sugar in the world sugar markets by the unexpected dumping of its own goods.

COUNTERPURCHASE This form of countertrade typically takes place between a Western industrial country and a Third World country. A **counterpurchase,** also known as an "indirect offset," involves a standard hard-currency export, but the seller agrees to a return purchase of goods and services that are not directly related to the goods that the seller sold. For example, General Motors (GM) may agree to sell 500 passenger cars to Poland for $10 million and to buy $2 million worth of Polish coal within a 2-year period.

The seller is frequently forced to buy some goods that are not easily marketable in its country. Thus, in our example, for GM to cover its potential losses, it could demand marketable goods or increase its prices. If GM charges 15 percent more for its cars, it can buy back a comparable percentage of worthless goods. Another alternative available to GM is to assign its obligation to other Western companies or export trading companies that may market these counterpurchases more readily.

THE COMPENSATION (BUYBACK) AGREEMENT A **compensation agreement** is an agreement by an exporter of plant and/or equipment to receive compensation in the form of future output from that plant. Examples of buyback transactions include Japan's recent agreements with Taiwan, Singapore, and Korea to exchange its computer chip production equipment for computer chips produced by the plant as full or partial payment.

A typical buyback transaction involves very large expenditures and a long-term time frame for fulfillment. Thus, such an arrangement has attributes that make it an alternative form of direct investment. The value of the buyback agreement normally exceeds the value of the original sale.

THE OFFSET AGREEMENT Frequently called "direct offset," an **offset agreement** is an arrangement similar to the counterpurchase, but the seller is required to use goods and services from the buyer country in the final product. In other words, under an offset agreement, the seller is required to offset the purchase price of the buyer in some way.

For decades, foreign buyers of US arms mostly wanted to help the US seller build the planes, missiles, or other weapons being sold to reduce the purchase price. Since the mid-1980s, buyers have increasingly wanted commercial and military technology to broaden the purchaser's economy. In fact, such contracts and technology transfers now occur in aerospace, transportation equipment, and electrical equipment. The terms of the offset on individual contracts may vary substantially. The most common categories of offsets are coproduction, licensed production, subcontractor production, overseas investment, and technology transfer.

AN EVALUATION OF COUNTERTRADE Hennart (1989) studied 1,277 countertrade trade contracts between June 1983 and December 31, 1986. These 1,277 transactions consisted of 694 for clearing arrangements, 298 for counterpurchases, 171 for batters, 71 for buyback agreements, and 43 for offset agreements. Hennart found that each country grouping had a tendency to engage in certain types of countertrade transaction. Oil-exporting and -developing countries used

more counterpurchases, centrally planned economies engaged in more buyback agreements, and developed and middle-income countries utilized more offset agreements. Barter was most common between two middle-income countries, between developed and middle-income countries, and between middle-income countries and centrally planned economies. The study by Marin and Schnitzer (1995) is consistent with Hennart's findings.

In theory, countertrade is a movement away from free trade. This form of trade often forces some MNCs to set up operations to deal in products very remote from their expertise. Countertrade is also inflexible and involves a limited range of products.

Nevertheless, several reasons have been suggested for the current growth of countertrade. They include: (1) limited access to hard-currency finances; (2) the opening of new markets; (3) the use of countertrade as an alternative to direct investment; (4) the avoidance of trade restrictions; (5) the fulfillment of state planning goals; and (6) the disposal of surplus and poor quality goods.

13.2.2 Cash terms

Cash terms may be either COD or CBD. COD terms mean cash on delivery of the goods, and CBD terms mean cash before delivery of the goods. Under either COD or CBD terms, an exporter does not extend credit. Although credit risk does not exist under either terms, COD terms are accompanied by a risk that an importer may refuse a shipment, while CBD terms avoid all risk. Under CBD terms, an exporter may insist on cash at the time of order or he may specify the time of cash payment prior to shipment. Another possible arrangement is that a part of the payment is made at the time of order, that progress payments are made between the time of order and the time of shipment, and that the final payment is made just before the release of goods to a common carrier.

Cash terms are the exception in these days of severe international competition. An importer does not like cash-type transactions, although such transactions are ideal from the exporter's point of view. One reason for this dislike is that an importer is forced to accept all risks in transit, in exchange fluctuations, and in the quality of the goods received. Consequently, the exporter will insist on cash terms only in instances of the importer's poor credit standing or extreme political risks in the importing country. If the sale involves products specially manufactured for the importer, the exporter may demand some kind of advance-payment arrangement.

13.2.3 Consignments

Goods for export may be consigned to a subsidiary, the exporter's own agent, an independent agent, or an import house. Assume that an exporter in New York ships, to an importer in London, 100 cases of quart bottles on a consignment basis. A **consignment** is the delivery of goods into the possession of another for the purpose of sale. Because the exporter pays all the expenses connected with the shipment, the importer incurs no expenses at the time this shipment is delivered to her warehouse. Actually, the 100 cases of bottles are still on the exporter's inventory. Thus, if the importer should fail, the exporter can demand that all the unsold bottles be returned to him.

Let us further assume that this consignment arrangement has a 10 percent commission on all bottles sold. If the importer sold all of the 100 cases at $50 per case, she would deduct her com-

mission of \$500 (100 × \$50 × 0.10) and remit to the exporter a dollar draft for \$4,500 on a New York bank.

A consignment to an independent agent or an import house has most of the same problems as an open-account transaction. Hence, this type of operation is usually confined to companies that are working together very closely or that completely trust each other.

13.2.4 Credit terms

Most importers are not required to pay for goods before or on delivery, but they are allowed a short postponement period before payment is made. During this period, the exporter extends one of three types of credit to the importer: (1) open account, (2) notes payable, and (3) trade or bankers' acceptances.

OPEN ACCOUNTS Credit of this sort does not require the importer to sign a formal debt instrument as evidence to the amount that she owes the exporter. The importer simply charges her purchases, much in the same fashion that domestic retail stores extend credit to their customers. Then the importer's account is carried on the books of the exporter like other receivables. This arrangement places the entire financial burden upon the exporter. Because banks usually refuse to advance against accounts receivable, this ties up large amounts of the exporter's capital. In addition, with this arrangement the exporter assumes the risks of foreign-exchange blockage and buyer default. Therefore, open-account terms are extended only to trusted customers in countries that have no foreign-exchange or political problems.

PROMISSORY NOTES In some export transactions, promissory notes are given instead of open-account credit. In this case, the importer is requested to sign a **promissory note** that provides evidence of her debt to the exporter. Thus, this arrangement makes the importer recognize her debt formally. The note calls for the payment of the obligation at some future date.

TRADE ACCEPTANCES A trade acceptance is a form of short-term financing common in almost all foreign trade activities. In fact, it is the largest source of short-term funds for importers. Under this method of financing, the exporter draws a draft on the importer, ordering her to pay the draft at some specified future date. The exporter will not release the goods until the importer accepts the draft. When the importer accepts the draft, it becomes a **trade acceptance**. When a bank accepts the draft, it becomes the bankers' acceptance.

THE COST OF THE CASH DISCOUNT FORGONE Most credit terms include a net period that refers to the period of time allowed for payment. The terms "net 30" mean that the invoice price must be paid within 30 days. The terms "2/10, net 30" indicate that a 2 percent discount is offered if payment is made within 10 days; otherwise, the full amount of the bill must be paid within 30 days. The annual interest cost of the cash discount not taken may be computed as follows:

$$\frac{\text{percent cash discount}}{100 - \text{percent cash discount}} \times \frac{360}{\text{net credit period}}$$

Thus, the annual interest cost of forgoing the terms "2/10, net 30" is:

$$\frac{2}{100-2} \times \frac{360}{20} = 36.73\%$$

Here we have used 360 days rather than 365 as the number of days in the year, for ease of calculation. If 365 days are used, the cost of the cash discount forgone increases to 37.24 percent. It is also important to note that the cost of the cash discount forgone is not an explicit cost associated with trade credit, but an implied cost.

COLLECTING OVERDUE ACCOUNTS Normally, between 1 percent and 3 percent of a company's exports go uncollected. Small exporters, however, take more risks than do larger ones, for a number of reasons. First, they are eager to develop new market opportunities. Second, they often sell on terms other than a confirmed letter of credit. Third, they are not as well versed with the mechanics of foreign sales. Consequently, their percentage of uncollected export sales may be higher than that of large exporters (see Global Finance in Action 13.1).

To establish clear-cut procedures for past-due accounts, the exporter must decide how overdue it should allow an account to become before collection procedures are started. If collection procedures are begun too early, they may be too expensive in terms of both out-of-pocket expenditures and lost goodwill to the additional revenues that may be gained. As an account becomes older, however, it becomes more expensive and more difficult to collect.

Once an account becomes delinquent, exporters have three options. Exporters will attempt to collect overdue accounts themselves by letters, phone calls, telexes, and/or personal visits. If all these attempts to collect overdue accounts fail, exporters can turn over the account to a collection agency or take direct legal action against the account. However, both alternatives are extremely costly in terms of both out-of-pocket costs and the customer relationship.

Global Finance in Action 13.1

Pitfalls for Small Exporters

Rotary Corporation is a medium-sized US company that supplies aftermarket outdoor power equipment parts and accessories. The company now delivers parts to customers in more than 48 foreign countries, as it explores avenues to maintain a worldwide presence in the outdoor power equipment industry. There are lessons from Rotary's success that may help other small and medium-sized companies develop international sales. Rotary avoided nine common pitfalls to global expansion by stressing the "three Cs" of international commerce: commitment, customers, and cultural sensitivity.

Four pitfalls in the area of commitment are: (1) insufficient commitment by top management to overcome the initial difficulties and financial requirements of exporting; (2) failure to obtain qualified export counseling and obtain a master international marketing plan before starting an export business; (3) failure to use an export management company; and (4) failure to consider licensing or joint venture agreements.

Two pitfalls in the area of customer relations include: (5) insufficient care in selecting overseas distributors; and (6) chasing orders around the world, instead of establishing a basis for profitable operations and orderly growth. Three pitfalls in the area of cultural sensitivity are: (7) failure to assist vendors in complying with the North American Free Trade Agreement; (8) failure to treat international distributors on an equal basis with domestic counterparts; and (9) failure to print service, sales, and warranty messages in local languages, or to modify products to meet cultural preferences in other countries.

Source: L. B. Fletcher, L. S. Hamilton, and L. T. Denton, "Exporting the Right Way," *Strategic Finance*, July 1999, pp. 26–30.

13.3 Sources of Financing Foreign Trade

Banks, private nonbank financial institutions, and governments pool their resources to finance foreign trade. Banks finance foreign trade through a variety of methods. Export trading companies, factoring, and forfaiting are also used to finance foreign trade. The Export–Import Bank and the Private Export Funding Corporation are major forces in helping US exporters sell their goods and services to foreign buyers.

13.3.1 Bank financing

Banks are important lenders to those engaged in international trade. They provide several forms of credit that are convenient to exporters and importers, including trust receipts, bankers' acceptances, loans to exporters, and loans to importers.

TRUST RECEIPTS When goods are shipped under a time draft, the importer generally signs a **trust receipt** that collateralizes the draft by the goods, and establishes that borrowers hold certain goods in trust for the lender. The document provides that the importer will be the agent of her bank in the sale of the goods. The bank retains title to the goods until the importer has made full settlement. The importer is allowed to sell the goods but must turn the proceeds of the sale over to the bank in payment of the loan. The bank assumes any losses that occur under a trust receipt.

BANKERS' ACCEPTANCES We can best explain how this method of financing operates with the following illustration. Assume that a Detroit firm desires to import a $10,000 shipment of perfumes from a French firm. The French firm is willing to grant a 60-day credit. The Detroit firm may arrange to have its Detroit bank open a letter of credit in favor of the French firm. The letter of credit states that the Detroit bank will honor drafts drawn on the Detroit firm if they are drawn in accordance with detailed terms in the letter of credit. When shipment is made, the French firm prepares a 60-day draft on the Detroit firm and presents it to its French bank. The

French bank will advance the euro equivalent of $10,000, less interest and fees, to the French firm. Then the French bank will forward the draft, along with such shipping documents as the bill of lading, to its Detroit correspondent bank which, in turn, will present it to the Detroit firm's bank for acceptance. If all papers are found to be in order, the Detroit bank accepts the draft and it becomes a bankers' acceptance. Thus, **bankers' acceptances** are drafts accepted by banks.

Because bankers' acceptances are of very high quality, the French bank can easily arrange its sale and thus recover the funds it advanced. If the French firm did not discount the draft at its French bank, it could sell the draft to an investor at a discount. The Detroit firm obtains the credit it wants, and the risks with the exception of the accepting bank are minimal. The credit transaction is completed when, in 60 days, the Detroit bank, which looks for repayment, pays the bankers' acceptance by the Detroit firm.

Example 13.2

An exporter has a $10,000 bankers' acceptance for 6 months, the acceptance fee is 1 percent per year, and the discount rate on this bankers' acceptance is 12 percent per year. If the exporter chooses to hold the bankers' acceptance until maturity and then collect, it will receive the face amount less the acceptance fee:

Face amount of the bankers' acceptance	$10,000
Less: 0.5% acceptance fee for 6 months	50
Amount received by exporter in 6 months	$9,950

Alternatively, the exporter can sell the bankers' acceptance at a 6 percent discount rate (12 percent ÷ 2) and receive $9,350 immediately:

Face amount of the bankers' acceptance	$10,000
Less: 0.5% acceptance fee for 6 months	50
6% discount rate for 6 months	600
Amount received by exporter immediately	$9,350

LOANS TO EXPORTERS AND IMPORTERS Bankers' acceptances are a form of bank loan to exporters. Banks can also make loans to exporters by cashing, purchasing, discounting, and collecting drafts. Banks cash drafts if the drafts are denominated in local currency and are drawn on time. They purchase drafts if the drafts are denominated in foreign currencies. In this case, drafts are generally exchanged for local currency at an appropriate exchange rate. They discount drafts if the drafts are denominated in local currency and if the terms of the sales involve time drafts. When banks collect drafts,

they simply act as agents for exporters. However, they may lend against either the total or a percentage of the drafts outstanding.

13.3.2 Other private financing

Some popular forms of other private financing consist of export trading companies, factoring, and forfaiting.

EXPORT TRADING COMPANIES In October 1982, President Reagan signed into law the **Export Trading Company Act**, to help small and medium-size firms sell their goods overseas. Originally, the Export Trading Company Act was conceived as the US answer to highly successful Japanese trading companies, which handle most of that country's exports.

The Export Trading Company Act of 1982 removed two major barriers that had long put US exporters at a disadvantage. First, this Act allows bank holding companies, previously barred by Federal regulations from investing in commercial enterprises, to invest in export trading companies. Second, it permits competing companies to join for export purposes without fear of antitrust ramifications. An export trading company (ETC) must obtain certification from the Secretary of Commerce that it will not restrain domestic or export trade of the USA. When the Secretary of Commerce notifies the Attorney General of certification, the ETC is exempted from both criminal antitrust prosecution and the Bank Holding Company Act, so long as its activities conform to those described in the certification.

Export trading companies engage primarily in two forms of activity: trade intermediation and export outlets for US manufacturing companies. In their role as trade intermediaries, export trading companies can provide small and medium-size firms with comprehensive "one-stop" services, such as market analysis, distribution services, documentation, financing, foreign-exchange transactions, transportation, and legal assistance. They can buy products from other US companies and export these products either through their own outlets or to outside distributors.

FACTORING **Factors** buy a company's accounts receivable largely on a nonrecourse basis and thus accelerate the conversion of the company's claims against its customers. "Nonrecourse" means that the factor has no right to claim reimbursement from the seller of accounts receivable if the seller's customers fail to pay their bills. Factors perform a number of additional functions such as credit checking, bookkeeping, collecting accounts, and risk bearing. The factor reviews the credit of the borrower's customers and establishes credit limits in advance. The maximum amount of advance against uncollected accounts receivable is established as a percentage of the invoice value. The factor receives an interest charge on the daily balance of advances plus a commission for credit analysis, bookkeeping, collecting accounts, and risk taking.

Exporters may turn to a factor when they have difficulty collecting on open-account sales or when their bank is unwilling to collect notes receivable. Factors' rates on foreign accounts are usually higher than those of banks. Thus, factors are frequently used as a last resort by exporters who need funds badly and/or have almost no hope of collecting.

The factor's credit investigation of the exporter's customers is relatively quick and inexpensive. For this reason, even if the exporter does not discount his accounts receivable, he can still use the factor's facilities to estimate his prospective accounts' creditworthiness. If the exporter discounts his accounts receivable on a nonrecourse basis, the factor will assume all commercial

and political risks of nonpayment. For these services, factors charge a commitment fee of 1–2 percent and a rate of interest in excess of the prime lending rate.

In June 1999 the Factors Chain International, the world's largest network of factoring companies, reported that 700 factors from 50 countries had financed $500 billion worth of exports in 1998. An exporter's use of factors depends on two considerations. The first consideration is whether the exporter can perform credit evaluation functions as well as the factor. Because large international factors evaluate the same customer for many companies, they build credit files and expertise, allowing them to evaluate credit at a lower cost than the exporter. The second consideration is whether the availability of funds and the interest charged by alternative sources are more attractive than those offered by the factor.

Example 13.3

An exporter has recently sold its accounts receivable of $10,000 to a factor. The factor advances 80 percent of the receivables, charges 1 percent interest per month, and charges a 2 percent factoring commission (a one-time charge). Both the interest and the commission are paid on a discount basis.

The exporter's net proceeds are computed as follows:

Face value	$10,000
Less: 20% reserve due from factor	2,000
2% factoring fee	200
Funds available for advance	$7,800
Less: 1% interest on advance	78
Net proceeds from advance	$7,722

Hence, the exporter receives a cash advance of $7,722 now and expects to recover the $2,000 reserve later. The annualized cost of factoring the accounts receivable is 14.71 percent [($200 + $78 × 12)/($7,722)].

FORFAITING Because capital goods such as plants and airplanes are quite expensive, the importer may not be able to make payment on the goods within a short period of time. Thus, long-term financing may be required on some international trade of capital goods. The exporter could finance such a sale, but may not desire to do so because its credit may extend over several years.

A forfaiting transaction involves an importer that issues a promissory note to pay for the imported goods over a period of 3–5 years. The notes are extended to the exporter, who sells them at a discount to a forfaiting bank. The importer will make semiannual payments during the period to the forfaiting bank. In other words, a **forfaiting** transaction refers to the purchase of financial obligations such as promissory notes without recourse to the exporter. The forfait-

Table 13.1 Differences between factoring and forfaiting

Factoring	*Forfaiting*
Occasionally with recourse	Always without recourse
Maturity of 6 months or less	Maturity of 6 months to 10 years
Ongoing, revolving deals	One-time deals
Works with consumer goods	Works with capital goods
Avoids developing countries	Works well in developing countries
Less expensive	More expensive

Source: G. S. Hill and K. Tanju, "Forfaiting: What Finance and Accounting Managers Should Know," *Financial Practice and Education*, Fall/Winter 1998, pp. 53–8.

ing markets, centered in London and Zurich, are largely free of government support, supervision, or regulation.

A typical forfaiting transaction involves four parties: the importer, the exporter, a bank, and the forfaiter. The importer pays the exporter with promissory notes that will mature at set intervals over a several-year period. A bank in the importer's country then guarantees these promissory notes; those notes guaranteed by a bank are usually irrevocable, unconditional, and transferable. The exporter in turn sells the guaranteed paper to the forfaiter at a discount from the face value; the amount of discount depends on the importer's credit rating, the guaranteeing bank's credibility, and interest costs over the paper's lifetime. As the paper matures, the forfaiter or the holder of the paper presents it to the guaranteeing bank for payment.

The forfaiting arrangement allows the exporter to avoid most risks involved in his export sales. However, this financing method has a number of drawbacks. First, the amount of the discount can be quite large. Second, the guaranteeing bank normally charges a substantial fee and places a freeze of equal value on the importer's account. Third, the exporter still faces some risk if the bank guarantor and/or the importer refuses to pay on the ground that the notes have some hidden legal defect.

The value of world exports financed through forfaiting arrangements reached about $30 billion in 1998. Conceptually, forfaiting is a form of factoring. Factoring is normally used for short-term, relatively small deals with repeat customers. Forfaiting, on the other hand, is typically used for medium-term, one-time major deals up to $100 million in size. Table 13.1 shows the major differences between these two forms of export financing.

13.3.3 Export financing methods in practice

To determine the usage of major export-financing vehicles, Ricci and Morrison (1996) surveyed treasurers of Fortune 200 companies in 1995. They received a 63 percent response rate from their questionnaire. These two researchers found that Fortune 200 companies exhibit a high degree of internationalization: more than 98 percent sell overseas.

Table 13.2 shows how frequently large US MNCs used the six export-financing methods described in this chapter: the open account, letters of credit, drafts, cash in advance, factoring, and consignment. Open accounts and letters of credit were the most frequently used methods.

Table 13.2 The usage of export-financing methods

Method	*Often*	*Sometimes*	*Rarely*	*Never*
Open account	52.1%	34.5%	10.1%	3.4%
Letters of credit	43.5%	46.8%	7.3%	2.4%
Drafts	13.2%	52.9%	27.3%	6.6%
Cash in advance	12.5%	41.7%	40.0%	5.8%
Factoring	2.6%	13.0%	34.8%	49.6%
Consignment	1.7%	15.4%	51.3%	31.6%

Source: C. W. Ricci and G. Morrison, "International Working Capital Practices of the Fortune 200," *Financial Practice and Education*, Fall/Winter 1996, pp. 7–20.

Because both methods provide significant benefits to importers, US MNCs appear to increase their export sales by offering attractive terms to foreign customers. About half of the respondents reported that they sometimes used drafts and cash in advance.

13.3.4 Government financing

The USA has several government sources of export financing: the Export–Import Bank (Ex–Im Bank), the Private Export Funding Corporation, and the Foreign Credit Insurance Association.

THE EXPORT–IMPORT BANK (EX–IM BANK) The bank was founded in 1934 as an independent agency of the US government. It is a financially self-sustaining agency, set up to promote US exports through a variety of export financing and loan guarantees. The creation of the Foreign Credit Insurance Association (FCIA) in 1963 completed the triad of official loan, guarantee, and insurance offerings demanded by US exporters. Ex–Im Bank officials have fully managed these three basic export-finance programs since the bank took over the FCIA in 1983. Ex–Im Bank operations must conform to the two general guidelines. First, loans must be used exclusively to finance the export of goods and services of US origin. Second, loans should have reasonable assurance of repayment and related transactions should not adversely affect the US economy.

The Ex–Im Bank was originally created to facilitate trade with the former Soviet Union, but its purpose has been expanded over the years. It now finances US exports to Russia and many other countries through a variety of loan and guarantee programs, such as direct loans, discount loans, cooperative financing facility, and guarantees.

THE PRIVATE EXPORT FUNDING CORPORATION (PEFCO) The corporation was created in 1970 at the initiation of the Bankers' Association for Foreign Trade, with the support of the US Treasury Department and the US Ex–Im Bank. The basic purpose of the PEFCO was to mobilize private capital in order to finance US exports of big ticket items such as aircraft and power plants. PEFCO's stockholders consist of 54 commercial banks, seven large manufacturers, and one investment banker. All of PEFCO's loans are guaranteed by the Ex–Im Bank and are general

obligations to the USA. Thus, the PEFCO itself does not evaluate credit risks of foreign borrowers, economic conditions in foreign countries, and other factors that might affect the collection of its loans. Most PEFCO loans have medium-term maturities of 7 years, but some have maturities over 15 years.

THE FOREIGN CREDIT INSURANCE ASSOCIATION (FCIA) Most exporters sell under letters of credit, as described in the earlier part of this chapter. In this type of sale, banks assume all risks in export transactions except for transactions under revocable letters of credit. However, importers frequently do not want to open letters of credit because of the cost or difficulty of securing them. At other times, under severe competition, exporters must sell on open account or on draft terms without letters of credit. Under these circumstances, an exporter could suffer heavy losses even after carefully examining an importer's creditworthiness. These losses may develop from such situations as expropriation and riots beyond the control of the exporter or the importer.

The governments of most industrial countries have helped their exporters in many ways over the years. Although the US Ex–Im Bank had helped US exporters reduce their risks since 1934, they still lacked the protective umbrella that many of their competitors were enjoying. In the fall of 1961, the Secretary of the Treasury, the Ex–Im Bank, and 50 leading insurance companies organized the **Foreign Credit Insurance Association (FCIA)**.

The FCIA provided credit protection for US exporters. It insured exporters for an agreed percentage of losses from credit risks, whether they were commercial, political, or both. Commercial risks included such risks as the failure of an importer before payment and its protracted payment default. Political risks included currency inconvertibility, cancellation of import licenses, expropriation, and war or revolution. But in October 1983, 41 of the original FCIA members withdrew from the association because of heavy commercial losses, particularly in Mexico. Since October 1983, the Ex–Im Bank itself has insured exporters against both commercial and political risks, leaving the FCIA to operate as its marketing and service agent. The Ex–Im Bank credit protection program for exporters covers short-term cases of up to 180 days and medium-term cases of 181 days to 5 years.

SUMMARY

This chapter has discussed various documents and operations essential to finance foreign trade. The extension of credit on foreign trade is of critical importance to both exporters and importers in a transaction. For exporters, their willingness and ability to extend credit are crucial determinants of sales volume across national boundaries. For importers, their ability to continue operations relies on the lag between payments by their customers and remittances to their foreign suppliers.

The three basic documents used in normal export–import transactions are the draft, the bill of lading, and the letter of credit. A draft is an order written by an exporter that requires the importer to pay a specified amount at a specified time. A bill of lading is a shipping document issued to the exporting firm by a common carrier that transports the goods. In the document, the bank agrees to honor a draft that results from an import transaction by a foreign buyer. The letter of credit assures that there will be payments for goods shipped to the importer.

Some forms of countertrade such as barter and switch trading make international transactions possible without money. However, most transactions across national boundaries are conducted in

terms of money. The payment terms of foreign trade include cash terms, consignments, and credit terms, all of which require money. The actual payment terms of exports depend largely upon competitive conditions prevailing at the time of initiating the transaction.

Finally, this chapter has examined a number of private and government sources to finance foreign trade. Banks are important lenders to those engaged in foreign trade. Bank-financing operations include trust receipts, bankers' acceptances, and several other forms of loans. In addition to bank financing, there are several other sources of private financing. The Export Trading Company Act of 1982 allows bank holding companies and other financial institutions to set up trading companies for export purposes. International factors buy accounts receivable from exporters and then collect them as they become due. Finally, forfaiting can be used to finance capital goods such as power plants and airplanes. Under a typical arrangement, an exporter receives immediate cash by discounting its promissory notes or trade receivables to a forfaiting bank.

The Ex–Im Bank is the only US government agency established solely to facilitate the foreign trade of the USA. It is also a major force for helping US exporters reduce their commercial and political risks. The Private Export Funding Corporation finances US exports of aircrafts and other big ticket items.

Questions

1 What are the objectives of documentation in international trade?
2 What are bills of lading and how do they facilitate trade financing?
3 The basic problem in assessing different forms of export financing is how to distribute risks between the exporter and the importer. Explain the following export financing documents in this respect:
   (a) the time draft;
   (b) the sight draft;
   (c) the confirmed, revocable letter of credit;
   (d) the confirmed, irrevocable letter of credit;
   (e) cash before delivery;
   (f) cash on delivery;
   (g) consignment;
   (h) open-account credit.
4 In addition to the draft, the bill of lading, and the letter of credit necessary in foreign trade, other documents must generally accompany the draft as specified in the letter of credit. Such other documents include commercial invoices, insurance documents, and consular invoices. Briefly describe each of these three documents.
5 What is countertrade?

6 What are bankers' acceptances? What are the advantages of bankers' acceptances as an export-financing instrument?
7 What are the major elements of the 1982 Export Trading Company Act? What are the major objectives of the Act?
8 What is the role of a factor in foreign trade? How can a factor aid an exporter?
9 What is forfaiting? List the parties involved in a forfaiting transaction.
10 What is the role of the Export–Import Bank?
11 Describe the role of the Private Export Funding Corporation (PEFCO).

Problems

1 For each of the following import purchases, (a) calculate the annual cost of the cash discount forgone, and (b) determine the date and amount paid if the discount is taken. Assume that the invoice date is March 10 and that there are 30 days in a month.
   (i) $500, 2/10, net 30;
   (ii) $3,500, 4/20, net 60;
   (iii) $1,500, 3/30, net 40;
   (iv) $4,400, 2/10, net 70.
2 An exporter has a $20,000 bankers' acceptance for 6 months, the acceptance fee is 2 percent per year, and the discount rate on this bankers' acceptance is 10 percent per year.
   (a) How much cash will the exporter receive if it holds the bankers' acceptance until maturity?
   (b) How much cash will the exporter receive if it sells the bankers' acceptance at a 10 percent discount rate?
   (c) The exporter's opportunity cost of funds is 10.2 percent per year. If the exporter wishes to maximize the present value of her bankers' acceptance, should she discount the bankers' acceptance or hold it until maturity?
3 An exporter has recently factored its accounts receivable at a rate of $10,000 a month. The factor advances 80 percent of the receivables, charges 1 percent interest per month on advances, and charges a 3 percent factoring fee. The interest and fee are paid on a discount basis.
   (a) Determine the net proceeds to the exporter.
   (b) Determine the effective annual cost of this financing arrangement.

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Case Problem 13: Arms Dealers Get Creative with Offsets

In December 2002, Lockheed Martin, with its F-16 Fighting Falcon, beat French and Anglo-Swedish rivals to land a $3.6 billion deal from Poland, which is Eastern Europe's largest defense order. Do you know how Lockheed won the contract? The answer is simple. Lockheed's offset offer was larger than that of their two rivals. Lockheed put together over 100 projects it valued at $9.8 billion, compared with $7.8 billion from its Anglo-Swedish rival and $3.9 billion from its French rival.

In recent years, The General Accounting Office (GAO) of the USA examined offset agreements between the US arms producers and 10 buyer countries in the Middle East, Asia, and Europe (which included the world's most active buyers of US arms, such as Taiwan, South Korea, Saudi Arabia, Kuwait, and the UK). The USA controls about one-half of the world's arms exports and dominates sales in most regions. The GAO study also found that the United Arab Emirates (UAE) have broken new ground in recent years by demanding that Boeing invest in and help with big projects that are not related to the company's main lines of business. For example, the UAE requires that Boeing and other sellers return 60 percent of the value of its arms purchases through investment in commercially viable ventures. And the seller company is deemed to have satisfied its obligation only on the basis of the profits generated by these ventures. The UAE and other countries increasingly insist that the contracts and technologies be delivered into new businesses, rather than existing ones.

"Offsets" are trade demanded by a foreign buyer, which for decades mostly wanted to help the US seller build the planes, missiles, or other weapons being sold. Since the mid-1980s, buyers have increasingly wanted commercial and military technology to broaden the purchaser's economy. In fact, such contracts and technology transfers now occur in aero-

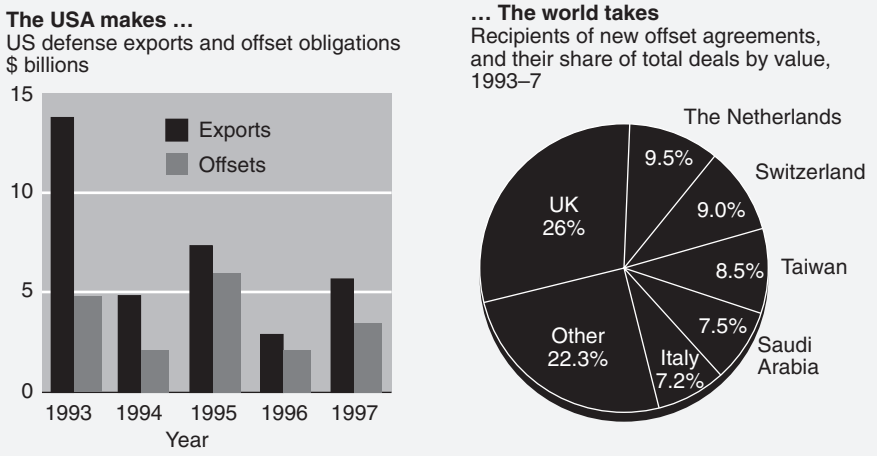

Figure 13.2 US arms exports and offset obligations

Source: *The Wall Street Journal*, Apr. 20, 2000, p. A18 (from the US Department of Commerce); reprinted by kind permission.

space, transportation equipment, and electrical equipment. This form of countertrade is an arrangement similar to counterpurchase, but the seller is required to produce parts, source parts, or assemble the product in the importing country. Many countries demand ever-higher percentages, often 100 percent or more, of the value of the contract to be returned to the purchasing nation through offsets. For example, Boeing sold AWACS to the UK Ministry of Defence and agreed to buy 130 percent of the value of the transaction in British goods. In April 2000, the US Department of Commerce reported that offset transactions had increased from 35 percent of the value of the contracts in 1993 to 42 percent in 1994. Figure 13.2 shows that offset obligations have accounted for approximately 70 percent of the contract value from 1995 to 1997.

One recent GAO report cited an instance in which, in return for its sale of AH-64 Apache helicopters to the UAE, Boeing helped the country to form companies that make products for cleaning up oil spills or for recycling used photocopier and laser printer cartridges. The US government has expressed concern about this and other offset transactions. A spokesman for Boeing, however, said that the big plane-maker has no choice but to offer offsets if the company wants to win foreign sales. "The only other alternative is to let the sale and all of the related jobs go to another manufacturer that is willing to provide offsets," he added. Other US defense companies say that without the offset agreement, they would lose the sales to providers in Europe, Russia, or elsewhere. They also say that the deals lower the cost to US taxpayers of acquiring weapons for the Pentagon, because these deals lessen US companies' dependence on Pentagon contracts.

In recent years, entrepreneurs in the Middle East and Asia have launched more exotic plans, called offset investment funds. They have pooled money from weapons sellers to be

invested for offset credit. Lockheed Martin Corp.'s $6.4 billion sale of F-16 jets to the UAE in March 2000 corroborates this inference. Lockheed satisfied its offset by investing $160 million in the petroleum-related "investment portfolio" of the Offsets Group, which administers the program in the UAE. Some US government officials have expressed a concern about the possibility that such offset payments could be used to channel favors to foreign officials. That is barred under US law.

Case Questions

1 The terms of the offset on individual contracts may vary substantially. The most common categories of offsets are coproduction, licensed production, subcontractor production, overseas investment, and technology transfer. Briefly describe each of these offsets.
2 What are the policy goals of those foreign countries that demand offset concessions to US arms producers?
3 What is the adverse economic impact of offset agreements in the USA?
4 Name and discuss the US law that makes it illegal for US companies to make payments to foreign officials with hopes of winning their favors in business transactions? (Hint: look at chapter 20: Multinational Accounting.)
5 Explain why Lockheed's $160 million investment in the UAE Offset Group might violate the US law.
6 Use the website of the American Countertrade Association (ACA), www.countertrade.org, to list the types of services provided by the ACA.

Sources: J. K. Cole, "Evaluating Offset Agreements: Achieving a Balance of Advantages," *Law and Policy in International Business*, Vol. 19, 1987, pp. 766–809; J. Cole and H. Cooper, "Buyers of US Arms Toughen Demands," *The Wall Street Journal*, Apr. 16, 1997, pp. A1, A16; H. Cooper, "US Defense Firms Hurt by Offset Deals Abroad," *The Wall Street Journal*, May 21, 1997, pp. A2, A4; G. T. Hammond, *Countertrade, Offsets, and Barter in International Political Economy*, New York: St Martin's Press, 1990; "Lockheed Wins $3.5 B F-16 Deal With Poland," http://www.foxnews.com, Dec. 27, 2002; and D. Pearl, "Arms Dealers Get Creative with Offsets," *The Wall Street Journal*, Apr. 20, 2000, p. A18.

CHAPTER 14

Financing Foreign Investment

Opening Case 14: Failed US–Vietnamese Joint Ventures

Since 1994, US companies have established joint ventures with Vietnamese businesses on everything from auto factories and cola bottlers to power plants and steak houses. American partners include Chrysler, Ford, Proctor & Gamble, Citibank, Caterpillar, and Nike. Many factors – more capital, less political risk, and local marketing expertise among others – favored US–Vietnamese joint ventures. However, many American investors are forsaking their enterprises because of heavy losses. Consequently, US investment in Vietnam dropped from $635 million in 1996 to $117 million in 1999. Investors from several other countries, such as Taiwan, Korea, and Japan, have also lost heavily in Vietnam.

A key example of a failed joint venture is American Rice. Its multimillion-dollar effort to build a rice business in the Mekong delta – one of the first and most prominent US ventures in Vietnam – had collapsed in 1998. American Rice's local partners had become enemies, the police threatened to put its employees in prison, and the Communist Party attacked the situation as the latest example of American imperialism. Many US companies in Vietnam today realize that they share all of American Rice's problems – poor legal protection, hostile joint-venture partners, heavy bureaucracy, and differences in culture. Because of its importance, let us review the case.

In early 1994, American Rice set up a joint venture with an influential local partner to sell Vietnamese rice overseas. With American Rice hungry for supply and Vietnam desperate for customers, the venture seemed ideal for both sides and for millions of struggling Vietnamese farmers. But what started as a partnership quickly became a contest. The local partner refused to grant American Rice permits for exports and charged the company new fees that doubled the costs of the joint venture.

A few months into the new venture, American Rice received permits to export only 30,000 tons, well below the 120,000 tons agreed upon. In 1995, American Rice won a contract to sell the government of Iran $100 million of rice at the highest-ever price

for Vietnamese rice. The Vietnamese government, however, forced American Rice to give about half of the Iran contract to local exporters. American Rice's radical rice-buying program stirred further controversy. Rather than buying from pricey state-owned brokers or traders, American Rice purchased straight from the growers, thereby cutting costs and delivering higher prices for the farmers. Thus, many rice farmers were delighted, but the government was not pleased and said to American Rice: "We gave you a license to sell rice, not to start a social revolution."

In October 1996, the government announced that it was launching a probe of the American Rice venture. Investigators questioned the entire staff and combed through stacks of company receipts. The government concluded that American Rice had "materially" violated its investment license and the laws of Vietnam, and caused serious damage to its Vietnamese partner. When the report was leaked to the local press, American Rice became a lightning rod for anti-Americanism. After incurring more than $3 million in losses, American Rice closed its Vietnamese venture in early 1998. No wonder, then, that in March 2000, Moody's Investor Service "pointed to the country's hesitance to allow further foreign participation in the economy" as a threat to progress.

Source: Robert Frank, "Withdrawal Pains: Americans Once Again Land in a Quagmire," *The Wall Street Journal*, Apr. 21, 2000, pp. A1, A6.

Multinational companies (MNCs) first decide on the nature of their needs for funds, and then they seek the funds from many available sources. In addition to the investment in fixed assets, a foreign investment project may require additional current assets such as accounts receivable and inventories. Consequently, MNCs must consider various sources of funds for their overseas projects and the decision variables that affect the selection of particular sources.

This chapter examines three major sources of funds for foreign investment: (1) internal sources of funds, (2) external sources of funds, and (3) sources of funds from development banks. First, MNCs may use internally generated funds such as profits and depreciation charges. If internal sources of funds are insufficient, they may obtain their capital from sources within their home country and/or in foreign countries. In addition to these internal and external sources of funds, development banks provide MNCs with a variety of financing sources.

14.1 Internal Sources of Funds

Internal sources of funds are those funds generated within a parent–affiliate network. They include capital contributions from the parent, loans with parent-company guarantees, funds provided by operations from retained earnings and depreciation, and intersubsidiary funds transfers.

14.1.1 Funds from the parent

Three major types of funds supplied by the parent are equity contributions, direct loans, and indirect loans under parent-company guarantees.

EQUITY CONTRIBUTIONS Every new foreign subsidiary must receive some funds in the form of equity to satisfy both authorities in the host country and outside creditors about its solvency. Occasionally, MNCs decide on expansion funds in the form of an equity investment for their own foreign subsidiary. This part of recapitalization gives the foreign subsidiary an increased capital base to support additional loans. More specifically, equity contributions of cash are used to acquire going concerns, to buy out local minority interests, to set up new foreign subsidiaries, or to expand existing subsidiaries. Although they are a normal way of handling direct investments, in some developing countries direct-equity investments take the form of machinery or technology instead of cash. Some MNCs have acquired a percentage of common-stock equity of foreign businesses in exchange for supplying machinery, equipment, tools, and intangibles (patents, engineering, etc.) necessary for manufacturing certain products.

Common stockholders have residual claims on earnings and assets in the event of liquidation. Hence, an equity investment is not very flexible for the investor, but it is most acceptable to the host country and outside creditors. Dividends – the profit remittances derived from equity investments – are heavily taxed when we compare equity contributions with investments derived from other funding alternatives. Normally, dividends from countries to foreign shareholders are subject to local income taxes as well as to withholding taxes. Withholding taxes are incurred when local earnings are distributed abroad as dividends. This explains why many MNCs are reluctant to make large equity investments in their foreign subsidiaries.

DIRECT LOANS MNCs may elect to provide investment funds to their foreign operations in the form of intracompany loans instead of increasing their equity contributions. However, the parent company lends money as an owner to its subsidiaries. The intracompany loan usually contains a specified repayment period for the loan principal and earns interest income that is taxed relatively lightly. These two features of intracompany loans compare favorably with an open-ended equity investment, which produces profits in the form of heavily taxed dividends.

Parent loans to foreign subsidiaries are usually more popular than equity contributions for a number of reasons. First, parent loans give a parent company greater flexibility in repatriating funds from its foreign subsidiary. In nearly every part of the world, laws make it more difficult to return funds to the parent through dividend payments or equity reductions than through interest and principal payments. Moreover, a reduction in equity is often construed as a plan to leave the country.

Second, tax considerations are another reason for favoring parent loans over equity contributions. In most cases, interest payments on internal loans are tax deductible in the host country, while dividends are not. Moreover, principal payments, unlike dividend payments, do not generally constitute taxable income. Thus, it is possible that both a parent and its subsidiaries will save taxes by using loans instead of equity contributions.

MNCs can also provide credit to their subsidiaries not only by making loans but also by delaying the collection of accounts receivable. The amount of credit available through these intracompany accounts is limited to the amount of goods exchanged. Moreover, governments frequently limit the length of the credit term. However, because intracompany accounts involve no formal documents, they are easier to use. In addition, most governments interfere less with payments on intracompany accounts than on loans.

PARENT GUARANTEES When foreign subsidiaries have difficulty in borrowing money, a parent may affix its own guarantees. While MNCs have traditionally been reluctant to guarantee the

debts of their subsidiaries, indications are these guarantees will increase. There are a variety of parent guarantees:

1 The parent may sign a purchase agreement under which it commits itself to buy its subsidiary's note from the lender in the event of the subsidiary's default.
2 The lender may be protected on only a part of the specific loan agreement.
3 Another type of guarantee is limited to a single loan agreement between a lender and the subsidiary.
4 The strongest type requires that the lender be protected on all loans to the subsidiary without limits on amount or time.

The types of loans with parent guarantees and the availability of such loans depend largely upon the parent's prestige and credit standing.

14.1.2 Funds provided by operations

Once a newly formed subsidiary gets on its feet, **internal fund flows** – retained earnings and depreciation – are the major sources of funds. These internal fund flows, coupled with local credits, leave relatively little need for fresh funds from the parent.

Foreign subsidiaries are not always free to remit their earnings in hard currency elsewhere. Many developing countries have problems with their balance of payments and do not have sufficient international reserves. Thus, they restrict repatriation of funds for a specified number of years or to a certain percentage of the net income. These factors frequently force foreign subsidiaries to reinvest their internally generated funds in the host country. If a company wishes to use these internal fund flows for the expansion of an initial project in later years, an initial project may have to be smaller than actual demand requirements. If the anticipated expansion is necessary to meet current demand and the normal growth in demand, MNCs would have no difficulty in profitably using the internal fund flows in the host country.

14.1.3 Loans from sister subsidiaries

The availability of intersubsidiary credit, in addition to funds from the parent, vastly expands the number of possibilities for internal financing. For example, if a subsidiary in Austria has funds which it does not need immediately, it may lend these funds to a sister subsidiary in Norway, and vice versa. However, many countries impose exchange restrictions on capital movements to limit the range of possibilities for intersubsidiary loans. Moreover, the extensive use of intersubsidiary financial links makes it extremely difficult for a parent company to control its subsidiaries effectively.

Nevertheless, many subsidiaries borrow cash from their sister subsidiaries. When there are only a few subsidiaries within a company's family, it is straightforward to arrange intersubsidiary loans. One subsidiary treasurer may negotiate directly with another sister subsidiary treasurer to obtain or give credit. However, an MNC with many subsidiaries in many countries may prefer to have its central staff handle all excess funds, or to establish a central pool of these funds on a worldwide basis under two conditions: (1) if the number of financial relationships does not exceed the

capability of the main office to manage them effectively; and (2) if a parent company does not want to lose control over its subsidiaries.

14.2 External Sources of Funds

If an MNC needs more funds than the amount that can be reasonably generated within a corporate family, the parent or its foreign subsidiaries may seek outside sources of funds. Such external sources of funds include joint business ventures with local owners and/or borrowings from financial institutions in the parent country, the host country, or any third country (see Global Finance in Action 14.1).

Although subsidiaries can borrow directly from outside the host country, most of them borrow locally for a number of reasons:

1 Local debts represent automatic protection against losses from a devaluation of local currency.
2 Subsidiary debts frequently do not appear on the consolidated financial statement issued by a parent as part of its annual report.
3 Some host countries limit the amount of funds that foreign companies can import from outside the host country.
4 Foreign subsidiaries often borrow locally to maintain good relations with local banks.

Global Finance in Action 14.1
Guidelines for Adequate Capitalization

MNCs are not only able to raise funds in international and national capital markets but also to take advantage of capital market imperfections throughout the world. This comparative advantage should theoretically allow MNCs to enjoy a lower cost of capital than competing domestic companies. Companies have a number of outside financial options from which to choose to finance their foreign investment projects. These external financial options include banks, government institutions, other types of financial intermediaries, and even the public sector in the host country. To avoid drawbacks inherent in the thin capitalization of foreign investment projects, companies usually seek an optimum capital structure. An optimum capital structure is defined as the combination of debt and equity that yields the lowest cost of capital.

Several ratios can be used to determine an optimum financing mix of debt and equity for overseas projects. Cassidy (1984) recommends a number of guidelines for companies to develop capitalization strategies for their overseas projects:

1 The investor's own resources should be sufficient to approximately cover the project investment in fixed assets. Outside financing should support investment in net working capital of the unit.

2 The ratio of outside financing to total capitalization of the project (the debt ratio) should generally be about 0.50. Thus, approximately equal amounts of outside debts and equity investments will be employed in the local project.
3 The projected earnings from the overseas project should provide adequate "interest coverage" for its intended outside debt service. To ensure continuing liquidity, these earnings should be a substantial multiple of the project's annual financial costs.

Source: G. T. Cassidy, "Financing Foreign Investments: The International Capital Markets," in Allen Sweeny and Robert Rachlin, eds., *Handbook for International Financial Management*, New York: McGraw-Hill, 1984, pp. 1–11.

14.2.1 Commercial banks

As noted in chapter 13, commercial banks are a major financial intermediary in trade credit. They are also the most important external source for financing nontrade international operations. The types of loans and services provided by banks vary from country to country, but all countries have some funds available at local banks.

Most of the local loans obtained by subsidiaries are short-term credits from commercial banks. These short-term credits are used largely to finance inventory and accounts receivable. They are self-liquidating loans to the extent that sufficient cash flows are produced to repay the credits as inventories are sold on credit and receivables are collected over the business cycle. The principal instruments used by banks to service an MNC's request for a loan are as follows:

- **Overdrafts** are lines of credit that permit the customer to write checks beyond deposits. The bank establishes the maximum amount of such credit on the basis of its analysis of the customer's request, needs, and potential cash flows. The borrower agrees to pay the amount overdrawn and interest on the credit. Although some banks waive service charges for their creditworthy customers, others frequently require service charges and other fees.
- **Unsecured short-term loans** – most short-term bank loans for MNCs to cover seasonal increases in current assets are made on an unsecured basis. The percentages of such loans vary from country to country, and reflect variations in individual bank policy and central government regulations. Most MNCs prefer to borrow on an unsecured basis because bookkeeping costs of secured loans are high, and because these loans have a number of highly restrictive provisions. However, some foreign subsidiaries cannot obtain loans on an unsecured basis, because they are either financially weak or have not established a satisfactory performance record.
- **Bridge loans** are short-term bank loans used while a borrower obtains long-term fixed-rate loans from capital markets. These bridge loans are repaid when the permanent financing arrangement is completed. During the peak of its currency crisis in early December 1997, Korea obtained a bridge loan of $1.3 billion from the Bank of Japan. This bridge loan was aimed at tiding Korea over until a $58 billion rescue package arranged by the International Monetary Fund began to kick in.
- **Currency swaps** are agreements to exchange one currency with another for a specified period, after which the two currencies are re-exchanged. Arbi loans are the best-known example of

such swaps. An arbi loan is arranged in a country where money is readily available at reasonable rates. It is converted to the desired local currency, but the borrower arranges a forward exchange contract to insure converting the local currency into the foreign currency of original denomination at a specified future date. Thus, arbi loans allow MNCs to borrow in one market for use in another market and to avoid foreign-exchange risks. The cost of arbi loans includes the interest on the loans and the charges associated with the forward exchange contract.

- **Link financing** is an arrangement whereby banks in strong-currency countries help subsidiaries in weak-currency countries obtain loans by guaranteeing repayment on the loans. These subsidiaries borrow money from local banks or firms with an excess of weak money. Certainly, banks in strong-currency countries require some sort of deposits from a borrower's parent company and the borrower must pay local interest rates. To protect itself against foreign-exchange risk, the lender usually hedges its position in the forward exchange market.

14.2.2 Interest rates on bank loans

Interest rates on most business loans are determined through direct negotiations between the borrower and the bank. The prevailing prime lending rate and the creditworthiness of the borrower are the two major factors of the interest rate charged. The prime rate is the rate of interest charged on short-term business loans to the most creditworthy customers.

Interest rates may be paid on either a collect basis or on a discount basis. On a collect basis, interest is paid at the maturity of the loan, which makes the effective rate of interest equal to the satiated rate of interest. On a discount basis, interest is paid in advance, which increases the effective rate of interest. Most short-term securities, such as Treasury bills, euro commercial papers, and bankers' acceptances, are sold on a discount basis.

Example 14.1

Assume that a company borrows $10,000 at 10 percent. Compute the effective rate of interest for the loan on a collect basis as well as on a discount basis.

The effective rate of interest on a collect basis is:

$$\frac{\$1,000}{\$10,000} = 10\%$$

The effective rate of interest on a discount basis is:

$$\frac{\$1,000}{\$10,000 - \$1,000} = 11.11\%$$

COMPENSATING BALANCES Banks typically require their customers to hold from 10 to 20 percent of their outstanding loan balance on deposit in a noninterest-bearing account. These **compensating balances** are used to: (1) cover the cost of accounts; (2) increase the liquidity position of the borrower that can be used to pay off the loan in case of default; and (3) increase the effective cost of borrowing.

Example 14.2

Assume that a company borrows $20,000 at 10 percent. Calculate the effective interest cost if the loan requires a minimum compensating balance of 20 percent ($4,000) and it is on a discount basis.

The effective interest cost of the loan is:

$$\frac{\$2,000}{\$20,000 - \$4,000 - \$2,000} = 14.29\%$$

CURRENCY MOVEMENT AND INTEREST RATES In reality, the value of the currency borrowed will change with respect to the borrower's local currency over time. The actual cost of a bank credit by the borrower depends on the interest rate charged by the bank and the movement in the borrowed currency's value over the life of the loan. Thus, the effective interest rate may differ from the interest rate that we computed in examples 14.1 and 14.2. In this case, the effective interest rate is computed as follows:

$$r = (1 + i_f)(1 + i_e) - 1 \tag{14.1}$$

where r is the effective interest rate in US dollar terms, i_f is the interest rate of the foreign currency, and i_e is the percentage change in the foreign currency against the US dollar.

Example 14.3

A US company borrows Swiss francs for 1 year at 10 percent. The franc appreciates from $0.50 to $0.60, or 20 percent, over the life of the loan. Interest on this loan is paid at maturity. The effective interest rate of the loan in US dollar terms is:

$$\begin{aligned} r &= (1 + 0.10)(1 + 0.20) - 1 \\ &= 32\% \end{aligned}$$

Example 14.4

A US company borrows British pounds for 1 year at 10 percent. The pound depreciates from $1.50 to $1.20, or 20 percent, over the life of the loan. Interest on this loan is paid at maturity. The effective interest rate of the loan in US dollar terms is:

$$\begin{aligned} r &= (1+0.10)(1-0.20)-1 \\ &= -12\% \end{aligned}$$

A negative effective interest rate implies that the US borrower actually paid fewer dollars in total loan repayment than the number of dollars borrowed. Such a result can arise if the British pound depreciates substantially over the life of the loan. As shown in example 14.3, however, the effective interest rate in dollar terms can be much higher than the quoted interest rate if the British pound appreciates substantially over the life of the loan.

14.2.3 Edge Act and agreement corporations

Edge Act and agreement corporations are subsidiaries of American banks that are physically located in the United States, but they engage in international banking operations. The Edge Act of 1919 allows American banks to perform as holding companies and to own stock of foreign banks. Thus, these banks can provide loans and other banking services for American-owned companies in most countries around the world. **Edge Act corporations** are domestic subsidiaries of banking organizations chartered by the Federal Reserve Board; **agreement corporations** are Edge Act equivalents chartered by individual states. Both types of subsidiaries may not only perform international banking operations, but they may also finance foreign industrial projects through long-term loans or equity participation.

TYPES OF ACTIVITIES Edge Act and agreement corporations typically engage in three types of activities: international banking, international financing, and holding companies. In their capacity as international banking corporations, Edge Act and agreement corporations may hold demand and time deposits of foreign parties. They can make loans, but these loans to any single borrower cannot exceed 10 percent of their capital and surplus. They can also open or confirm letters of credit, make loans or advances to finance foreign trade, create bankers' acceptances, receive items for collection, remit funds abroad, buy or sell securities, issue certain guarantees, and engage in foreign-exchange transactions.

In their capacity as international financing corporations, Edge Act and agreement corporations invest in the stock of nonbank financial concerns, development corporations, or commercial and industrial companies. Certainly, such investments require the prior specific consent of the Federal Reserve Board or state banking authorities under certain circumstances. Edge Act subsidiaries have financed some foreign finance companies and official development corporations. In most cases, however, they finance commercial and industrial companies directly through loans

and equity contributions. The major purpose of such financing activities is to provide promising foreign companies with capital at an early or important stage.

In their capacity as holding companies, Edge Act and agreement corporations can own shares of foreign banking subsidiaries and affiliates. Member banks of the Federal Reserve System are not permitted to own shares of foreign banking subsidiaries. A foreign banking subsidiary may be more advantageous than a branch for two reasons. First, foreign branches are allowed to carry on only the activities allowed to their parent banks in the USA. Second, certain countries do not permit nondomestic banks to open branches in their territory. In other instances, Edge Act and agreement corporations have been the instrument through which US banks have acquired equity interests in well-known foreign banks.

14.2.4 International banking facilities

Since December 3, 1981, banks in the USA have been allowed to establish international banking facilities at their offices in the USA. **International banking facilities (IBFs)** are vehicles that enable bank offices in the USA to accept time deposits in either dollars or foreign currency from foreign customers, free of reserve requirements and of other limitations. Foreigners can also borrow funds from IBFs to finance their foreign investment projects. IBFs have been further strengthened by legislation in New York, California, and other states that exempt them from state and local income taxes. IBFs are located in the USA, but in many respects they function like foreign branch offices of US banks. In other words, the creation of IBFs means the establishment of offshore banking facilities in the USA similar to other Eurocurrency market centers.

In order to qualify for IBFs, institutions must be depository institutions, Edge Act or agreement corporations, or US branch offices of foreign banks that are legally authorized to do business in the USA. These institutions do not require the approval of the Federal Reserve Board to establish IBFs; a simple notification is sufficient. In addition, they are not required to establish a separate organizational structure for IBFs, but they must maintain separate books that distinguish their offshore business from their domestic business.

IBFs have a number of advantages over bank operations through foreign locations. First, small banks can enter into the Eurocurrency market easily, because they no longer need to establish a foreign office or a domestic subsidiary exclusively for international banking operations. Second, US banks can reduce operating costs, because they have more direct control and can use existing support services such as personnel and facilities.

IBFs also have several disadvantages when we compare them to offshore banking centers, caused mostly by regulations that IBFs serve only nonresidents. First, IBFs must receive written acknowledgment from their customers that deposits do not support activities within the USA and that IBF loans finance only operations outside the USA. Second, IBFs are prohibited from offering demand deposits or transaction accounts that could possibly substitute for such accounts now held by nonresidents in US banks. Third, IBFs are also prevented from issuing negotiable certificates of deposits or bankers' acceptances, although they can issue letters of credit and undertake repurchase agreements. Fourth, time deposits offered to nonbank foreign residents require minimum deposits and the withdrawal of $100,000 to preserve the wholesale nature of the business; they also require a minimum maturity or two business days' notification prior to withdrawal.

14.2.5 Strategic alliances

In a trend that accelerated during the 1980s, companies have begun to link up with former competitors in a vast array of strategic alliances. A **strategic alliance** is any collaborative agreement between two companies that is designed to attain some strategic goal. International licensing agreements, marketing arrangements or management contracts, and joint ventures are some examples of strategic alliances. Most strategic alliances, however, are equity alliances or joint ventures.

Partners of strategic alliances might gain economies of scale or a variety of other commercial advantages. However, financial synergy, where a financially strong company helps a financially weak company, represents a key advantage of strategic alliances. The strategic alliance between KLM and Northwest Airlines represents an excellent example of financial synergy.

An international **licensing agreement** is an agreement whereby an MNC (the licensor) allows a local firm (the licensee) to produce the licensor's products in the firm's local markets in return for royalties, fees, and other forms of compensation. The licensor's products are intangible assets such as patents, trademarks, intellectual property, and technological expertise. The local licensee assumes the responsibility to produce, market, or distribute the licensor's products in the local market.

When a strategic alliance takes the form of a management contract, one party (an MNC) contractually agrees to manage an enterprise owned by another party (local investors). As an example, look at what the government of Zaire did when it expropriated foreign-owned copper mines in 1966. Because the government lacked the skills to operate the mines itself, it entered into a contract with the former Belgian mine owner, Union Miniere, to manage the production and marketing of the mines.

JOINT VENTURES A corporate entity in which two or more parties, for example, an MNC and host-country companies, have equity interest is known as a **joint venture**. In the past, the use of a wholly owned subsidiary was the most common approach to overseas investment, because worldwide strategy depended on complete control over all foreign operations. However, more and more host countries require that MNCs have some local participation. In some situations, MNCs will seek local partners even when there are no local requirements to do so.

There are four types of international joint ventures. First, two companies from the same country form a joint venture to conduct a business in a third country. For example, Exxon and Mobile established an oil company in Russia. Second, an MNC forms a joint venture with host-country companies. For instance, Sears Roebuck (the USA) and Simpsons (Canada) formed a joint venture in Canada. Third, an MNC and a local government form a joint venture. For example, Philips (the Netherlands) and the Indonesian government set up a joint venture in Indonesia. Fourth, companies from two or more countries establish venture in a third country. For instance, Diamond Shamrock (the USA) and Sol Petroleo (Argentina) established a joint venture in Bolivia.

Many factors may induce MNCs to enter into joint ventures with local partners, other MNCs, and local governments. These factors include tax benefits, local marketing expertise, more capital, less political risk, and quick acquisition of new technologies.

On the other hand, MNCs want tight control of their foreign subsidiaries to efficiently allocate investments and to maintain a coordinated marketing plan on a global basis. Dividend policy,

financial disclosure, transfer pricing, establishment of royalty and other fees, and allocation of production and marketing costs among plants are just some areas in which each owner has an incentive to engage in activities that could hurt its partners. This is why most MNCs resist local participation. In fact, there are many cases in which MNCs have chosen to pull out of foreign countries rather than to comply with government regulations that require joint ventures with local partners.

MOTIVES FOR STRATEGIC ALLIANCES Motives for strategic alliances may consist of two broad types: general and specific to international business. General motives for strategic alliances are to: (1) spread and reduce costs; (2) avoid or counter competition; (3) secure horizontal and vertical links; (4) specialize in a number of selected products, assets, or technologies; and (5) learn from other companies.

MNCs may collaborate with other companies to: (1) gain location-specific assets; (2) overcome legal constraints; (3) diversify geographically; and (4) minimize exposure in risky environments. First, MNCs may seek to form a strategic alliance with local companies that will help them manage location-specific problems, such as cultural, political, and economic differences. Second, strategic alliances may help MNCs overcome governmental constraints. Many countries limit foreign ownership. Government procurement, particularly military procurement, is another reason that may force MNCs to collaborate. Third, geographical diversification through strategic alliances enables MNCs to smooth their sales and earnings, because business cycles occur at different times within different countries. Finally, one way for MNCs to minimize loss from foreign political occurrences is to minimize the base of assets located abroad or share them with local companies.

14.2.6 Project finance

Project finance refers to an arrangement whereby a project sponsor finances a long-term capital project on a nonrecourse basis. The term "nonrecourse" is used here to mean that the project sponsor has legal and financial responsibilities for the project. Three characteristics distinguish project finance from other forms of financing (Butler 2000):

1 The project is established as an individual legal entity and relies heavily on debt financing.
2 The debt repayment is contractually tied to the cash flow generated by the project.
3 Government participation comes in the form of infrastructure support, operating or financing guarantees, or assurances against political risk.

Project finance offers several benefits over conventional debt financing. Project finance normally restricts the usage of the project's cash flows. The lenders, rather than the managers, can decide whether to reinvest excess cash flows or to use them to reduce the loan balance by more than the minimum required. Second, project finance increases the number and type of investment opportunities, thereby making capital markets more "complete." Third, project finance permits companies whose earnings are below the minimum requirements, specified in their existing bond indentures, to obtain additional debt financing.

In recent years, many large projects, such as the Alaska oil pipeline, the Channel Tunnel between England and France, and the EuroDisney theme park outside Paris, have been funded

by project finance. Project finance is either a build–operate–own contract (BOO) or a build–operate–transfer (BOT) project. In a BOO contract, the sponsor assumes ownership of the project at the end of the contract life. In a BOT project, ownership of the project is transferred to the host government. Project finance is widely used today in China, India, Turkey, and many other emerging markets.

TURKEY'S BOT PROJECTS In early 1996, Turkey's BOT schemes yielded two large-scale deals for a hydroelectric power plant and a drinking water supply system; the total cost of these two projects was $2.5 billion (*Euromoney* 1996). According to Aydin Karzoz, head of the treasury's foreign relations department, Turkey had a total of 30 BOT projects under consideration by April 1996. The government promises to buy BOT services and products at a certain price over a specified period. Under current legislation, this specified period cannot exceed 49 years.

The BOT model has been used to finance many infrastructure projects: airports, bridges, highways, oil and gas pipelines, petrochemical refineries, power generation projects, tunnels, and waterworks. The potential is enormous. A recent report prepared by the World Bank estimates that Asia must spend $1.5 trillion on all forms of infrastructure over the next decade or forfeit high economic growth. The report says that Latin America must spend $800 billion over the same period.

International capital markets, such as bank loans, bonds, and equity offerings, contribute a substantial amount to infrastructure project finance – about $30 billion a year. The World Bank predicts that the fast growth of the market for infrastructure finance in the 1990s is likely to continue for many years to come. First, governments want to give their clients efficient, high-grade services without using tax money. Developing countries have the potential for increased access to international capital markets.

14.3 Development Banks

Development banks provide MNCs with a broad range of financing resources. They are banking organizations established to support the economic development of underdeveloped areas through intermediate and long-term loans. There are three broad groups of development banks: worldwide, regional, and national.

14.3.1 The World Bank Group

The **World Bank Group** is a group of worldwide financial institutions organized after the devastation of World War II to aid economic reconstruction. These institutions include the International Bank for Reconstruction and Development, the International Finance Corporation, and the International Development Association.

THE INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT (IBRD) The bank, which is commonly known as the World Bank, was established at the Bretton Woods conference in 1944 as a companion institution to the International Monetary Fund. Because the major objective of the World Bank was to finance reconstruction and development after World War II, it made certain loans in Europe for reconstruction. It found its resources completely inadequate

for this purpose and thus stopped reconstruction loans. However, the World Bank was able to concentrate on lending for economic development, because the Marshall Plan provided funds for reconstruction in Europe. The Marshall Plan was the European economic recovery program established by the USA in 1948. The overriding objective of the Plan was to restore the productive capacity of European industry destroyed during World War II. The Plan existed slightly less than 4 years and channeled more than $10 billion in American aid to Europe.

In recent decades, the World Bank has placed a major emphasis on loans to underdeveloped countries for social infrastructure projects such as irrigation, schools, and roads. This kind of development is essential for future industrialization. Approximately a third of its development loans has gone to electrical power, a third for transportation improvements, and the remaining third for agricultural projects and education. Loans are made only to member governments, government agencies, and private businesses whose loans are guaranteed by their governments.

Because the Bank finances only a portion of project costs, private investors must finance the remaining portion. To encourage the direct participation of private investors in its loans, the Bank has adopted high credit standards:

1 The Bank makes loans only for projects whose cost and revenue estimates are reasonably accurate.
2 When loans are made to private companies, these loans must be guaranteed by their governments.
3 An additional 1 percent is added to the regular interest rate. These funds go into reserve funds to meet losses in the event of default.
4 Member countries are required to pay the unpaid portion of their quotas in the event that funds are needed to meet losses.

Private funds for international investments have increased because the Bank has applied these high standards.

The capital subscribed by member countries represents the basic equity capital for the Bank. Member countries are assigned subscription quotas on the basis of their size and wealth. They must pay 10 percent of their quota when they join the Bank, and the remaining 90 percent of the quota is subject to call. However, a substantial portion of the Bank's capital comes from bonds sold on world markets. Because the Bank applies high credit standards, its bonds usually carry high credit ratings and low interest rates.

The newly established Multilateral Investment Guarantee Agency of the Bank offers various forms of political risk insurance. As one of the largest borrowers in the world, the Bank borrowed a total of $100 billion from 100 countries. Its loans are well diversified among more than 20 countries. The Bank enjoys the highest credit rating, AAA.

THE INTERNATIONAL FINANCE CORPORATION (IFC) Initially, the World Bank had a number of problems in providing financial assistance to less developed countries. First, all loans had to be guaranteed by governments. Second, the Bank provided only loans. Third, it financed only the foreign-exchange requirements for a project and ignored local expenditures or working capital requirements. Fourth, it typically financed only large projects of public importance.

These problems led to the development of the International Finance Corporation (IFC) in 1956, primarily to finance private enterprises in less developed countries through loan or equity participation.

The IFC regards development finance companies and industrial projects as the proper outlets for its limited capital. It assists in establishing development finance companies in areas where there are gaps in the local capital and money markets. It also helps existing development finance companies to expand or reorganize operations. The IFC usually invests in those industrial projects that will contribute to improved foreign-exchange positions, increased employment, improved management skills, or the exploration of natural resources. It provides risk capital to companies that require funds in order to expand, modernize, or diversify operations. It also helps to finance new ventures. Ordinarily, it does not invest in such infrastructure projects as hospitals, transportation, and agricultural development.

IFC funds are available for either foreign-exchange or local-currency expenditures to meet fixed assets or working capital requirements. It makes nonguaranteed loans to private enterprises in less developed countries. Most of these loans have maturities from 7 years to 12 years. All of its investments are made along with private investors, and its financial contribution usually accounts for less than 50 percent of the total project cost.

THE INTERNATIONAL DEVELOPMENT ASSOCIATION (IDA) The association was established in 1960 as an affiliate of the World Bank Group to meet the specific needs of less developed countries. IDA loans are designed to finance projects for companies that cannot adhere to loan repayment schedules with conventional terms. Credit terms are generally extended for 50 years, with very low or no interest. Repayment begins after a 10-year grace period and can be made in local currencies.

All World Bank members are free to join the IDA, and more than 100 countries have done so. IDA resources are separate from World Bank resources. Nearly 90 percent of the IDA's capital comes from subscriptions of its member countries. The second most important source of its capital is the World Bank's contribution. IDA member countries are classified into two broad categories: part I countries, which consist of relatively developed countries; and part II countries, which consist of less developed countries. Part I countries pay all of their subscriptions in convertible currencies, while part II countries pay only 10 percent of their subscriptions in convertible currencies and the remainder in their own currencies. Certain nonmember countries such as Switzerland and New Zealand have made loans to the IDA on the same terms as the IDA lends to its members.

14.3.2 Regional development banks

Regional groups of countries have established regional development banks to promote effective economic development within the member countries. Leading regional development banks are the Inter-American Development Bank, the European Investment Bank, the European Bank for Reconstruction and Development, the Asian Development Bank, and the African Development Bank.

THE INTER-AMERICAN DEVELOPMENT BANK (IDB) The bank was founded in 1959 by the USA and 19 Latin American countries, to further the economic development of its member countries. Twenty-six Latin American countries and 15 other countries now own the Bank, which is headquartered in Washington, DC. IDB loans are available only when private sources are not available on reasonable terms. The IDB usually finances no more than 50 percent of total project cost.

The IDB has three types of activity:

1 With its Ordinary Capital Resources Fund, the Bank makes development loans to both public and private institutions. These loans are earmarked for projects that promote Latin America's economic development.
2 With its US-created Social Progress Trust Fund, the Bank makes loans to finance projects with high social value.
3 With its Fund for Special Operations, the Bank makes loans whose terms are much more lenient than those available in the regular money and capital markets. Maturities may be extremely long, repayment may be made in the borrower's currency, or interest rates may be arbitrarily low.

THE EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT (EBRD) The bank was established in 1990 by 42 countries, as a development bank for emerging democracies in Eastern Europe. These 42 member countries include the USA, Japan, Russia, and European countries. The London-based EBRD encourages reconstruction and development in the Eastern and Central European countries through loans, guarantees, and equity investments in private and public companies. No more than 40 percent of EBRD financing can be used to support government enterprises.

The United States, with a 10 percent share, is the largest single shareholder. The United Kingdom, France, Italy, Japan, and Germany each have shares of 8.52 percent. Russia, with a 6 percent share in the bank, is the largest single shareholder among former Eastern-bloc countries. All together, European countries hold a major stake in the bank. Share contributions may be made in dollars, euros, or yen. All of the shareholders paid in only 30 percent of their capital contributions; the rest of their capital is callable.

THE EUROPEAN INVESTMENT BANK (EIB) The bank was established in 1958 by members of the European Community. Its resources are used to support the socioeconomic infrastructure of the member nations or their basic industries. Most of these loans have maturities from 12 to 20 years. Ordinarily, 3- or 4-year intervals are established before loan repayments begin.

The EIB has three types of responsibility:

1 It assists in financing projects that involve two or more member governments. In this case, it plays an important role in coordinating the activities of different national financial agencies.
2 It promotes the potential of economies of scale. It helps specialize or expand the operations of plants or firms in countries with a comparative advantage in certain lines of business.
3 It helps achieve a more uniform and high level of economic maturity within the European Union.

THE ASIAN DEVELOPMENT BANK (ADB) The bank was formed in 1966 by 17 Asian countries, in partnership with the USA, Canada, the UK, Germany, and other European countries. The ADB has its headquarters in Manila and has 47 members; 17 are from outside the region. The Bank's founders created the ADB to promote the economic growth and development of its member countries. The ADB accomplishes its goals by offering loans, grants, and technical assistance. The ADB makes long-term loans to private companies without government guarantees. Some ADB loans go to Asian national banks that reloan to private enterprises through their

respective development agencies. Some other ADB loans are used to supply risk capital. Only member countries, and occasionally, private enterprises, can borrow from the Bank.

THE AFRICAN DEVELOPMENT BANK (AfDB) The bank was established in 1964 by the Organization of African Unity, with headquarters in Abidjan, Ivory Coast. Unlike other regional development banks, the AfDB had, until the early 1980s, excluded nonregional partners in an effort to avoid undue outside influence; thus, it suffered from severe capital limitations, hampering its ability to lend. Since the early 1980s, the AfDB has accepted non-African countries as contributing but nonborrowing members. Members include 50 African nations and 26 non-African countries that have joined since 1982. AfDB activities are financed by member subscriptions, one-third of which are from non-African countries. In order to attract commercial bank funds and public debt offerings, the AfDB maintains conservative lending policies and interest rates. Loans are made only to governments or their agencies. Interest rates are similar to commercial rates.

14.3.3 National development banks

Many governments in industrial countries have their own development banks to foster international loans and investments. The three leading institutions of the USA are the Export–Import Bank, the Agency for International Development, and the Overseas Private Investment Corporation.

THE EXPORT–IMPORT BANK (EX–IM BANK) The Ex–Im Bank provides investment funds to MNCs. These funds include long-term direct financing to facilitate the purchase of US goods and services used in industrial projects in foreign countries. In this type of long-term direct financing, the Ex–Im Bank expects substantial equity participation by the borrower. Moreover, it provides US companies with guarantees on their engineering and feasibility studies, as well as on their technical and construction services, performed abroad. In summary, the Ex–Im Bank is a key source of financing overseas projects when private sources are not available. These projects must be economically justifiable, contribute to the economic development of the country, and improve the country's foreign-exchange position.

THE AGENCY FOR INTERNATIONAL DEVELOPMENT (AID) The agency was established in 1961 to carry out nonmilitary US foreign-assistance programs. As an agency of the US State Department, AID emphasizes assistance to friendly governments or to support programs that will make foreign friends for the USA. As the primary aid agency of the US government, it performs three functions:

1 It administers the government's programs of technical cooperation with less developed countries.
2 It administers the government's economic programs for less developed countries.
3 It carries out special emergency programs as directed by the US President.

Development loans are made to friendly governments, and private companies may borrow these funds from their governments. To prevent a heavy drain of US dollars, loans are usually tied to purchases of US goods and services. Moreover, these funds are generally maintained in the USA and are simply made available for use by recipient countries. All development loans are repayable

in dollars and can have a maximum maturity of 50 years, with a grace period of 10 years. In making development loans, AID considers the availability of funds at reasonable terms from other free-world sources. Interest rates are usually lower than international money rates.

THE OVERSEAS PRIVATE INVESTMENT CORPORATION (OPIC) The corporation was established in 1969 to take over AID's responsibility for investment insurance and guarantee programs. The OPIC became operational in 1971 and is wholly owned by the US Treasury Department. It operates two programs: insurance of US private investments in less developed countries and project financing. More specifically, its insurance programs cover losses from political risks of currency inconvertibility, expropriation, and land-based war to US companies that make investments in friendly developing countries. Its project financing is carried out through an investment guarantee program. This program provides guarantees against losses from commercial and political risks, direct investment funds in dollars or foreign currencies, and a preinvestment survey program.

The OPIC combines private business with the US foreign-policy objective of encouraging American firms to invest in less developed countries. Thus, it grants insurance and guarantees for projects which are in the best interest of both the USA's and the host country's economy.

SUMMARY

For purposes of expansion, new investment, and day-to-day operations, the international financial manager must be familiar with various sources of internal or external funds. This chapter has discussed three types of internally generated funds: (1) retained earnings and depreciation provided by operations; (2) equity contributions, loans, and credits from the parent company; and (3) loans from sister subsidiaries.

External sources of funds include borrowing from financial institutions in a parent country or abroad, joint ventures with local partners, project finance, and development banks. Commercial banks are a major financial intermediary in foreign trade and investment. The upsurge of direct foreign investment by MNCs since the early 1950s has forced banks to follow their customers overseas. The principal instruments used by banks to accommodate MNCs' borrowing requests are overdrafts, unsecured short-term loans, bridge loans, arbi loans, and link financing.

Development banks provide MNCs with a variety of financing sources. They are banks established to aid in economic development through equity participation, loans, or some intermediate form of investment. They may be worldwide, regional, or national. The World Bank Group consists of the International Bank for Reconstruction and Development, the International Development Association, and the International Finance Corporation. These worldwide development banks are designed to provide financial support for less developed countries. Regional groups of countries have established regional development banks to promote more effective economic development within the member countries. Five regional lending institutions formed to facilitate development on four continents are the Inter-American Development Bank, the Asian Development Bank, the European Investment Bank, the European Bank for Reconstruction and Development, and the African Development Bank. National development banks perform the same general functions as worldwide and regional development banks.

Questions

1 What are the major types of funds supplied by the parent company to its subsidiaries?
2 Why are parent loans to foreign subsidiaries more popular than equity contributions?
3 What are the internal sources of funds provided by operations? What is the role of internal funds?
4 List the types of loans that local banks provide to foreign subsidiaries for nontrade international operations. Are these local credits used to finance current assets or fixed assets? Why are these loans sometimes called self-liquidating loans?
5 What are the similarities and differences between Edge Act and agreement corporations and international banking facilities?
6 What are the advantages and disadvantages of joint ventures?
7 George Cassidy has suggested several guidelines that can be used to determine an optimum financing mix of debt and equity for overseas projects. Explain these guidelines.
8 What is the role of development banks? How can multinational companies benefit from these development banks?
9 Describe the role of the European Bank for Reconstruction and Development (EBRD).

Problems

1 There are three alternatives to increase a net working capital of $10,000:
   (a) Forgo cash discounts with the terms of 2/10, net 40.
   (b) Borrow the money at 7 percent from the bank. This bank loan requires a minimum compensating balance of 20 percent and interest on the loan is paid at maturity.
   (c) Sell commercial paper at 8 percent. The underwriting fees of the issue are 2 percent of the face value.
   Calculate the effective annual cost of each of the above alternatives.
   (d) Which alternative should be chosen and why?
2 A $10,000 bank loan has a coupon rate of 10 percent.
   (a) Calculate the effective interest cost if the loan is on a discount basis.
   (b) Calculate the effective interest cost if the loan requires a minimum compensating balance of 20 percent and it is on a discount basis.
   (c) Calculate the effective interest cost if the loan requires a 25 percent compensating balance but it is on a collect basis.

3 A US company borrows Japanese yen for 1 year at 5 percent. During the year, the yen appreciates from $0.010 to $0.012 against the US dollar.
   (a) Determine the percentage appreciation of the yen.
   (b) Compute the effective interest rate of the loan in dollar terms.
4 A Mexican subsidiary of a US company needs a peso (local) loan. The Mexican loan rate is 15 percent per year, while a foreign loan rate is 7 percent per year. By how much must the foreign currency appreciate to make the cost of the foreign loan equal to that of the local loan?
5 A US company is considering three financing plans for 1 year: a dollar loan at 6 percent; a Swiss franc loan at 3 percent; and a euro loan at 4 percent. The company has forecasted that the franc will appreciate by 2 percent for the next year and that the euro will appreciate by 3 percent for the same period.
   (a) Compute the expected effective interest rate for each of the three plans.
   (b) Which plan appears to be most feasible?
   (c) Why might the company not necessarily choose the plan with the least interest rate?

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Case Problem 14: IBM's Strategic Alliances

IBM is the world's largest computer company, with 300,000 employees and annual sales of $90 billion. IBM is the company that had almost collapsed in the early 1990s. However, its comeback has been remarkable because of the strategic alliances and other actions taken by the company. IBM earned $7.7 billion in 1999, $4 per share. Its stock price increased from $45 per share in 1991 to $200 in 1999 ($100 after a two-for-one split in mid-1997). More than 60 percent of worldwide sales come from foreign operations. IBM has two fundamen-

tal missions: First, it strives to lead in the creation, development, and manufacture of the industry's advanced information technologies, including computer systems, software, networking systems, storage devices, and electronics. Second, it translates these advanced technologies into value for its customers through professional solutions for businesses worldwide. To achieve these two missions, IBM has relied heavily on a variety of strategic alliances, along with mergers and acquisitions of other firms. In addition, IBM has not hesitated to sell some none-core and/or unprofitable businesses. For example, IBM sold its Global Network business to AT&T for $5 billion in 1999.

The rush of new technology, the expense of staying on the leading edge, the demands of customers, and worldwide competition have required IBM and other high-tech companies to form a wide range of alliances and partnerships. The costs of developing the 256-million-bit memory chip (in a three-way pact with Siemens and Toshiba) have exceeded a billion dollars. Take the IBM PC as another example. Only about half of the machine and its components come from the company's plants. The rest – including the monochrome monitor, the keyboard, some graphics printers, and a large share of the semiconductor chips – come from its partners in Japan, Singapore, and Korea. With these stakes, sharing costs, risk, and knowledge is essential.

In a decade, IBM has moved from a do-it-all-yourself, inwardly directed company to an enterprise that reaches out for new ideas and approaches that intertwine with its own talents and strengths. Today, IBM has more than 20,000 business partnerships worldwide and more than 500 equity alliances with agents, dealers, distributors, software firms, service companies, and manufacturers.

The quest to satisfy customers has blurred traditional competitive boundaries. Apple Computer is IBM's partner in Taligent to develop object-oriented software and in Kaleida to create multimedia standards. Hewlett-Packard and IBM have developed and manufactured high-speed fiber-optic communications components. Wang and Mitsubishi sell IBM systems under their logos, and Digital Equipment is a partner in offering business recovery services. In March 1999, IBM agreed to sell Dell Computer Corp. $16 billion in parts over 7 years. This latest deal underscores IBM's new strategic focus on selling high-tech components on the open market, rather than just using them inside IBM computers.

This strategy has been advanced by IBM's CEO, Gerstner, who sees it as another way to derive profits from IBM's technology prowess and to keep the company competitive. Alliances not only divide high development and production costs, but also reduce critical time-to-market, pool scarce human skills, provide access to new markets and distribution channels, and fill product gaps.

Case Questions

1 What are the forms of strategic alliances used by IBM?
2 Why does a company as big as IBM have to depend on joint ventures so heavily for its global expansion?

3 How can these international strategic alliances enable IBM to achieve its objective of maximizing stockholder wealth?
4 What are the motives for strategic alliances in general?
5 The home page of IBM, www.ibm.com, covers the company's news, products, services, support, annual financial reports, and many other areas of its business operations. Use this web page to find recent IBM acquisitions and divestitures.

Sources: M. Potts and P. Behr, "Strange Global Bedfellows," *Across The Board*, Feb. 1987, pp. 24–30; "IBM Will Sell Dell $16 Billion of Parts," *The Wall Street Journal*, Mar. 19, 1999, pp. A3, A10; and IBM *Annual Report*, various issues.

PART IV

Global Investment Strategy

Part IV (chapters 15–20) covers the management of assets, or the efficient allocation of funds among various assets. This part describes the management of current assets, financial assets, capital budgeting, and political risks associated with foreign investment. The objective of current asset management is to protect the purchasing power of assets and to maximize the return on investment. The management of current assets is extremely important for the multinational company. Thus, the complicating international factors and approaches for resolving them should be analyzed carefully. National capital markets have recently changed to an integrated global capital market, oftentimes followed by widespread international multiple listings of securities. Consequently, investors are starting to realize the enormous potential of international portfolio investment. As a result, relatively sophisticated techniques exist to analyze how foreign investment decisions are made. Investment decisions affect the value of a company's stock by influencing both the size of the earnings stream and the riskiness of the company. This risk factor in foreign operations takes on a new dimension of importance because it is rarely encountered in domestic business operations.

CHAPTER 15

International Working Capital Management

Opening Case 15: An Efficient Global Treasury Structure

GeoLogistics Corp. was formed in February 1996 as a global provider of logistics and transportation services for manufacturers and distributors in technology, communications, and aerospace. The company executed five major acquisitions within 30 months and its 1999 sales reached $1.5 billion, 50 percent of which came from outside North America. The company is now a global organization with operations in 32 countries around the world. As the company expands its network through acquisitions, the need for greater control over international treasury operations becomes obvious. With more than 80 banks serving 30 countries in Europe and Asia, it is a challenge for the company to find workable solutions that meet its needs and budgets.

GeoLogistics decided to establish an efficient global treasury structure that would reduce debt, improve settlement practices, and increase the efficiency of cash management. The company selected ABN AMRO Bank of Ireland as its sole treasury-service provider. Ireland was attractive because of favorable tax environments and agency or outsourcing capabilities, which meet GeoLogistics' needs. The Dublin International Financial Service Center (IFSC) was established by the Irish government in 1987 to provide licenses to financial institutions, which offer treasury agency services to foreign companies. ABN had an established IFSC agency capability, an international network, and the treasury outsourcing expertise to achieve the company's objectives.

GeoLogistics' operational guidelines for ABN outlined policies for investments, lending, funding, foreign exchange, disbursements, and financial reporting. Under these guidelines, ABN has reduced the company's idle cash by $20 million per year, with a corresponding reduction in external debt. Specifically, to improve the company treasury services, ABN centralized all intercompany lending and hedging activity

through a single IFSC vehicle; established a monthly netting system; designed an effective euro-based cash pool, and increased control with a simplified structure.

Source: Terry Clark and Tom Maleese, "Achieving an Efficient Global Treasury Structure," *Euromoney*, Mar. 2000, pp. 40–2.

The management of current assets and current liabilities constitutes **working capital management**. The efficient allocation of funds among various current assets and the acquisition of short-term funds on favorable terms are conceptually the same for both multinational companies (MNCs) and domestic companies. However, these two types of companies are different because they do business in different environments. These differences include the impact of currency fluctuations, potential exchange controls, and multiple regulatory and tax jurisdictions on working capital decisions. In addition, MNCs enjoy a wide variety of short-term financing and investment opportunities.

Chapters 11–14 discussed various short-term sources of funds in detail. Thus, this chapter emphasizes current asset management, which can be viewed as either a dynamic (flow) process or a static (stock) responsibility. The first part of this chapter – the dynamic approach – focuses on the denomination of liquid funds by currency and the placement of such holdings by country. This flow process places a heavy emphasis on transfers of liquid funds from one geographical location or currency to another. The second part – the static approach – focuses on individual processes such as the composition of various current assets. The important aspect of this approach is how to determine appropriate levels of cash, accounts receivable, and inventories.

15.1 The Basic Concepts of Working Capital Management

The basic objective of working capital management is to determine the optimal amount of investment in various current asset accounts. This optimal amount of investment in current assets is the level of current asset holdings that maximizes the overall profitability of a firm. However, there are a variety of economic constraints that make it difficult for MNCs to achieve the objective of working capital management.

15.1.1 The importance of working capital management

Current asset management is important not only because it involves the largest portion of a financial manager's time, but also because current assets represent more than half the total assets of most companies. In addition, there is a close relationship between sales growth and the level of current assets. For example, increases in credit sales require more accounts receivable and inventories. Finally, companies may minimize their investments in fixed assets through leases, but it is practically impossible to avoid an investment in current assets.

Despite the importance of international working capital management, literature on this topic is rather limited for a number of reasons. First, decisions on working capital are relatively routine

and frequent. Second, unlike capital investment decisions, these routine decisions on working capital are easily reversible. Third, working capital management requires cash flow projections; however, cash flows cannot be forecasted by the financial manager alone. In other words, the financial aspects of a decision are sometimes concealed by marketing (credit policy) and production (inventory management), which have a major impact on a company's cash flows.

15.1.2 Net working capital funding

The higher level of sales by an MNC necessitates more accounts receivable and higher inventory levels. On the liability side, accounts payable are expected to increase with increases in sales. Accounts payable would automatically finance part of sales increases. These three components make up net working capital. It is important to note that we do not include cash and short-term debt as part of net working capital, because they are not spontaneous.

In principle, MNCs attempt to minimize their net working capital. Aggressive selling techniques and more lenient credit terms may immediately lower the time required to convert inventories into accounts receivable. Greater cash discounts and tighter collection policies may considerably reduce the time required to convert accounts receivable into cash. All such policy changes require additional costs. Thus, MNCs should reduce the cycle until the marginal revenue generated equals the marginal cost; at this point, they maximize their profits.

A common method of benchmarking working capital management practice is to compute the net working capital of a company on a "days sales" basis. To do this, we must first calculate the following three values: (1) days receivables (accounts receivable divided by the average daily sales); (2) days inventory (inventory divided by the average daily sales); and (3) days payables (accounts payable divided by the average daily sales). By combining these three items, we obtain days working capital as follows:

$$\text{days working capital} = \text{days receivables} + \text{days inventory} - \text{days payables}$$

Table 15.1 shows days working capital for selected US and European technology hardware and equipment companies. There are a number of clear differences between the two countries and among individual companies. For example, the days working capital average for the US companies is less than half the 75 days for the European sample. Apparently, European companies carry a considerably higher level of net working capital in their financial structures than US companies to support the same level of sales. Among individual companies, Dell is the most aggressive working capital manager. For example, Dell's net working capital level of a negative 2 days indicates that a level of accounts payable exceeds the sum of accounts receivable and inventory. However, its inventory days of 6 are still three times that of Apple Computer's 2 days in inventory.

15.1.3 Economic constraints of current asset management

Because MNCs operate across national borders, they face regulatory, tax, foreign exchange, and other economic constraints. To achieve a predetermined objective of current assets, the financial manager must give special consideration to these constraints.

Table 15.1 Days working capital for selected US and European technology hardware and equipment companies

Company	*Country*	*Working capital*	*Receivables*	*Inventory*	*Payables*
Intel Corporation	USA	48	47	21	20
Cisco Systems	USA	54	46	20	12
Dell Computer	USA	–2	41	6	49
Texas Instruments	USA	34	65	32	63
Applied Materials	USA	41	82	62	93
Apple Computer	USA	2	48	2	48
Sun MicroSystems	USA	68	67	12	21
Gateway	USA	0	25	8	33
Average	USA	29	63	19	42
St Microelectronics	Italy	58	65	52	59
Nokia	Finland	66	72	31	37
Phillips Electronics	The Netherlands	71	59	51	39
GN Store Nord	Denmark	100	92	40	32
Spirent	UK	107	66	63	22
Getronics	The Netherlands	51	80	20	49
Infinecon Tech	Germany	75	57	69	51
Average	Europe	75	70	47	41

Sources: *CFO Magazine*, 2001 Working Capital Survey; and *CFO Europe Magazine*, 2001 Working Capital Survey, July/Aug. 2001.

FOREIGN-EXCHANGE CONSTRAINTS Foreign-exchange constraints are an important limiting factor on fund flows from one country to another. International fund flows involve foreign-exchange transaction costs and exchange rate fluctuations.

REGULATORY CONSTRAINTS Regulatory constraints can block dividend repatriation or other forms of fund remittances. This blockage occurs because of restrictions on the international movement of funds and other exchange controls.

TAX CONSTRAINTS Tax constraints limit the free flow of affiliate funds to a parent or to sister affiliates. These may occur because higher taxes on all corporate earnings or extra taxes on dividends may be imposed to curb inflation.

A SUMMARY OF CONSTRAINTS Other economic factors, such as inflation and interest rates, also have an important impact on the international mobility of corporate funds.

There are many elements and issues in international current asset management. Here, we assume that the major tasks of current asset management consist of (1) the ability to transfer funds, (2) the positioning of funds within a multinational firm, (3) arbitrage opportunities, and (4) different channels to move funds.

15.1.4 The ability to transfer funds

An MNC has the ability to adjust intracompany fund flows and profits on a global basis. This ability is one of the most important advantages that MNCs enjoy. Financial transactions within an MNC stem from the internal transfer of goods, services, technology, and capital. Such intracompany flows range from finished goods to intangible items such as management skills, trademarks, and patents. Furthermore, capital investments and direct loans give rise to future flows of dividends, interest, and principal payments. On the other hand, many of the gains achieved through intracompany fund flows derive from some questionable business practices. For example, the amount of gains could depend on a company's ability to take advantage of soft spots in tax laws and regulatory barriers. Consequently, conflicts between MNCs and their host governments are quite likely.

15.1.5 Positioning of funds

Another main task of current asset management is to position working cash balances or excess liquidity within an MNC. The division of funds among various affiliates involves the choice of country and the selection of currency denomination for all liquid funds. In domestic businesses, fund flows among units of a large company confer little or no advantage to the company, because tax rates and regulations are uniform throughout the country.

The value of intracompany fund flows for MNCs lies precisely in the fact that there are wide variations in national tax systems and regulatory barriers. In other words, many different types of market imperfections increase the value of internal fund flows among units of an MNC. These market imperfections include foreign-exchange markets, financial markets, and commodity markets.

15.1.6 Arbitrage opportunities

The ability to relocate working cash balances and profits on a global basis provides MNCs with three different types of arbitrage opportunities: (1) tax arbitrage, (2) financial market arbitrage, and (3) regulatory system arbitrage.

First, MNCs can reduce their overall tax burden by shifting profits from subsidiaries in high-tax countries to subsidiaries in low-tax countries. Second, internal fund transfers may enable MNCs to circumvent exchange controls, earn higher yields on excess funds, and tap domestically unavailable capital sources. Third, if affiliate profits depend on government regulations or union pressure, MNCs can disguise true profits through transfer pricing and other intracompany adjustments.

15.1.7 Different channels to move funds

Multinational business operations require a steady flow of funds from parent to subsidiary, from subsidiary to parent, and between subsidiaries. Because these fund flows are unique, we will consider one at a time.

FUND FLOWS FROM PARENT TO SUBSIDIARY The largest flow of funds from parent to subsidiary is the initial investment. The subsidiary may also receive additional funds in the form of loans or added investments. The purchase of goods from the parent offers another form of fund flows from parent to subsidiary. This form of fund flows involves transfer pricing, the price on goods sold between related entities.

FUND FLOWS FROM SUBSIDIARY TO PARENT The major components of fund flows from subsidiary to parent consist of dividends, interest on loans, principal reduction payments, royalty payments, license fees, technical service fees, management fees, export commissions, and payments for goods received from the parent. The parent does not have total control over the size of the flow of funds because of various external factors, such as foreign-exchange controls and tax constraints. For example, many governments impose a withholding tax when dividends are remitted to foreign owners.

FUND FLOWS FROM SUBSIDIARY TO SUBSIDIARY Funds flow from one subsidiary to another when they lend funds to each other or buy goods from each other. Funds from one subsidiary may also be used to establish another subsidiary. When such investments are made, all dividends and principal payments may go directly to the home office. However, it is possible for these two subsidiaries to have cash flows similar to parent-company cash flows.

Many factors, such as exchange controls and domestic political pressures, can block dividend repatriation or other forms of fund remittances. If funds are blocked in perpetuity, the value of a foreign project to the parent company is zero. However, MNCs have secretive methods to remove blocked funds, including (1) multilateral netting, (2) leading and lagging, (3) transfer pricing, (4) reinvoicing centers, (5) intracompany loans, and (6) payment adjustments.

MULTILATERAL NETTING Large MNCs often require a highly coordinated interchange of material, parts, work-in-process, and finished goods among various units, because they must handle a large volume of intracorporate fund flows. These cross-border fund transfers involve the foreign-exchange spread, the opportunity cost of the float, and other transaction costs such as cable charges. Netting has been frequently suggested as one method of minimizing the total volume of interaffiliate fund flows.

Netting is a method designed to reduce the foreign-exchange transaction cost through the consolidation of accounts payables and accounts receivable. Multilateral netting is an extension of bilateral netting. For example, if subsidiary A purchases $10 million worth of goods from subsidiary B and B in turn buys $11 million worth of parts from A, the combined flows are $21 million. On a net basis, however, subsidiary A would pay subsidiary B only $1 million. Bilateral netting would be useless where internal sales are more complex. Think of a situation in which subsidiary A sells $10 million worth of goods to subsidiary B, subsidiary B sells $10 million worth of goods to subsidiary C, and subsidiary C sells $10 million worth of goods to subsidiary A. In this case, bilateral netting would be of no use, but multilateral netting would eliminate interaffiliate fund transfers completely.

Example 15.1

Table 15.2 shows a more complex multilateral netting system. Without netting, total payments add up to $5,500. If the cost of foreign-exchange transactions and transfer fees were 1.5 percent, the total cost of settlement would be $82.50.

Table 15.2 The international payments matrix

	Paying subsidiary				
Receiving subsidiary	*USA*	*Japan*	*Germany*	*Canada*	*Total receipts*
USA	–	$ 500	$ 600	$ 700	$1,800
Japan	$ 200	–	400	500	1,100
Germany	600	500	–	300	1,400
Canada	600	400	200	–	1,200
Total payments	$1,400	$1,400	$1,200	$1,500	$5,500

Multilateral netting enables the subsidiaries to transmit information about their obligations to a single center, which combines them in the form shown in table 15.3. Netting reduces total foreign-exchange transfers from $5,500 to $600 and transaction costs from $82.50 to $9. As a result, this netting reduces both foreign-exchange transfers and transaction costs by 89 percent.

Table 15.3 The multilateral netting schedule

Subsidiary	*Total receipts*	*Total payments*	*Net receipts*	*Net payments*
USA	$1,800	$1,400	$400	–
Japan	1,100	1,400	–	$300
Germany	1,400	1,200	200	–
Canada	1,200	1,500	–	300

An accelerated globalization of production, distribution, and finance during the 1990s has created an unusually large volume of intracompany fund flows. By netting intra-affiliate payments, MNCs can realize significant cost savings. It is no wonder that so many MNCs use netting procedures to reduce transaction costs. As with all other transfer mechanisms, however, many governments impose controls on netting. Certainly, this will limit the degree to which the multilateral netting system can reduce foreign-exchange transfers and transaction costs.

LEADS AND LAGS MNCs can accelerate (**lead**) or delay (**lag**) the timing of foreign-currency payments in order to reduce foreign-exchange exposure or to increase working capital available.

These leads and lags can be achieved by modifying the credit terms extended by one unit to another. In order to reduce foreign-exchange exposure, companies should accelerate the payment of hard-currency payables and delay the payment of soft-currency payables. If subsidiary X buys goods worth $10 million monthly from subsidiary Y on 60-day credit terms, Y is, in effect, financing $20 million of working capital for X. The extension of the terms to 120 days would enable subsidiary X to have an additional $20 million of working capital.

Most US and non-US MNCs use leads and lags to minimize foreign-exchange exposure and to shift the burden of financing from one unit to another. This technique has a number of advantages over direct loans. First, leading and lagging do not require a note that officially recognizes an obligation to the seller. Moreover, the amount of credit can be adjusted up or down by shortening or lengthening the credit terms. Second, indications are that governments interfere less with payments on intracompany accounts than on intracompany loans. Third, under Section 482 of the US tax code, US firms do not have to pay interest on intracompany accounts up to 6 months, but they have to pay interest on all intracompany loans.

TRANSFER PRICING **Transfer prices** are prices of goods and services sold between related parties such as a parent and its subsidiary. There are increasing transfers of goods and services between related units in different countries, as MNCs have become larger and more diversified. Because transfer prices are frequently different from arm's-length prices (fair market prices), there is obviously room for manipulation. Governments usually assume that MNCs use transfer prices to reduce or avoid their taxes. For this reason, most governments have set up policing mechanisms to review the transfer pricing policies of MNCs. MNCs are also concerned with transfer prices because they affect direct cash flows for payments of goods and taxes, for cost structures, and for the evaluation of management performance.

Transfer prices can avoid financial problems or improve financial conditions. For example, some countries restrict the amount of profits that can leave that country. In this case, a parent company can remove funds from this particular foreign country by charging higher prices on goods sold to its subsidiary in that country. Transfer prices also channel funds into a subsidiary to bolster its financial condition by charging lower prices on goods sold to that subsidiary.

Example 15.2

To illustrate the effects of a change in transfer prices on the flow of funds, assume the following: (1) affiliates A and B have the same tax rate at 50 percent, (2) affiliate A produces 100 radios for $5 per unit and sells them to affiliate B, and (3) affiliate B sells these radios for $20 per unit to an unrelated customer. Table 15.4 shows the effects of low versus high transfer price on flow of funds.

A consolidated gross profit of $1,500 is the same under both conditions. If both affiliates have the same tax rate at 50 percent, a consolidated net income of $450 is also the same under both conditions. The policy of the low transfer price results in a cash transfer of $1,000 from B to A, whereas the policy of the high transfer price causes an additional

$500 of cash to move from B to A. If it were desirable to transfer funds out of affiliate B, the high transfer price policy would achieve this purpose. The use of the low transfer price ($1,000) allows B to make a net income of $300, whereas the use of the high transfer price ($1,500) permits B to earn only $50. Hence, if it were desirable to bolster B's financial condition, the low transfer price policy would achieve this end.

Table 15.4 The effects of low versus high transfer price on the flow of funds

	Low tax A	*High tax B*	*Combined A + B*
Low transfer price			
Sales price	$1,000	$2,000	$2,000
Cost of goods sold	500	1,000	500
Gross profit	$ 500	$1,000	$1,500
Operating expenses	200	400	600
Earnings before taxes	$ 300	$ 600	$ 900
Taxes (50%)	150	300	450
Net income	$ 150	$ 300	$ 450
High transfer price			
Sales price	$1,500	$2,000	$2,000
Cost of goods sold	500	1,500	500
Gross profit	$1,000	$ 500	$1,500
Operating expense	200	400	600
Earnings before taxes	$ 800	$ 100	$ 900
Taxes (50%)	400	50	450
Net income	$ 400	$ 50	$ 450

A major consideration in setting a transfer price is the income tax effect. For example, those countries with high tax rates are likely to induce higher transfer prices on flows from the parent and lower transfer prices on flows to the parent. On the other hand, those countries with lower tax rates would induce lower transfer prices on flows from the parent and higher transfer prices on flows to the parent. These transfer pricing policies shift profits from a country with a higher tax rate to a country with a lower tax rate, so that worldwide corporate profits may be maximized.

Example 15.3

To illustrate the tax effects of a change in transfer prices on corporate earnings, assume the following: (1) affiliate C is in a low-tax country (20 percent tax rate) and affiliate D is in a high-tax country (50 percent tax rate); (2) affiliate C produces 150 calculators for $5 per unit and sells them to affiliate D; and (3) affiliate D sells these calculators for $20 per unit

to an unrelated customer. Table 15.5 shows the tax effects of low versus high transfer price on company earnings.

Under the low transfer price, C pays taxes of $90 and D pays taxes of $450 for a total tax bill of $540 and a consolidated net income of $810. Under the high transfer price, C pays taxes of $240 and D pays taxes of $75 for a total tax bill of $315 and a consolidated net income of $1,035. Earnings before taxes are the same at $1,350 despite the different prices at which the calculators transfer from C to D. Still, the higher transfer price reduces total taxes by $225 ($540 – $315) and increases consolidated net income by the same amount ($1,035 – $810).

Table 15.5 The tax effect of low versus high transfer price

	Low tax C	*High tax D*	*Combined C + D*
Low transfer price			
Sales price	$1,500	$3,000	$3,000
Cost of goods sold	750	1,500	750
Gross profit	$ 750	$1,500	$2,250
Operating expenses	300	600	900
Earnings before taxes	$ 450	$ 900	$1,350
Taxes (20%/50%)	90	450	540
Net income	$ 360	$ 450	$ 810
High transfer price			
Sales price	$2,250	$3,000	$3,000
Cost of goods sold	750	2,250	750
Gross profit	$1,500	$ 750	$2,250
Operating expense	300	600	900
Earnings before taxes	$1,200	$ 150	$1,350
Taxes (20%/50%)	240	75	315
Net income	$ 960	$ 75	$1,035

Multinational business executives are reluctant to discuss policies for transfer pricing. But in multinational cases, transfer pricing has been used to minimize income taxes and tariffs, to adjust for currency fluctuations, to avoid economic restrictions, and to present a favorable financial picture of a foreign affiliate. In the early 1990s, President Clinton made a proposal to extract billions of dollars from foreign companies in the United States. By cracking down on foreign companies that manipulate transfer prices, Clinton argued that the US government could collect $45 billion over 4 years from foreign companies.

REINVOICING CENTERS Some MNCs circumvent or bypass governments' restrictions and regulations by setting up reinvoicing centers in tax-haven countries. Tax-haven countries are those nations that provide foreign companies with permanent tax inducements. It is possible for a reinvoicing center in the Bahamas to issue invoices for all goods sold by a US parent to its sub-

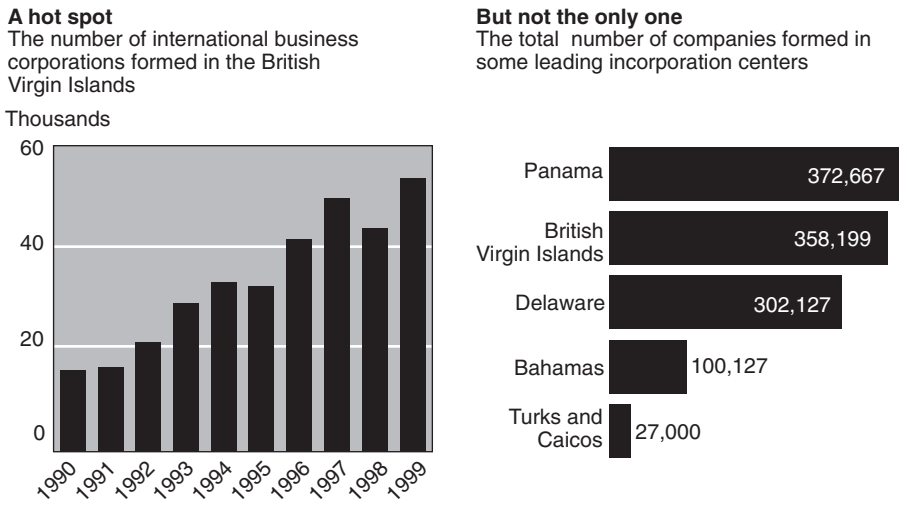

Figure 15.1 Corporate paradise

Source: *The Wall Street Journal*, June 29, 2000, p. A21; reprinted by kind permission.

sidiaries or independent customers in different countries. In this case, the reinvoicing center takes titles of all goods sold by one corporate unit to its customers, even though the goods move directly from the seller in the USA to the buyer in Japan. The Bahamas center pays the US seller and is paid by the Japanese buyer to complete the transaction.

In June 2000, the Organization for Economic Cooperation and Development (OECD) named Monaco, the US Virgin Islands, and the British Gibraltar among 35 jurisdictions whose status as tax havens poses potentially harmful tax competition. The OECD asked the 35 jurisdictions to specify how and when they would bring their tax regimes into line with international standards. Those that could not reach agreement would appear on a list of "noncooperative tax havens" and could face "defensive measures" by OECD members. Thus, it may be difficult for MNCs to use these tax havens as their reinvoicing centers in the future. Figure 15.1 shows that thousands of companies from many parts of the world have established reinvoicing centers in major tax havens, which explains why the OECD took a tough stand.

Reinvoicing centers are often used to cope with foreign-exchange exposures. Subsidiaries buy and sell goods in multiple currencies and must manage the resulting currency exposures. Mechanisms such as the reinvoicing center are necessary so that subsidiaries operate their business exclusively on a local currency basis without the active management of foreign-exchange exposures. To see how the reinvoicing center works to minimize currency exposures, assume that the Canadian subsidiary purchases equipment from a Japanese firm and that payment should be made in Japanese yen. In this case, the reinvoicing center would buy the equipment in the name of the Canadian firm, pay the seller in Japanese yen, bill the Canadian firm in Canadian dollars, and receive Canadian dollars from the buyer. Thus, the objective of foreign-exchange management based on the reinvoicing center is to centralize foreign-exchange exposures in one unit – the reinvoicing center in a single country. To achieve this goal, the reinvoicing center buys on behalf of all related companies in various foreign currencies and then rebills those purchases to the buying units in their local currencies.

INTRACOMPANY LOANS There are many different types of intracompany loans, but direct loans, credit swaps, and parallel loans are the most important. Direct loans involve straight dealings between the lending unit and the borrowing unit, but credit swaps and parallel loans normally involve an intermediary.

A **credit swap** is a simultaneous spot-and-forward loan transaction between a private company and a bank of a foreign country. For example, a US company deposits a given amount of dollars in the Chicago office of a Mexican bank. In return for this deposit, the bank lends a given amount of pesos to the company's subsidiary in Mexico. The same contract provides that the bank returns the initial amount of dollars to the company at a specified date and that the subsidiary returns the original amount of pesos to the bank at a specified date.

Credit swaps are, in fact, intracompany loans hedged and channeled through banks. These loans are also risk free from a bank's point of view, because the parent's deposit fully collateralizes them. Credit swaps have several advantages over direct intracompany loans. First, credit swaps are free of foreign-exchange exposures because the parent recovers the amount of its deposit in the original parent currency from the bank. Second, cost savings may be available with credit swaps, because certain countries apply different tax rates to interest paid to the foreign parent and to interest paid to the local bank.

Parallel loans consist of two related but separate borrowings and typically involve four parties in two different countries. For example, a US parent lends an agreed amount in dollars to the American subsidiary of a Mexican parent. In return for this loan, the Mexican parent lends the same amount of money in pesos to the Mexican subsidiary of the US parent. These loan arrangements involve the same amount for both loans and the same loan maturity. Certainly, each loan is paid in the subsidiary's currency.

Parallel loans are frequently used to effectively repatriate blocked funds by circumventing exchange control restrictions. To see how the back-to-back loan can be used to repatriate blocked funds, suppose that the Mexican subsidiary of IBM is unable to repatriate its peso profits. It may lend the money to the Mexican subsidiary of AT&T; AT&T would, in turn, lend dollars to IBM in the USA. As a result, IBM would have the use of dollars in the USA while AT&T would obtain pesos in Mexico.

PAYMENT ADJUSTMENTS There are many different forms of payments by foreign subsidiaries to the parent company. These payments can be adjusted to remove blocked funds. Dividend payments are by far the most important form of fund flows from foreign subsidiaries to the parent company, accounting for approximately 50 percent of all remittances to US companies. Money market countries recognize dividend payments as a method by which the earnings of a business firm can be distributed to the stockholders of the firm. Not all nations, however, allow dividends of local companies to be paid in hard currencies to the foreign parent companies. Countries characterized by balance-of-payments problems and foreign-exchange shortages frequently place restrictions on the payment of dividends to foreign companies.

Two methods to adjust dividend payments in the case of these restrictions have become increasingly popular. These two methods artificially inflate the value of the local investment base, because the level of dividend payments depends on the company's capital. First, the parent company can magnify its subsidiary's registered capital by investing in used equipment, whose value has been artificially inflated. Second, the parent company may acquire a bankrupt local firm at a large discount from book value and then merge it with its subsidiary on the basis of the failed firm's book value. Of course, this action would raise the subsidiary's equity base.

In addition to dividends, royalties and fees are also important components of fund flows from foreign subsidiaries to the parent company. Royalties are paid to use certain technologies, patents, and trademarks. Fees are compensations for managerial services and technical assistance. Such royalties and fees are unique and thus do not have a reference in market value. Most host governments look with more favor on payments for royalties and fees than on payments for profit remittances. Hence, it is easier for MNCs to repatriate blocked funds through inflated royalty and fee payments rather than through any other form of payment.

UNBUNDLING FUND TRANSFERS MNCs frequently unbundle remittances into separate flows for such purposes as royalties and management fees, rather than lumping all flows under the heading of profit (dividend). Host countries are then more likely to perceive the so-called "remittance of profits" as essential purchases of specific services that would benefit the host country. Unbundling makes it possible for MNCs to recover funds from their affiliates without irritating host-country sensitivities with large dividend drains. This form of fund transfers is particularly useful for business operations in socialist and Islamic countries, where interest and dividend payments are regarded unfavorably.

MNCs can also unbundle remittances into separate cash flows to reduce their overall income taxes. Royalties and management fees have certain tax advantages over dividends when the host-country tax rate is higher than the parent-country rate. Obviously, this tax advantage arises because royalties and management fees are usually tax deductible locally. Under the foreign tax credit system, countries relinquish tax on profits earned abroad up to the amount of the foreign tax. Because local income taxes are paid before the dividend distribution, the parent company can take a tax credit for the local income taxes paid. If the local income tax rate is higher than the parent-country rate, part of the benefit may be lost, but the entire benefit is obtained when the payment is for royalties and management fees.

Example 15.4

Assume that the foreign subsidiary of a US parent company earns $1,000 before any taxes. The parent company wants to receive $400 before US taxes. The local tax rate is 50 percent and the US tax rate is 30 percent.

Table 15.6 shows how the US parent company can unbundle remittances into separate cash flows to reduce its worldwide taxes. In the case of a "bundled situation," the parent company receives $400 in cash dividends. In the case of an "unbundled situation," the parent company receives a royalty of $300 and a dividend of $100 for a total of $400 in cash. Under the bundled situation, the subsidiary pays taxes of $500 and the parent company pays no taxes for a total tax bill of $500 and a consolidated net income of $500. Under the unbundled situation, the subsidiary pays taxes of $350 and the parent company pays taxes of $90 for a total tax bill of $440 and a consolidated net income of $560. Earnings before any taxes are the same at $1,000. Still, the unbundled situation reduces total taxes by $60 and increases consolidated net income by $60.

Table 15.6 Bundled versus unbundled contribution to consolidated income

	Bundled $400 dividend	*Unbundled $100 dividend*
Subsidiary statement		
Earnings before taxes	$1,000	$1,000
Less: royalties and fees	–	300
Taxable income	$1,000	$ 700
Less: local tax at 50% (A)	500	350
Available for dividends	$ 500	$ 350
Cash dividend to parent	400	100
Reinvested locally	$ 100	$ 250
Parent statement		
Royalty received	–	$ 300
Less: US tax at 30% (B)	–	90
Net royalty received	–	$ 210
Net cash dividend	$ 400	100
Total cash received in the USA	$ 400	$ 310
Worldwide income		
Original earnings before any taxes	$1,000	$1,000
Less: total taxes paid (A + B)	500	440
Contribution to worldwide income	$ 500	$ 560

15.2 Cash Management

Cash gives an MNC the ability to pay bills as they come due, but it is not an earning asset. Thus, it is very important to determine an optimal level of investment in cash. The major sources of cash inflows are dividends, royalties and fees, cash sales and collections on accounts receivable, depreciation, sales of new securities, loans from banks or nonbank financial institutions, and advance cash payments on contracts. In contrast, cash outflows are necessary for interest and dividend payments, retirement of debt and other securities, income tax payments, payments on accounts payable, wages and salaries, and purchases of fixed assets. The term "cash management" is used here to mean optimization of cash flows and investment of excess cash.

Companies prefer to hold cash rather than other forms of assets for three main reasons: the transaction motive, the precautionary motive, and the speculative motive. The **transaction motive** holds that cash balances are held partly in anticipation of day-to-day cash disbursements. The **precautionary motive** suggests that cash balances are held partly as protection against deviations from budgeted cash flows. The **speculative motive** relates to the holding of cash in order to take advantage of profit-making opportunities.

15.2.1 Objectives of cash management

The general principles that apply to cash management on an international basis are frequently similar to those utilized by many companies domestically. The overall cash management objec-

tive of any corporation is to minimize the cash balance within the company, with the goal of optimizing corporate fund utilization. However, the parameters within which MNCs operate are broader and more complex than those of purely domestic companies. Furthermore, the relationships among these parameters are constantly changing. Hence those responsible for cash management on an international basis must consider new variables such as tax concepts, governmental restrictions on intracompany fund flows, differences in cultures, and foreign-exchange rates.

More specifically, international cash managers try to attain the traditional objectives of domestic cash management on a global basis: (1) to minimize the cost of funds, (2) to improve liquidity, (3) to reduce risks, and (4) to improve the return on investment.

First, with interest rates of more than 10 percent in many countries, considerable savings are possible when the cost of funds is lowered. MNCs should attempt to reduce their overall cost of funds by increasing internal funds and reducing borrowings.

Second, international cash managers must attempt to improve liquidity on a global basis. Certainly, it is difficult to improve liquidity on a worldwide basis, because government regulations prohibit the free transfer of funds. But MNCs can use centralized cash management and electronic fund transfers to improve their overall liquidity.

Third, international cash management involves a variety of risks, such as political, economic, and exchange risks. Insurance, careful negotiations, forward contracts, and currency options may be used to reduce these risks.

Fourth, a variety of ratios, such as return on investment and return on net worth, are often used to measure performance. The improvement of financial performance is perhaps the most important aspect of treasury management.

15.2.2 Floats

To carry out its operations, an MNC causes a steady flow of funds to take place among its family members. These fund flows cannot avoid the problem of **float**, which refers to the status of funds in the process of collection. From a domestic point of view, float represents only the temporary loss of income on funds that are tied up in the process of collection. In international operations, however, the problem of float is twofold: (1) the loss of income on the funds tied up during the longer transfer process; and (2) their exposure to foreign-exchange risk during the transfer period. Nearly all aspects of both international and domestic cash management are associated with the concept of float. Thus, we ought to understand float to effectively evaluate the collection and disbursement procedures of any cash management system. For purposes of measurement and analysis, we can break down float into five categories:

1 Invoicing float refers to funds tied up in the process of preparing invoices. Because this float is largely under the direct control of the company, it can be reduced through more efficient clerical procedures.
2 Mail float includes funds tied up from the time customers mail their remittance checks until the time the company receives them.
3 Processing float consists of funds tied up in the process of sorting and recording remittance checks until they can be deposited in the bank. Like invoicing float, this float is under the company's internal control and thus can be reduced through more efficient clerical procedures.

4 Transit float involves funds tied up from the time remittance checks are deposited until these funds become usable to the company. This float occurs because it takes several days for deposited checks to clear through the commercial banking system.
5 Disbursing float refers to funds available in a company's bank account until these funds are actually disbursed by the company.

15.2.3 The collection and disbursement of funds

The overall efficiency of international cash management depends on various collection and disbursement policies. To maximize available cash, an MNC must accelerate its collection process and delay its payments. Hence, it must consider these two policies simultaneously to improve its overall cash management efficiency. Significant benefits exist, because long delays are possible in collecting accounts receivable and in paying accounts payable. Delays of 7–10 business days are common to allow for transit and other floats across national borders. Effective collection and disbursement policies have become even more important in recent years because of high interest rates, wide fluctuations in foreign-exchange rates, and widespread credit restrictions.

ACCELERATION OF COLLECTIONS International cash managers should use every means in their power to gain control over incoming funds as quickly as possible after the collection process starts. The principal goals of speeding the collection process are to reduce floats, to minimize the investment in accounts receivable, and to reduce banking and other transaction fees.

An MNC can use a number of useful techniques to speed the collection process: lock boxes, cable remittances, electronic fund transfers, and the use of wire transfers. There are no significant differences between domestic and international lock-box operations. In international lock-box arrangements, MNCs simply use banks in foreign countries to speed up the collection process of their international accounts receivable. With respect to payment instructions to customers and banks, the use of cable remittances is a crucial means for MNCs to minimize delays in receipt of payments and in conversion of payments into cash.

MNCs use electronic fund transfers (EFTs) to move several trillion dollars throughout the world every day. EFTs move funds faster and more efficiently than checks. Moreover, EFTs are completed at a relatively low cost.

In chapter 12, we discussed three computerized systems designed to process international wire transfers: the Clearing House Interbank Payment System (CHIPS), the Clearing House Payment Assistance System (CHPAS), and the Society for Worldwide Interbank Financial Telecommunications (SWIFT). These and other computerized systems are widely used today to facilitate the wire transfer process of funds around the globe. The SWIFT is an interbank communication network founded in 1973 to move messages for financial transactions.

DELAY OF PAYMENTS In addition to accelerating collections, international cash managers can produce a faster turnover of cash by controlling disbursements efficiently. By delaying disbursements, a company keeps cash on hand for longer periods. When the firm purchases goods on credit, it must delay its payments until the last day in order to have the additional funds for the extra time. An MNC can delay its payments in a number of ways: (1) mail, (2) more frequent requisitions, and (3) floats.

First, in spite of the widespread availability of electronic fund-transfer networks, a surprisingly large number of cross-border payments are still made by mail. It is not unusual for regular airmail to take 7 days or more to reach its ultimate destination.

Second, a parent can use large sums of money on a temporary basis because of frequent requisitions of funds by foreign subsidiaries from the parent's central office and the centralized disbursements. For example, if a firm switches its requisition policy from monthly requisitions to weekly requisitions, it can keep cash on hand for as much as 3 weeks longer.

Third, the use of float is yet another method used to maximize the availability of cash. At any given time, checks written by a firm have yet to be cleared through the banking system, because that process takes a number of days. Thus, it is possible for a firm to have a negative balance on its checkbook but a positive balance on its bankbook for a number of days.

THE COST OF CASH MANAGEMENT An MNC company may use various collection and disbursement procedures to improve the efficiency of its cash management. Because these two types of procedures constitute two sides of the same coin, they have a joint effect on the overall efficiency of cash management. Accelerating collections and delaying disbursements involve additional costs. Hence a company must determine how far it should go to make its cash operations more efficient. In theory, a company should adopt various collection and disbursement methods, as long as their marginal returns exceed their marginal expenses.

The value of careful cash management depends on the opportunity cost of funds invested in cash. The opportunity cost of these funds in turn depends on the company's required rate of return on short-term investments. For example, assume that the adoption of a lock-box system is expected to reduce the investment in cash by $100,000. If a company earns 11 percent on short-term investments, the opportunity cost of the current system is $11,000. Hence, if the cost of the lock-box system is less than $11,000, it can be adopted to improve earnings performance.

15.2.4 Cash centers

Cash management can be centralized, regionalized, or decentralized on a company level. Decentralization permits subsidiaries to use excess cash in any way they see fit. While this is popular among subsidiary managers, decentralization does not allow an MNC to utilize its most liquid asset on a widespread basis. Effective cash management requires that executives predetermine cash flow centers. For example, an MNC should not choose to hold cash in a country that suffers violent political upheavals and rampant inflation. Rather, it should transfer idle local cash balances as quickly as possible to a stable environment.

Centralized cash management or cash pooling calls for each local subsidiary to hold, at the local level, the minimum cash balance for transaction purposes. All funds not needed for transaction purposes are channeled to a central cash center. This cash center is responsible for placing a central pool of funds in those currencies and money market instruments that will best serve the needs of the MNC on a worldwide basis.

THE ADVANTAGES OF CASH POOLING Centralized cash management has a number of advantages over decentralized cash management:

1 The central cash center can collect information more quickly and make better decisions on the relative strengths and weaknesses of various currencies. Such information and decisions are necessary if one wishes to invest a central pool of funds most profitably.
2 Funds held in a cash center can quickly be returned to a subsidiary with cash shortages by wire transfer, or by providing a worldwide banking system with full collateral in hard currency. The central pool of funds eliminates the possibility that one subsidiary will borrow at higher rates while another holds surplus funds idle, or invests them at lower rates.
3 By holding all precautionary balances in a central cash center, an MNC can reduce the total pool without any loss in the level of production. This is due to a synergistic effect that is said to exist when the whole is worth more than the mere sum of its parts. This effect has frequently been defined as "2 + 2 = 5."

Before any cash is remitted to a central cash center, local cash needs must be properly assessed. The proper assessment of local cash needs in relation to the cash center involves the following steps:

1 Cash budgets should be prepared, to show anticipated cash outflows and inflows at key future dates.
2 Each subsidiary must have effective cash collection procedures that will speed up cash flows into the company.
3 Each subsidiary must also have systematic cash disbursement procedures that will delay cash flows out of the company.
4 Each subsidiary should estimate when it will have surplus cash, and how much.
5 Each subsidiary should also estimate when it will have shortages, and by how much.
6 The MNC must develop necessary steps for cash mobilization, such as a management information system and a cash-transfer system; it should have the clear responsibility for making cash-transfer decisions.

FACTORS AFFECTING THE LOCATION OF CASH CENTERS Many factors affect the location of cash centers. From an economic point of view, idle funds should move toward those locations that provide the highest profitability and safety. These funds are accumulated in cash centers for temporary investment prior to reassignment elsewhere. Thus, an MNC should choose those locations from which funds can again be readily assigned to other places in the world.

Perhaps the most important factor affecting the location of cash centers is the local government's political stability and its attitude toward foreign-based companies. Local laws may require partial ownership of alien companies by nationals of the host country or by the government itself. Hostility of the courts toward foreign business claims and disclosure requirements may all work against a subsidiary operating as a cash center. Aggregate tax levels and penalty rates on excessive dividend remittances also play an important role in the selection of cash centers.

An MNC must also consider several economic factors when selecting cash centers. These cash centers should be located in countries whose currencies are stable in value and readily convertible into other currencies. It is extremely difficult for financial managers to predict the exact timing of a change in the exchange rate. Most governments take all possible measures to avoid speculation against their currencies. It is critical, therefore, to engage in hedging operations to assure that foreign-exchange losses can be minimized. Thus, the existence of an active forward

market and the availability of suitable money market instruments for the deployment of temporary excess resources are important.

Cash centers are usually located in the major financial centers of the world, such as New York and London. Brussels has become popular as a cash center for companies operating in Europe. Other popular locations for cash centers are tax-haven countries, such as Luxembourg, the Bahamas, Bermuda, and the Netherlands. These countries offer most of the prerequisites for a corporate cash center: political and economic stability, a freely convertible currency, access to international communications, and well-defined legal procedures.

15.2.5 *Investing excess funds*

Along with optimization of cash flows, the other key function of international cash management is to make certain that excess funds are wisely invested. This section discusses three types of portfolio management and portfolio guidelines.

PORTFOLIO MANAGEMENT There are at least three types of portfolio management available to international cash managers. First, MNCs can optimize cash flows worldwide with a zero portfolio. All excess funds of subsidiaries are remitted to the parent and then used to pay the parent's short-term debts. Second, they can centralize cash management in third countries, such as tax-haven countries, and invest funds in marketable securities. Third, they can centralize cash management at headquarters, with subsidiaries holding only minimum amounts of cash for transaction purposes.

PORTFOLIO GUIDELINES Most surplus funds are temporary. If MNCs invest funds in marketable securities such as Treasury bills, they should follow sound portfolio guidelines. First, instruments in the short-term investment portfolio should be diversified to maximize the yield for a given amount of risk, or to minimize the risk for a given amount of return. Second, for companies that hold marketable securities for near-future needs of liquidity, marketability considerations are of major importance. Third, the maturity of the investment should be tailored to the company's projected cash needs. Fourth, the securities chosen should be limited to those with a minimum risk of default. Fifth, the portfolio should be reviewed daily to decide what new investments will be made and which securities will be liquidated.

15.2.6 *International cash management practices*

In 1996, Ricci and Morrison conducted a survey of Fortune 200 companies to determine the use of several of the cash management techniques discussed in this chapter. Wire transfers, electronic fund transfers, and lock boxes are used to expedite the collection of accounts receivable. Cash pooling and netting are used to minimize interaffiliate fund flows.

Table 15.7 indicates the relative frequencies of these five cash management techniques used by Fortune 200 companies. These companies appear to have a high level of sophistication. More than 80 percent of the respondents use wire transfers often, 50 percent pool their cash often, and almost half net payments and transfer funds electronically often.

Table 15.7 The use of international cash management techniques

	Often	*Sometimes*	*Rarely*	*Never*
Wire transfers	82.3%	15.3%	1.6%	0.8%
Electronic fund transfers	49.6%	17.9%	17.1%	15.4%
Lock boxes	28.7%	27.0%	18.9%	25.4%
Cash pooling	50.0%	19.5%	11.0%	19.5%
Netting	49.6%	17.9%	17.1%	15.4%

Source: C. W. Ricci and G. Morrison, "International Working Capital Practice of the Fortune 200," *Financial Practice and Education*, Fall/Winter 1996, pp. 7–20.

15.3 Accounts Receivable Management

The level of accounts receivable depends upon the volume of credit sales and the average collection period. These two variables, in turn, depend upon credit standards, credit terms, and collection policy. As management moves from customers who are more likely to pay their bills to customers who are less likely to pay their bills, sales tend to increase. However, a lenient credit policy is also likely to increase bad debt losses and investments in accounts receivable. In theory, a company should liberalize its credit policy to the point at which the marginal profit on its increased sales equals the marginal cost of credit.

Because money has a time value, accounts receivable have a cost in terms of foregone interest. Nevertheless, many MNCs frequently decide to sell for credit in order to expand sales volume and profits. If sales are made on the basis of drafts on importers, trade acceptances or bankers' acceptances are created, and these may be discounted at banks or sold in the money market. In addition, in many countries the accumulation of accounts receivable is even highly desirable, because government agencies extend export credit at preferential interest rates.

15.3.1 Currency value problems

One truly unique problem area of multinational accounts receivable management has to do with the risk of currency value changes. The accounts receivable manager should understand this risk and take all necessary actions to minimize it. Multinational accounts receivable are created by two separate types of transactions, sales to customers outside the corporate group and intracompany sales. We must consider these two types of transactions separately, because their economic consequences are different.

SALES TO INDEPENDENT CUSTOMERS Management of accounts receivable from independent buyers involves two types of decision, the denomination of currency to be used for payment and the terms of payment. Domestic sales are always denominated in the local currency. In contrast, export sales can be denominated in the currency of the exporter, the currency of the importer, or a third-country currency. The exporter would prefer to price and to invoice in the strongest currency, while the importer would prefer to pay in the weakest currency. Competition or custom will frequently resolve the problem, but the usual result is a trade-off between the terms of payment and the denomination of currency. For example, an exporter may grant a longer credit period in exchange for an importer's promise to pay for its purchase in a hard currency.

Many factors affect the terms of payment, but perhaps one of the most important is the strength of the currency denominated in a transaction. If payments are to be made in a soft currency, accounts receivable should be collected as quickly as possible in order to minimize the possibility of exchange losses between the sale date and the collection date. Sales made in a hard currency may be permitted to remain outstanding somewhat longer. If the devaluation of its home currency is imminent, an exporter might want to encourage slow payment of its hard-currency receivables.

There are at least two ways in which the accounts receivable manager can alleviate currency value problems: currency denomination and the use of factors. A seller may require that all payments are to be made in hard currencies. This requirement assures the seller that payments are to be made in currencies likely to face little or no devaluation on the foreign-exchange market. In certain instances, an MNC refuses credit sales denominated in foreign currencies altogether. MNCs may buy currency credit insurance. For example, American exporters can purchase protection from the Foreign Credit Insurance Association or the Export–Import Bank described in chapter 13.

Accounts receivable managers also use factors to minimize accounts receivable risks from changes in exchange rates between the sale date and the collection date. **Factoring** is a process whereby a company sells its accounts receivable on a nonrecourse basis. Nonrecourse means that the factor takes the loss if the customers of its client do not pay their accounts. In addition to risk bearing, the factor performs a number of additional services such as credit checking, bookkeeping, and the collection of accounts.

INTRACOMPANY SALES Intracompany sales differ from sales to independent customers in that little concern is given to credit standing and the timing of the payments may depend upon a company's desire to allocate resources rather than normal payment schedules. Such sales are necessary for many reasons. Subsidiaries produce different products and often sell to each other. Like the location of cash balances, the location of intracompany receivables and their amounts are a policy consideration of the MNC when it allocates its resources on a global basis. If a parent company desires to transfer funds to its affiliate, it may do so by having the affiliate delay the payment for intracompany purchases.

Because international credit sales usually cross national boundaries, companies are concerned about currency values. Changes in exchange rates between the sales date and the collection date create accounts receivable risks. Leading and lagging can be used to alleviate currency value problems of intracompany credit sales. If subsidiaries are located in countries whose currencies are likely to devalue or to float downward, a parent company may instruct its subsidiaries to pay for their purchases more quickly (leading). In contrast, if subsidiaries are located in countries whose currencies are expected to upvalue or to float upward, the parent company may instruct its subsidiaries to delay payments (lagging). It is important to note that early payments and later payments in conjunction with intracompany sales are feasible only when the parent company owns 100 percent of its various affiliates.

15.4 Inventory Management

The overall efficiency of inventory management is extremely important for two reasons. First, inventories represent a significant segment of total assets for most MNCs. Second, they are the least liquid of current assets; thus, errors in inventory management are not quickly remedied.

Hence for the past few decades the greatest improvements within the area of current asset management have been made in inventory control and investment. The size of inventories in relation to sales has been greatly reduced with the application of computers and new inventory management systems.

Many US and European MNCs have recently adopted a Japanese inventory management system known as the "just-in-time" inventory system. The **just-in-time inventory system** requires that when orders are placed, specific goods are ordered along with an exact delivery date. The goal on the part of the company is to reduce inventory balances to practically zero. Under such an arrangement, it is not uncommon for suppliers to build facilities close to their major customers in order to ensure a ready supply of inventory. For example, many Japanese automotive suppliers have established their production facilities close to Japanese car assembly transplants in the USA and Canada. In essence, the customer is passing the inventory balance problem back to the supplier.

15.4.1 Determining the amount of inventory

The level of sales, the length of the production cycle, and the durability of the product are major determinants of investment in inventory. In domestic or one-country operations, companies attempt to balance their inventory level in such a way that both carrying costs and stockout costs are minimized. However, differentials in the costs of production and storage in different countries allow the MNC to maintain more flexible inventory policies. For instance, an MNC can take advantage of lower costs in a particular country by shifting its production or storage function to that country. These advantages are offset by such disadvantages as tariff levels and other forms of import restrictions used by governments.

Given the fact that many foreign affiliates operate under inflationary conditions, an MNC must determine whether to buy inventory in advance or to delay purchase until the inventory is actually needed. Advance purchases involve such carrying costs as interest on funds tied up in inventory, insurance premiums, storage costs, and taxes. Later purchases increase the possibility of higher costs either through inflation or devaluation. Inflation increases the costs of locally purchased items, and devaluation increases the costs of imported items.

Despite the desire for optimizing inventory levels, many companies that rely on imported inventories maintain overstocked inventory accounts. The fears of continued inflation, raw materials shortages, and other environmental constraints induce companies to maintain high overseas inventory levels rather than risk curtailment of their overseas operations. Additional environmental constraints include anticipated import bans in foreign countries, anticipated delivery delays caused by dock strikes and slowdowns, the lack of sophisticated production and inventory control systems, and increased difficulty in obtaining foreign exchange for inventory purchases.

15.4.2 Protective measures against inflation and devaluation

Many foreign affiliates operate under inflationary economic conditions. Thus it is important for MNCs to determine the effects of an increasing local price level or devaluation on their inventory management policies. The type of inventory normally stocked by subsidiaries is of impor-

tance in this decision. Some subsidiaries rely heavily on imported inventories, while other subsidiaries depend heavily upon locally acquired inventories. Some other subsidiaries may rely almost equally on imported and locally acquired inventories.

If a subsidiary relies heavily on imported goods, it should seek to build its inventory of supplies, equipment, and components in advance of an expected devaluation, because devaluation at a later date effectively increases the costs of imported goods. For example, if a host country declares a 10 percent devaluation of its currency in relation to the dollar, a subsidiary should pay 10 percent more local currency for the same amount of imported goods from the USA.

On the other hand, if a subsidiary depends heavily upon locally purchased goods, it should seek to minimize its inventory of supplies, equipment, and components, because devaluation at a later date effectively reduces the dollar value of inventories acquired locally. If inventories are translated at current rather than at historical exchange rates, a 10 percent devaluation of the local currency against the dollar would reduce the dollar value of its inventory by 10 percent.

Finally, if a subsidiary relies almost equally on imported inventories and locally purchased inventories, it should seek to reduce its locally acquired inventories and to increase its imported inventories in advance of an expected devaluation. However, if accurate forecasts of devaluation are not possible, a company should maintain the same amount of imported goods and locally purchased goods to avoid foreign-exchange risks, because a devaluation would affect both types of inventories equally, and thus the subsidiary would experience neither a gain nor a loss.

15.4.3 Pricing

Up to this point, our discussion has centered on preventive measures that MNCs can take to reduce risks associated with devaluation. Additional action can be taken in pricing to reduce these risks.

Example 15.5

Assume that 10 American-made radios have been imported into Korea, which has subsequently devalued its currency by 50 percent. The original exchange rate was W500 per $1, the original cost was W1,000 per radio, and the original selling price was W1,500 per radio.

The Korean subsidiary has a choice of two basic policies with respect to price: (1) it can maintain the original price of its inventory in an effort to undercut competition; or (2) it can increase the price of its inventory in order to earn all or part of the original dollar profit expected. Table 15.8 shows the effects of both policies on the Korean subsidiary. Maintenance of the old price will result in a dollar loss of $5 on the sale of the 10 radios, even if local figures indicate a profit of W5,000. If the subsidiary increases its selling price to the dollar equivalent of the original selling price, it will earn a profit of $10. However, it is important to note that this assumes that the Korean government does not maintain price controls. Although there are no price controls imposed by the Korean government, a price increase of the magnitude indicated in policy (2) would perhaps discourage some sales. If

the price elasticity of demand for the merchandise is extremely high, the local market may not bear the higher price. Nevertheless, a certain level of price increase is required to prevent a deterioration of converted earnings.

Table 15.8 The effect of pricing on profits

	(1) Maintain old price		*(2) Adjust price*	
Exchange rate	*Korean currency*	*US dollars*	*Korean currency*	*US dollars*
W1,000 (now) sold for	W15,000	$15	W30,000	$30
W500 (old) cost	10,000	20	10,000	20
Profit	W 5,000	–$ 5	W20,000	$10

Another important question is whether a subsidiary should continue to import that type of merchandise. If local sales prices can be raised to cover the current higher dollar import prices, imports should continue. If not, imports could cease. Although the decision not to import merchandise does not cause any transaction loss, it may result in idle production and an eventual operating loss due to the surrender of that particular foreign market. If possible, MNCs should price their inventory goods in such a way that sales revenues include the sum of the increase in replacement cost of the inventory sold, the loss in real value of the monetary profit expected, and increased income taxes.

SUMMARY

Techniques of international working capital management are essentially similar to those employed domestically, but additional variables are involved. In domestic operations, all transactions are subject to the same rules of movement, accumulation, and reinvestment, but these rules vary when these transactions occur across national boundaries. These additional variables include political, tax, foreign exchange, and other economic constraints.

This chapter has discussed cash, accounts receivable, and inventory management. Cash management can be centralized or decentralized on a company level. Although decentralization is popular among subsidiary managers, it does not permit the MNCs to use its most liquid asset on a widespread basis. Multinational accounts receivable are created by two separate types of transactions: sales to independent customers and intracompany sales. Management of accounts receivable from independent customers involves the denomination of currency to be used for payments and the terms of payment. Intracompany sales differ from sales to independent customers, in that little concern is given to credit standing and the timing of the payments may depend upon a company's desire to allocate resources rather than normal payment schedules. The overall efficiency of inventory management is extremely important for two reasons. First, inventories represent a significant segment of total assets for most MNCs. Second, they are the least liquid of current assets and thus errors in inventory management are not quickly remedied.

Questions

1 What are the economic constraints of current asset management for multinational companies? Why do multinational companies face such constraints?
2 Why are various arbitrage opportunities available to multinational companies in their working capital management?
3 What techniques are available to a company with operating subsidiaries in many countries to optimize on cash and marketable securities?
4 What are the advantages of leads and lags over direct loans?
5 List the two major functions of international cash management.
6 Why is the problem of floats in international operations more serious than in domestic operations?
7 Explain the three types of portfolio management available to international cash managers.
8 Why should a firm invest in a portfolio of foreign currencies instead of just a single foreign currency?
9 Standard advice given to exporters is to invoice in their own currency or a strong currency. Critically analyze this recommendation.
10 Under what conditions should companies maintain overstocked inventory accounts?
11 Explain the importance of current asset management.
12 Why is the literature on international working capital management rather limited?

Problems

1 Assume that the netting center uses a matrix of payables and receivables to determine the net payer or creditor position of each subsidiary at the date of clearing. The following table shows an example of such a matrix:

	Paying subsidiary				
Receiving subsidiary	*USA*	*Japan*	*Germany*	*Canada*	*Total receipts*
USA	–	$ 800	$ 700	$400	$1,900
Japan	$600	–	400	200	1,200
Germany	200	0	–	300	500
Canada	100	200	500	–	800
Total payments	$900	$1,000	$1,600	$900	$4,400

(a) Prepare a multilateral netting schedule, such as table 15.3.
(b) Determine the amount of total payments to be reduced by netting.
(c) Determine the percentage reduction in total payments by netting.

2 A multinational company has a subsidiary in country A that produces auto parts and sells them to another subsidiary in country B, where the production process is completed. Country A has a tax rate of 50 percent, while country B has a tax rate of 20 percent. The income statements of these two subsidiaries are shown in the following table:

***Pro forma* income statements for two subsidiaries**

	High tax A	*Low tax B*	*Combined A + B*
High transfer price			
Sales price	$4,000	$7,000	$7,000
Cost of goods sold	2,200	4,000	2,200
Gross profit	$1,800	$3,000	$4,800
Operating expense	800	1,000	1,800
Earnings before taxes	$1,000	$2,000	$3,000
Taxes (50%/20%)	500	400	900
Net income	$ 500	$1,600	$2,100

Assume that the multinational company reduces its transfer price from $4,000 to $3,200. Determine the tax effect of this low transfer price on the company's consolidated net income.

3 The foreign subsidiary of a US parent company earns $1,000 before any taxes. The parent company wants to receive $400 before US taxes. The local tax rate is 50 percent and the US tax rate is 30 percent. The US company is considering two options: option X: $400 in cash dividends and option Y: $160 in cash dividends plus $240 in royalty fees for a total of $400 in cash. Which option should the company select to maximize its consolidated income?

4 A US company has $10,000 in cash available for 45 days. It can earn 1 percent on a 45-day investment in the USA. Alternatively, if it converts the dollars to Swiss francs, it can earn 1.5 percent on a Swiss deposit for 45 days. The spot rate of the Swiss franc is $0.50. The spot rate 45 days from now is expected to be $0.40. Should this company invest its cash in the USA or in Switzerland?

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Case Problem 15: Navistar International's Netting System

Navistar International Corp. was formed in a reorganization of International Harvester in 1987, the farm and equipment manufacturer. Today, Navistar manufactures and markets medium- and heavy-duty trucks, school buses, and mid-range diesel engines in North America and selected export markets. The company's products, parts, and services are sold through nine distribution centers, 16 used truck centers, and a network of 1,000 dealer outlets in the USA, Canada, Brazil, Mexico, and 75 other countries. Navistar also provides financing for its customers and distributors, principally through its wholly owned subsidiary, Navistar Financial Corporation.

During a dismal stretch from the late 1980s through the early 1990s, Navistar was the industry's underachiever. In 1995, however, new Navistar CEO Horne had created a "culture of entitlement" that made the company a sluggish competitor. As part of his effort to energize Navistar, he has introduced a number of top-level managers from other companies into the truckmaker's historically insular executive suite. With the new management team in place and a solid stream of cash from strengthening industry conditions, Navistar has achieved significant productivity increases at its existing plants, built new facilities, and revitalized the once-stable product line. These actions along with its unique netting system have enabled Navistar to improve its financial performance significantly in recent years (see figure 15.2).

Navistar's netting system depends on a currency clearing center located in Switzerland. The netting system works on a monthly cycle. By the 15th day of each month, all participating subsidiaries send information to the currency clearing center on payables and receivables exist-

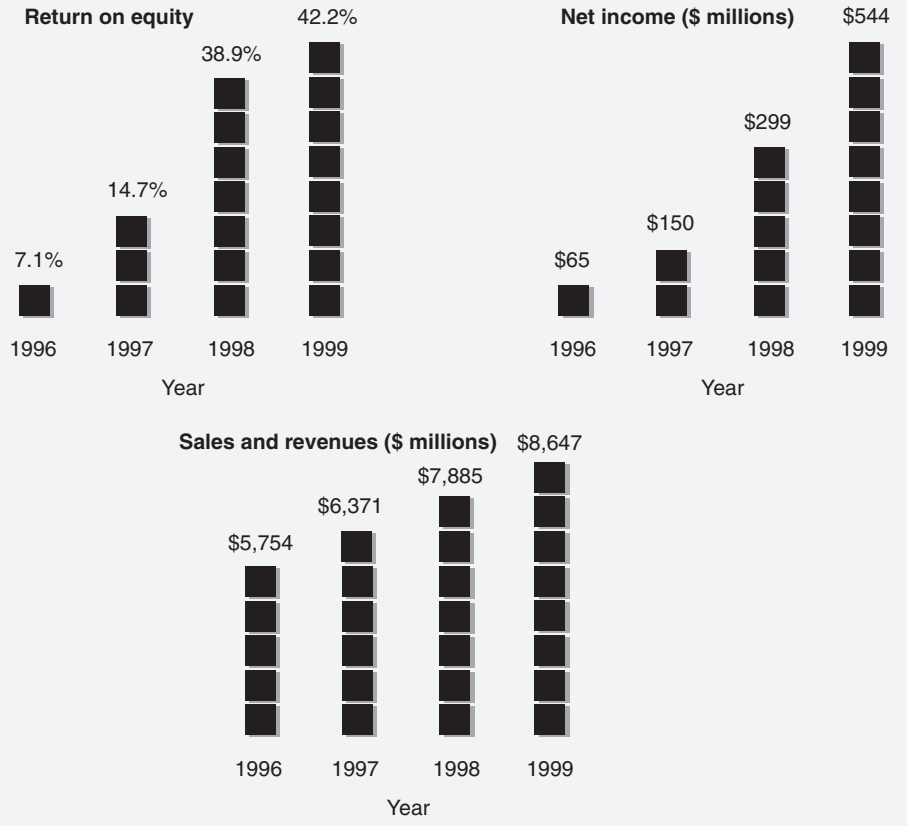


Figure 15.2 The recent financial performance of Navistar International
Source: www.navistar.com; accessed July 7, 2000.

ing at that time in local currencies. The clearing center converts all amounts into dollar terms at the current spot exchange rate and sends information to those subsidiaries with net payables on how much they owe and to whom. These paying subsidiaries are responsible for informing the net receivers of funds and for obtaining and delivering the foreign exchange. Settlement is on the 25th day of the month and the funds are purchased 2 days in advance, so that they are received on the designated day. Any difference between the exchange rate used by the Swiss center on the 15th and the rate prevailing for settlement on the 25th gives rise to foreign-exchange gains or losses, and these are attributed to the subsidiary.

Navistar used this original clearing system for intracompany transactions and did not use the system for its transactions with independent companies. After a decade with this system, the company introduced a scheme for foreign-exchange settlements for payments to outside companies. There are two different dates, the 10th and 25th, on which all foreign exchange is purchased by and transferred from the Swiss center. The payment needs are sent electronically to the center from the subsidiary more than 2 days before the settlement date. Then the center nets the amounts of each currency in order to make the minimum number of foreign-

exchange transactions. The subsidiary, which owes the foreign exchange, settles with the clearing center by the appropriate settlement date. This netting system can cut the total number of transactions with outsider companies in half.

The use of interdivisional leading and lagging makes the cash management system even more flexible. If a subsidiary is a net payer, it may delay or drag payment for up to 2 months while compensating the net receiver at the prevailing interest rate. Net receivers of funds may, at their discretion, make funds available to other subsidiaries at an appropriate interest rate. In this way, the Swiss clearing center serves to bring different subsidiaries together so that they can reduce outside borrowing. The netting with leading and lagging has allowed the company to eliminate intracompany floats and reduce the number of transactions by 80 percent.

Case Questions

1 Why did Navistar choose Switzerland as its clearing center for the company's netting system?
2 What are the direct cost savings of Navistar's netting system?
3 What are the benefits derived from Navistar's netting system in addition to the direct cost savings discussed in question 2?
4 Assume that Navistar hired you as a consultant for its working capital management. How would you advise the company when it faces the following conditions: absence of forward markets, high transaction costs, high political risk, liquidity needs by subsidiaries, and high taxes.
5 Major international banks provide a variety of working capital and cash management services for multinational companies. Use the website of the Bank of America, www.bankamerica.com/, and the website of the Bank of Montreal, www.bmo.com/, to assess their multinational cash management services.

Sources: Navistar International *Annual Report*, various issues; M. D. Levi, *International Finance*, New York: McGraw-Hill, 1996, pp. 427–8; and J. P. Miller, "Navistar Gains Spotlight Amid Volvo's Rumored Interest," *The Wall Street Journal*, Mar. 10, 1999, p. B4.

CHAPTER 16

International Portfolio Investment

Opening Case 16: LG Group Shows how Korea Inc. Might Restructure

Amid a spate of corporate scandals that questioned the durability of South Korea's reforms for the post-Asian financial crisis era, the LG Group has completed a transformation which could prove to be a test case for one of the country's biggest challenges – restructuring big business. LG is the country's second-largest chaebol, or family-owned conglomerate, with assets of $49.5 billion and businesses ranging from electronics to financial services. The company dismantled its complex web of cross-shareholdings and reorganized most of its affiliates under a holding company, the LG Corp. "The greatest corporate action in Korea so far is LG Group's restructuring to a holding company," stated Wonki Lee, the head of equity research at Merrill Lynch in Seoul.

Chaebols prospered by forming intricate financial and business ties among group companies – profiting together and often bailing each other out during economic distress. In the process, they took Korea's economy from postwar devastation to the world's 12th-largest. Nevertheless, the Asian financial crisis of 1997–8 exposed chaebol mismanagement and corruption. Since then, they have struggled to solve these problems and polish a tarnished image so that they could compete more effectively on a global stage. The LG Group began its reincarnation by improving its financial profile. LG merged 15 companies into other affiliates, shed five noncore businesses, listed 20 more, attracted foreign investors, and placed 34 of its 51 affiliates under the LG Corp. umbrella.

The restructuring also clarified how much of the group was controlled by the founding Koo and Huh families, whose current patriarchs are Koo Bon Moo and Huh Chang

Soo. Together, they once controlled the entire conglomerate through small holdings in various affiliates. Through sales, equity swaps, and other deals, those stakes have been consolidated in their 59 percent LG Corp. stake. The holding company – whose earnings come solely from dividends and LG brand usage fees – sets group strategy, oversees unit management, and promotes the LG brand globally. The holding company aligns its interests with those of affiliate shareholders in terms of business strategy, financial status, and cash flows. Previously, the founders exercised unchallenged control over the entire conglomerate; now, the holding company has legal legitimacy and must act in a rational, accountable way, thus permitting unit independence.

The major purpose of this new structure is to increase corporate governance and transparency. The increased transparency is usually rewarded by the markets, with "good disclosure" stocks trading at higher valuation than those of their peers. Although it is difficult to isolate the effect of corporate openness on an overall share price, compelling circumstantial evidence shows that the more information a company releases, the better. Apparently, investors seem to believe that LG's transformation has improved corporate governance and created transparency at what was once an impenetrable tangle of interlocking companies. As shown in figure 16.1, LG affiliate shares have soared since LG launched its structure in March 2003.

To increase competitiveness and management efficiency by focusing on core businesses, the Board of LG Corp. voted to divide the company into LG Group and GS

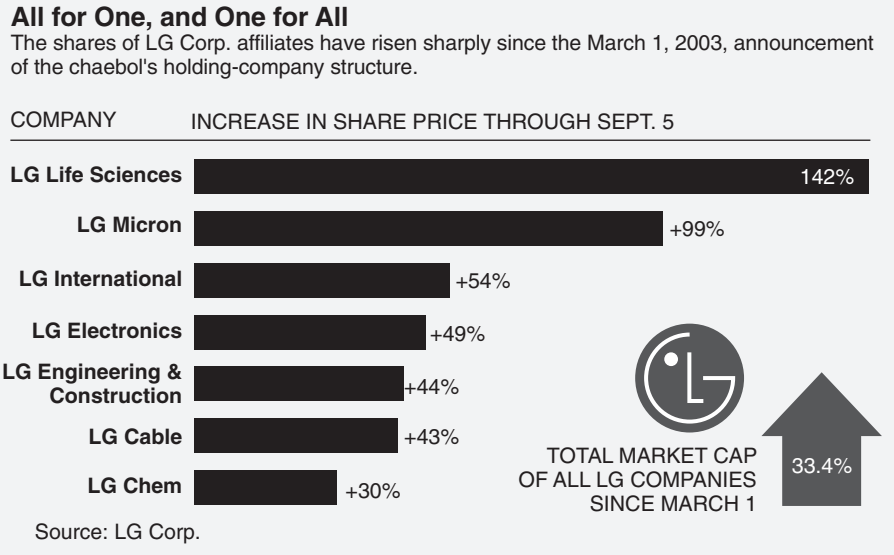


Figure 16.1 All for one, and one for all

Source: *The Wall Street Journal*, Sept. 8, 2003, p. A10.

Holdings on April 13, 2004. Company shareholders approved the plan at a special meeting on May 28, thereby establishing GS Holdings as a new company. LG Group took manufacturing units, while GS Holdings took logistics and service units. GS Holdings started its business with Huh Chang Soo as its first Chairman on July 1, 2004.

Sources: K. Song, "LG Group Shows how Korea Inc. Might Restructure," *The Wall Street Journal,* Sept. 12, 2003, p. A10; and W. H. Lee and S. H. Park, "LG Plans Split to Establish 2 Holding Firms," *JoongAng Daily*, Apr. 14, 2004, p. 3.

In 1990, two American finance professors – Harry Markowitz (1959) and William Sharpe (1964) – received the Nobel Prize in economic science because of their contribution to portfolio theory. A highly respectable mean-variance model developed by Markowitz and Sharpe employs two basic measures: an index of expected return (mean) and an index of risk (variance or standard deviation). The expected value for a portfolio of securities is simply the sum of the individual returns for the securities that make up the portfolio. The standard deviation as a measure of risk for the portfolio is not easily measured. In many business situations, risks of individual securities tend to offset each other. Thus, with successful diversification, the investor may select a portfolio having less risk than the sum of the risks of individual securities.

There was a time when investment opportunities stopped at national borders. However, today we assume a unified and integrated world capital market when analyzing international finance and macroeconomics. Indeed, recent national policy discussions rely on this premise stimulated by global integration of capital markets. Thus, many countries have internationalized their capital markets since 1980. National capital markets have changed to an integrated global capital market, often followed by widespread international multiple listings of securities. An economic revolution is taking place in many parts of the world as countries deregulate financial markets.

Diversification among risky securities in a particular country reduces risk. Yet this potential is rather limited, because most companies usually earn more during booms and less during recessions, which suggests that international portfolio diversification reduces additional risk. In fact, gains from such diversification have become so commonplace in recent years that additional empirical studies are not needed to confirm the benefits of international diversification. Still, this chapter describes key diversification terminology, the gains from international diversification, and methods of international diversification.

16.1 Key Terminology

In the real world, no company or individual invests everything in a single asset. Accordingly, it is useful to consider the risk and return of a particular asset in conjunction with its counterparts in existing assets or new investment opportunities. Portfolio theory deals with selecting investment projects that minimize risk for a given rate of return or that maximize the rate of return for a given degree of risk.

16.1.1 Risk analysis: standard deviation

Two conflicts from investment in assets are that: (1) very few financial variables are known with certainty and (2) investors are basically risk averters. Risk is variability in the return generated by investment in an asset. For example, investors buy common stock in the hope of receiving growing dividends and an appreciating stock price. However, neither the dividend stream nor price appreciation is certain or guaranteed. Thus, investors evaluate risk before they invest in common stock.

Risk may be measured by the dispersion of alternative returns around the average return. **Standard deviation**, being a measure of dispersion, fits nicely as a technique for measuring risk. To determine the standard deviation of, say, monthly returns for an asset, we may use the following formula:

$$\sigma = \sqrt{\frac{\sum (R - \overline{R})^2}{n-1}}$$

where σ is the standard deviation; R is the monthly returns; and $\overline{R}$ is the average monthly return. To illustrate, assume that the monthly returns of a common stock are 0.40, 0.50, and 0.60 for 3 months. The average monthly return is 0.50, and the standard deviation is 0.10.

Standard deviation is an absolute measure of dispersion. If returns are expressed in dollars, the standard deviation shows the amount of risk per dollar of average return. A relative measure of dispersion is the **coefficient of variation**, which is the standard deviation divided by the average return. In general, the coefficient of variation measures risk better than the standard deviation for assets whose returns are stated in dollars. Standard deviation should be used to measure risk only for those assets whose returns are stated as percentages.

16.1.2 The capital asset pricing model

The **capital asset pricing model (CAPM)** assumes that the total risk of a security consists of systematic (undiversifiable) risk and unsystematic (diversifiable) risk. **Systematic risk** reflects overall market risk – risk that is common to all securities. Common causes of systematic risk include changes in the overall economy, tax reform by Congress, and change in national energy supply. Because it is common to all stocks, systematic risk cannot be eliminated by diversification.

Unsystematic risk is unique to a particular company. Some causes of unsystematic risk include wildcat strikes affecting only that company, new competitors producing essentially the same product, and technological breakthroughs making an existing product obsolete. Because it is unique to a particular stock, unsystematic risk can be eliminated by diversification.

Within an international context, systematic risk relates to such global events as worldwide recessions, world wars, and changes in world energy supply. Unsystematic risk relates to such national events as expropriation, currency controls, inflation, and exchange rate changes.

If a market is in equilibrium, the expected rate of return on an individual security (j) is stated as follows:

Table 16.1 Betas for selected firms in two industries

Airline companies	*Beta*	*Food processing companies*	*Beta*
American Airlines	2.52	Campbell Soups	0.44
United Airlines	1.92	H. J. Heinz	0.30
Northwest	1.88	Kraft Foods	0.30
Delta Airlines	1.70	Nabisco	0.28
British Airways	1.70	Kellogg's	0.03

Source: www.dbc.com, Jan. 29, 2004.

$$R_j = R_f + (R_m - R_f)\beta_j \tag{16.2}$$

where R_j is the expected rate of return on security *j*; R_f is the riskless rate of interest; R_m is the expected rate of return on the **market portfolio**, which is a group of risky securities, such as Standard & Poor's 500 Stocks or the London Financial Times Stock Exchange 100; and β_j is the systematic risk of security *j*. This equation, known as the security market line, consists of the riskless rate of interest (R_f) and a risk premium [$(R_m - R_f)\beta_j$]. It is important to understand that **beta** – $\beta_j = [(R_j - R_f)/(R_m - R_f)]$ – is an index of volatility in the excess return of one security relative to that of a market portfolio.

AGGRESSIVE VERSUS DEFENSIVE STOCKS Because beta reflects the systematic risk of a stock or a mutual fund relative to that of the market as a whole, the market index is assigned a beta of 1. Beta may be used to classify stocks into two broad categories: aggressive and defensive. Aggressive stocks are those stocks that have betas greater than 1. Their returns rise (fall) more than the market index rises (falls). Defensive stocks are those stocks that have betas less than 1. Their returns fluctuate less than the market index. Those stocks with betas equal to 1 are frequently called neutral stocks.

Table 16.1 shows a sample of betas for 10 stocks: five aggressive stocks (airline companies) and five defensive stocks (food processing companies). Food processing companies have very stable earnings streams because their products are necessities. Swings in the earnings and stock returns of food processing companies are modest relative to the earnings and returns of most companies in the economy. Thus, food processing companies have a very low level of systematic risk and low betas.

At the other extreme, airline revenues are closely tied to passenger miles, which are in turn very sensitive to changes in economic activity. This basic variability in revenues is amplified by high operating and financial leverage. These factors cause airline earnings and returns to produce wide variations relative to swings in the earnings and returns of most firms in the economy. Hence, airline companies have high betas.

Is beta one of the best ways to predict how your mutual fund or stock might perform in a market downturn or upturn? Table 16.2 shows average returns for US stock funds during the sharp decline from the peak on July 17, 1998, through August 31, 1998. In this particular downturn caused by the Asian financial crisis, beta has done a pretty good job of predicting which funds would be hit hardest or the least hard. For example, the 25 percent of US stock funds with the highest beta declined 27.68 percent in the period from July 17 through August 31. On the other hand, the 25 percent of US stock funds with the lowest beta lost only 17.77 percent during the same period. In that period, Standard & Poor's 500 Stocks lost 19.13 percent.

Table 16.2 Average returns for US stock funds from July 17, 1998, to August 31, 1998

Beta	*Average return (%)*	*Number of funds in group*
Greater than 1.09	–27.68	461
Between 1.08 and 0.99	–20.93	486
Below 0.86	–17.77	434

Source: *The Wall Street Journal*, Oct. 15, 1998, p. R17.

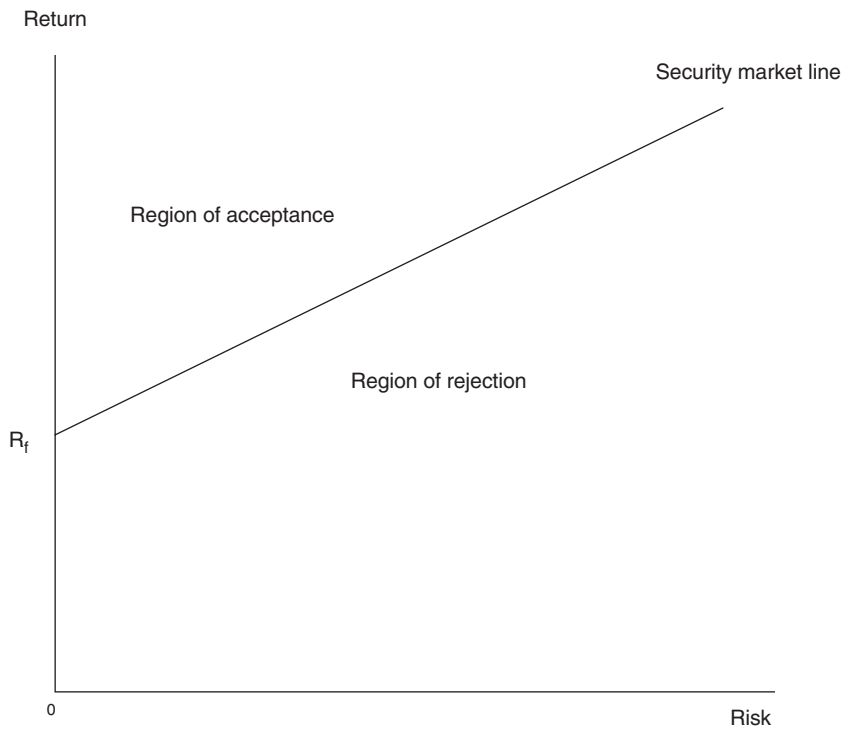


Figure 16.2 The security market line

In a portfolio context, the security market line constitutes various portfolios that combine a riskless security and a portfolio of risky securities. The general decision rule for accepting a risky project (*j*), can be stated as follows:

$$R_j > R_f + (R_m - R_f)\beta_j \tag{16.3}$$

This decision rule implies that to accept security *j*, its expected return must exceed the investor's hurdle rate, which is the sum of the riskless rate of interest plus a risk premium for the riskiness of the security. Figure 16.2 shows the decision rule in general terms: accept all securities that plot above the security market line and reject all securities that plot below the security market line.

16.1.3 Correlation coefficients

The **portfolio effect** is defined as the extent to which unsystematic risks of individual securities tend to offset each other. The portfolio effect, or portfolio standard deviation, depends not only on the standard deviation of each security but also on the degree of correlation between two or more securities. The **correlation coefficient** measures the degree of correlation between two securities and varies from zero (no correlation, or independence) to 1.0 (perfect correlation).

A correlation coefficient of −1.0 means that the two sets of returns for two securities tend to move in exactly opposite directions. Assume that a boom occurs. Security A is expected to earn $100, while security B is expected to earn nothing. In contrast, if a recession occurs, security A would earn nothing, whereas security B would earn $100. Consequently, these two securities are perfectly negatively correlated. Diversification can totally eliminate unsystematic risk when two securities are perfectly negatively correlated.

A correlation coefficient of +1.0 means that two sets of returns for two securities tend to move in exactly the same direction. Suppose that a boom occurs. Securities X and Y would earn an equal amount of $200. But if a recession occurs, they would yield an equal amount of $50. Then we can say that these two securities are perfectly positively correlated. In this case, diversification would not reduce unsystematic risk at all.

A correlation coefficient of zero means that the two sets of returns for two securities are uncorrelated or independent of each other. In this scenario, diversification would reduce unsystematic risk considerably.

Because the degree of correlation among securities depends on economic factors, most pairs of domestic securities have a correlation coefficient of between 0 and +1.0. Most stock prices are likely to be high during a boom, while they are likely to be low during a recession. But different product lines and different geographical markets tend to have a relatively low degree of correlation to each other. Thus, international diversification may eliminate unsystematic risk and reduce domestic systematic risk considerably.

16.1.4 Portfolio return and risk

Portfolio return is the expected rate of return on a portfolio of securities. The expected portfolio return is simply a weighted average of the expected returns of the securities that make up the portfolio. One way to measure the benefits of international diversification is to consider the expected return and standard deviation of return for a portfolio that consists of US and foreign portfolios. Such a portfolio return may be computed as follows:

$$R_p = X_{us}R_{us} + X_{fn}R_{fn} \tag{16.4}$$

where R_p is the portfolio return, X_{us} is the percentage of funds invested in the US portfolio, R_{us} is the expected return on the US portfolio, X_{fn} is the percentage of funds invested in the foreign portfolio, and R_{fn} is the expected return on the foreign portfolio.

The standard deviation of a portfolio measures the riskiness of the portfolio. The standard deviation of a two-security portfolio can be calculated as follows:

$$\sigma_p = \sqrt{X_{us}^2\sigma_{us}^2 + X_{fn}^2\sigma_{fn}^2 + 2X_{us}X_{fn}\sigma_{us,fn}\sigma_{us}\sigma_{fn}} \tag{16.5}$$

where σ_p is the portfolio standard deviation, σ_{us} is the standard deviation of the US portfolio, σ_{fn} is the standard deviation of the foreign portfolio, and $\sigma_{us,fn}$ is the correlation coefficient between the returns on the US and foreign portfolios.

Example 16.1

Assume that an international portfolio consisting of a US portfolio and a foreign portfolio calls for a total investment of $10 million. The US portfolio requires an investment of $4 million and the foreign portfolio requires an investment of $6 million. The expected returns are 8 percent on the US portfolio and 12 percent on the foreign portfolio. The standard deviations are 3.17 percent for the US portfolio and 3.17 percent for the foreign portfolio.

Because the percentage of the international portfolio invested in the US portfolio is 40 percent and that of the foreign portfolio is 60 percent, we can use equation 16.4 to compute the return on the international portfolio:

$$R_p = (0.4)0.08 + (0.6)0.12 = 10.4\%$$

It is important to recognize that the return on the international portfolio is the same regardless of correlation of returns for the US and foreign portfolios. However, the degree of the international portfolio risk varies according to interportfolio or intersecurity return behavior. Intersecurity returns can be perfectly negatively correlated, statistically independent, or perfectly positively correlated.

Case A: perfectly negative correlation

If the US and foreign portfolios are perfectly negatively correlated, their correlation coefficient becomes –1. The return on the international portfolio and its standard deviation (use equation 16.5) are as follows:

$$R_p = 10.4\%$$

$$\sigma_p = \left[(0.4)^2(0.0317)^2 + (0.6)^2(0.0317)^2 + 2(0.4)(0.6)(-1)(0.0317)(0.0317)\right]^{1/2}$$

$$= 0.63\%$$

Because the standard deviation of US and foreign portfolios are 3.17 percent each, their weighted average is 3.17 percent ($0.0317 \times 0.40 + 0.0317 \times 0.60$). Thus, the standard deviation of the international portfolio is only 20 percent of the weighted average of the two individual standard deviations (0.0063/0.0317). If a considerable number of perfectly negatively correlated projects are available, risk can be almost entirely diversified away. However, perfect negative correlation is seldom found in the real world.

Case B: statistical independence

If these two portfolios are statistically independent, the correlation coefficient between the two is 0. The return of the international portfolio and its standard deviation are as follows:

$$R_p = 10.4\%$$
$$\sigma_p = \left[(0.4)^2(0.0317)^2 + (0.6)^2(0.0317)^2 + 2(0.4)(0.6)(0)(0.0317)(0.0317)\right]^{1/2}$$
$$= 2.29\%$$

In this case, the standard deviation of the international portfolio is 72 percent of this weighted average (0.0229/0.0317). This means that international diversification can reduce risk significantly if a considerable number of statistically independent securities are available.

Case C: perfectly positive correlation

If the two portfolios are perfectly positively correlated with each other, their correlation coefficient becomes 1. The portfolio return and its standard deviation are as follows:

$$R_p = 10.4\%$$
$$\sigma_p = \left[(0.4)^2(0.0317)^2 + (0.6)^2(0.0317)^2 + 2(0.4)(0.6)(1)(0.0317)(0.0317)\right]^{1/2}$$
$$= 3.17\%$$

The standard deviation of the international portfolio equals the weighted average of the two individual standard deviations. Thus, if all alternative investments are perfectly positively correlated, diversification would not reduce risk at all.

16.1.5 The efficient frontier

An **efficient portfolio** is a portfolio that incurs the smallest risk for a given level of return and/or provides the highest rate of return for a given level of risk. Suppose that A, B, and C are three exclusive portfolios that require the same amount of investment, say, $10 million. They have an equal rate of return, but their respective standard deviations are different. Figure 16.3 shows that A incurs the smallest risk for a given level of return; A is called the efficient portfolio. By the same token, assume that W, X, and Y are three exclusive portfolios that require the same amount of money, say, $10 million. They have the same amount of risk, but their rates of return are different. As shown in figure 16.3, we notice that W provides the highest rate of return for a given level of risk; W is also called the efficient portfolio. If we compute more points such as A and W, we may obtain curve AW by connecting such points. This curve is known as the **efficient frontier**. Portfolios B, C, X, and Y are inefficient because some other portfolios could give either a lower risk for the same rate of return or a higher return for the same degree of risk.

There are numerous efficient portfolios along the efficient frontier. An efficient frontier does not tell us which portfolio to select, but shows a collection of portfolios that minimize risk for any expected return or that maximize the expected return for any degree of risk. The objective

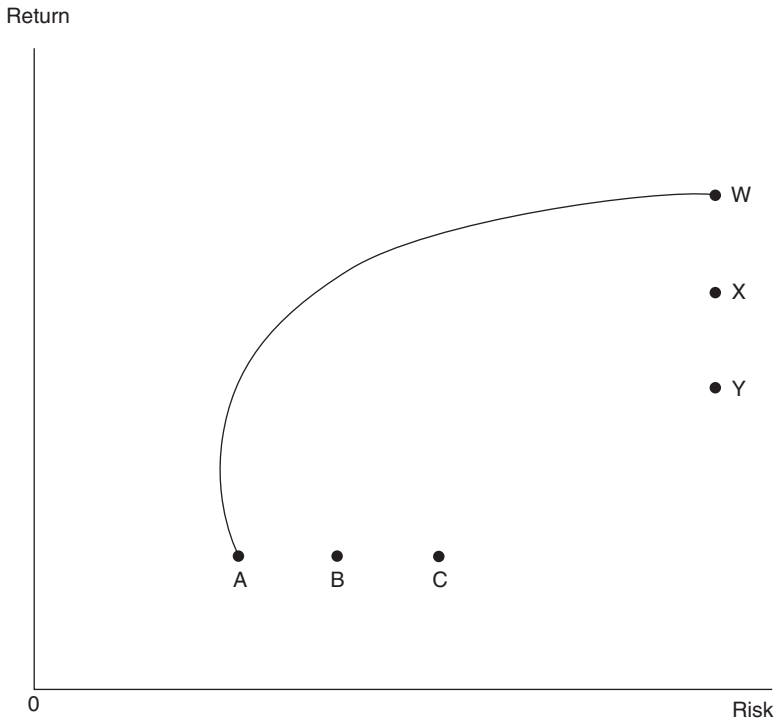


Figure 16.3 An efficient frontier

of the investor is to choose the optimal portfolio among those on the efficient frontier. Thus the efficient frontier is necessary but not sufficient for selecting the optimal portfolio. Given an efficient frontier, the choice of the optimal portfolio depends on the security market line.

If investors want to select the optimal portfolio from portfolios on a particular efficient frontier, they should land on the highest security market line. This **optimal portfolio** is found at the tangency point between the efficient frontier and the security market line. Tangency point M in figure 16.4 marks the highest security market line that investors can obtain with funds available for investment. An optimum portfolio is the portfolio that has, among all possible portfolios, the largest ratio of expected return to risk. Once investors identify the optimal portfolio, they will allocate funds between risky assets and risk-free assets to achieve a desired combination of risk and return.

16.2 The Benefits of International Diversification

A rather convincing body of literature holds that internationally diversified portfolios are better than domestically diversified portfolios because they provide higher risk-adjusted returns to their holders. This section, based on several empirical studies, discusses: (1) arguments for international diversification, (2) risk–return characteristics of national capital markets, and (3) selection of optimal international portfolios.

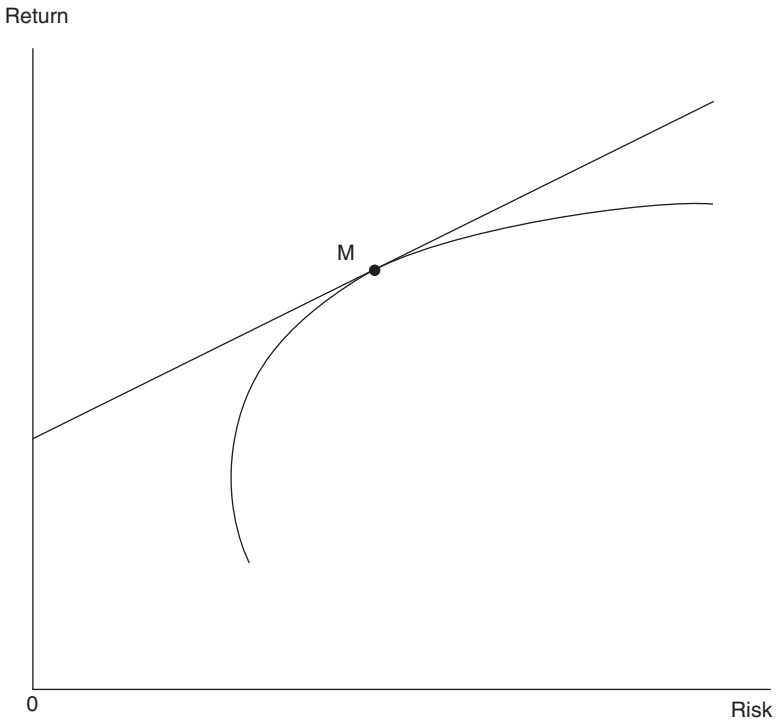


Figure 16.4 An optimal portfolio

16.2.1 Risk diversification through international investment

Table 16.3 provides correlations of stock market returns for 10 major countries known as the Group of Ten, from 1980 to 2001. First, the intracountry correlation is 1 for every country. On the other hand, the intercountry correlation is much less than 1 for every pair of any two countries. In other words, stock market returns have lower positive correlations across countries than within a country. Second, member countries of the European Union – France, Italy, Germany, the Netherlands, and the United Kingdom – have relatively high correlations because their currencies and economies are highly interrelated. Third, the intercountry correlation for the United States ranges from as high as 0.74 with Canada to as low as 0.29 with Japan. The extremely high correlation between the USA and Canada comes as no surprise, because these two neighboring countries have close business linkages in terms of trade, investment, and other financial activities. The USA and Japan have the extremely low correlation because they are situated in different continents and their economic policies are different.

Of course, a reason for low intercountry correlations is that much of the stock market risk in an individual country is unsystematic and so can be eliminated by international diversification. Low international correlations may reflect different geographical locations, independent economic policies, different endowments of natural resources, and cultural differences. In summary, these results imply that international diversification into geographically and economically diver-

Table 16.3 Correlations of major stock market returns from 1980 to 2001

	AU	*CA*	*FR*	*GE*	*IT*	*JA*	*NE*	*SW*	*UK*	*US*
Australia	1.00									
Canada	0.60	1.00								
France	0.37	0.46	1.00							
Germany	0.34	0.42	0.69	1.00						
Italy	0.25	0.35	0.50	0.43	1.00					
Japan	0.33	0.33	0.41	0.33	0.37	1.00				
The Netherlands	0.44	0.58	0.66	0.71	0.44	0.42	1.00			
Sweden	0.44	0.49	0.49	0.57	0.44	0.39	0.54	1.00		
UK	0.54	0.57	0.57	0.50	0.38	0.42	0.70	0.51	1.00	
USA	0.47	0.74	0.50	0.45	0.31	0.29	0.62	0.49	0.58	1.00

Source: Monthly issues of Morgan Stanley's *Capital International Perspectives*.

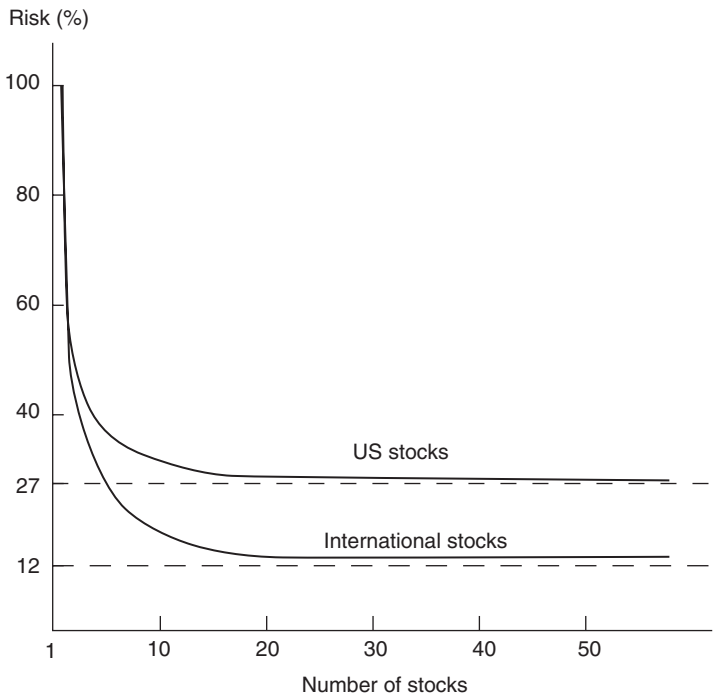


Figure 16.5 Gains from international diversification

Source: B. Solnik, *International Investments*, Reading, MA: Addison-Wesley, 1999, p. 126.

gent countries may significantly reduce the risk of portfolio returns. According to figure 16.5, drawn by Solnik (1999), that is indeed the case.

Figure 16.5 shows the total risk of domestically and internationally diversified portfolios as a function of the number of securities held. In this figure, 100 percent of risk as measured by standard deviation represents the typical risk of a single US security. As an investor increases the

number of securities in a portfolio, the portfolio's risk declines rapidly at first, then slowly approaches the systematic risk of the market expressed in the broken line. However, the addition of more securities beyond 15 or 20 reduces risk very little. The remaining risk – the part not affected by holding more US stocks – is called market risk, which is also known as systematic risk. Is there a way to lower portfolio risk even further? Only if we can lower the market risk. One way to lower the market risk is to hold stocks not traded on US stock exchanges.

Figure 16.5 illustrates a number of striking facts. First, the risk of a well-diversified US portfolio is only 27 percent of the typical risk of a single security. This relationship indicates that 73 percent of the risk associated with investing in a single security is diversifiable in a fully diversified portfolio. Second, the addition of foreign stocks to a purely domestic portfolio reduces risk faster, as shown in the bottom curve. Third, a fully diversified international portfolio is less than half as risky as a fully diversified US portfolio. The addition of foreign stocks to a US portfolio reduces the US market risk even further, because foreign economies generally do not move one-for-one with the US economy. When the US economy is in a recession, foreign economies might be in expansion, and vice versa. This and other studies have established that security returns are less highly correlated internationally than domestically. This makes a strong case for international diversification as a means of risk diversification.

It is important to note that a fully diversified portfolio or an efficient portfolio is one that has zero, or very little, unsystematic risk. As illustrated in figure 16.5, an efficient international portfolio cuts the systematic risk of an efficient domestic portfolio in half. Domestic systematic risk declines because international diversification offsets US-specific reactions to worldwide events.

16.2.2 Risk–return characteristics of capital markets

In the previous section, we discussed the benefits from diversifying international portfolios in terms of risk reduction, but we ignored return, another important aspect of investment. Certainly, investors simultaneously consider both risk and return in making investment decisions. In other words, they want to maximize expected return for a given amount of risk and minimize the amount of risk for a given level of return. Consequently, we ought to examine the risk–return characteristics of stock markets.

To ascertain the gains from international diversification, Morgan Stanley constructed portfolios that began with a 100 percent US portfolio and then they made it increasingly more international in increments of 10 percent. Switching from domestic to foreign investments was implemented by acquiring equally weighted portfolios of the 20 foreign indexes in Europe, Australia, and the Far East, using quarterly data for 71 years from 1926 to 1997. Figure 16.6 shows the performance of these portfolios in terms of risk–return trade-offs. As the proportion of the portfolio invested abroad increased, the return increased; in addition, the risk decreased until the proportion of foreign equities reached 50 percent of the portfolio. In other words, American investors could have enjoyed higher returns and less risk if they had held a portfolio that contained up to 50 percent invested in foreign stocks.

16.2.3 The selection of an optimal portfolio

Before we discuss the selection of an optimal international portfolio, let us review the basic concept of bonds and stocks. Bonds are less risky than stocks. The standard deviation of bond

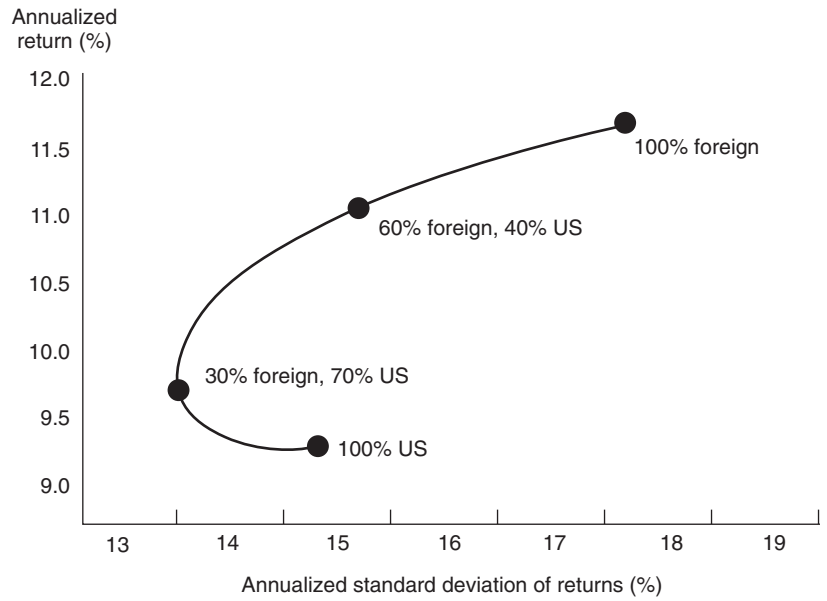


Figure 16.6 Risk–return trade-offs of international portfolios, 1926–97
Source: Morgan Stanley Capital Investment.

returns in any particular market is typically lower than the standard deviation of stock returns in that market. Certainly, lower risk implies lower mean rates of return for bonds compared with stocks. Table 16.4 shows risk–return statistics for bonds and stocks in various markets from the viewpoint of a US investor. In terms of the mean-variance decision rule, both bonds and stocks were efficient investments in each market. With the exception of Germany, all the bond means and standard deviations were lower than the corresponding stock statistics in each market.

Levy and Lerman (1988) compared the performance of various investment strategies for the 13 industrial countries listed in table 16.4. The right-hand curve of figure 16.7 is the efficient frontier when investors are restricted to stocks only. The left-hand curve is the efficient frontier when investors can buy both stocks and bonds. The middle curve is the efficient frontier when investors are restricted to bonds only. M(bs), M(b), and M(s) represent the optimal international portfolios for stocks and bonds, bonds, and stocks, respectively.

Levy and Lerman's study found several advantages of international bond and stock diversification. A US investor who diversified across world bond markets could have earned almost twice as much as the mean rate of return on a US bond portfolio, having the same risk level. Moreover, the US stock market dominated the US bond market in terms of risk-adjusted returns. However, internationally diversified bond portfolios outperformed internationally diversified stock portfolios. Finally, internationally diversified portfolios of stocks and bonds outperformed internationally diversified portfolios of stocks only or bonds only.

Investment in US bonds is inefficient because, as shown in figure 16.7, its risk–return combination is deep inside the efficient frontier. The international bond portfolio M(b) in figure 16.7 outperformed US bonds in terms of mean rate of return at the same risk level. More specifically,

Table 16.4 Dollar-adjusted rates of return and standard deviations

	Bonds		*Stocks*	
Country	*Mean*	*Standard deviation*	*Mean*	*Standard deviation*
Belgium	8.11%	9.66%	10.14%	14.19%
Denmark	6.99%	13.14%	11.37%	24.83%
France	5.99%	12.62%	8.13%	21.96%
Germany	10.64%	9.45%	10.10%	20.34%
Italy	3.39%	13.73%	5.60%	27.89%
The Netherlands	7.90%	8.28%	10.68%	18.24%
Spain	5.17%	11.52%	10.35%	20.33%
Sweden	6.41%	6.06%	9.70%	17.09%
Switzerland	9.11%	12.68%	12.50%	23.48%
UK	6.81%	15.30%	14.67%	34.40%
Japan	11.19%	12.21%	19.03%	32.20%
Canada	3.52%	6.44%	12.10%	17.89%
USA	4.31%	5.53%	10.23%	18.12%

Source: H. Levy and Z. Lerman, "The Benefits of International Diversification in Bonds," *Financial Analysts Journal*, Sept./Oct. 1988, p. 57.

US bonds had a risk level of 5.53 percent and a mean return level of 4.31 percent. At about the same level of risk, the optimal international portfolio of bonds earned a mean return of about 8.5 percent – about twice the US-only portfolio's return. This was achieved by investing in a portfolio of German, Swedish, and Japanese bonds with small amounts in US and Spanish bonds.

Investment in US stocks is also inefficient because, according to figure 16.7, its risk–return combination is to the right of the efficient frontier. The performance of the international stock portfolio, M(s), was better than that of US stocks. Point M(s) had a standard deviation of 14.84 percent and a mean return of 15 percent. Compare this to the US stocks, whose standard deviation was 18.12 percent and whose mean rate of return was 10.23 percent. Consequently, US investors could have earned more from international stock portfolios than from US stock portfolios, and at a lower risk level. This was achieved by investing in a portfolio of German, Spanish, Japanese, and Canadian stocks with small amounts of Belgian and British stocks.

Figure 16.7 shows that the bond portfolios definitely outperformed the stock portfolios. At every level of mean return up to 11 percent, the bond portfolios had a lower risk level than corresponding stock portfolios. However, the efficient bond frontier stops at a mean return level of about 11 percent, while the efficient stock frontier extends up to a mean return level of about 19 percent. The upper bound represents investment in Japanese stocks, which had the highest risk and return among all stocks. The higher range of risk–return combinations was not attainable with bond portfolios. Still, the stock portfolios played an efficient role on their own because of their upper bound.

As given in figure 16.7, the efficient frontier of stocks and bonds combined dominated its counterpart of either stocks by themselves or bonds by themselves. This means that international portfolios of stocks and bonds outperformed both stock portfolios and bond portfolios. The optimal international portfolio of stocks and bonds is obtained at point M(bs), where the efficient frontier of stocks and bonds and the security market line intersect with each other.

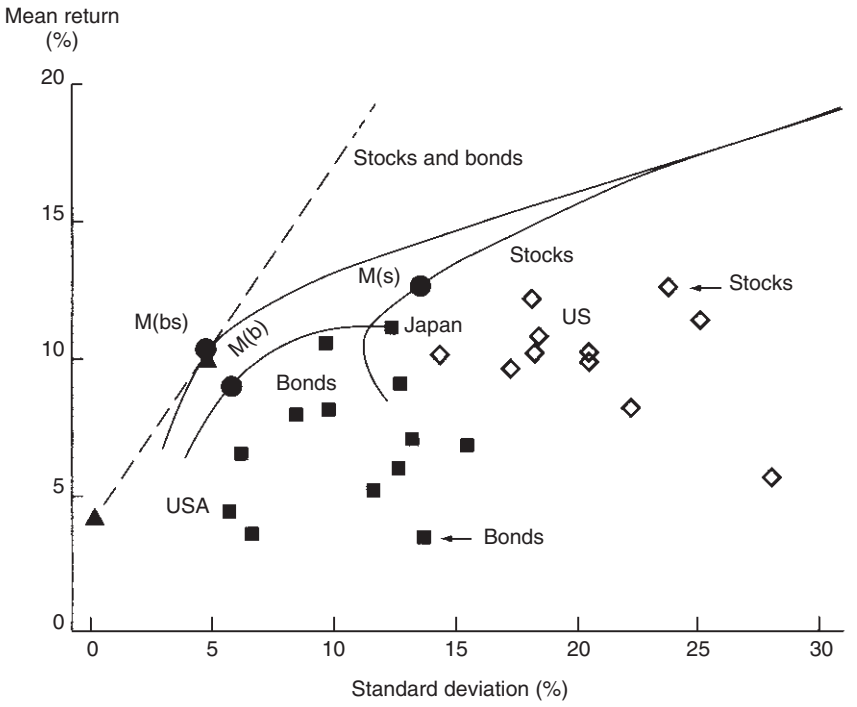


Figure 16.7 Efficient international portfolios

Source: H. Levy and Z. Lerman, "The Benefits of International Diversification in Bonds", *Financial Analysts Journal*, Sept./Oct. 1988, p. 62.

16.3 Methods of International Diversification

US investors try to obtain international diversification through one of the following methods: (1) international mutual funds, (2) purchases of American depository receipts (ADRs), (3) direct purchases of foreign securities, (4) hedge funds, and (5) investment in US multinational companies.

16.3.1 International mutual funds

Investors may purchase shares of an international mutual fund with a small minimum investment, such as $1,000. Several brokerage firms, such as Merrill Lynch, Goldman Sachs, and Fidelity, create and manage many families of international mutual funds. Mutual funds are perhaps the most important by-product of the portfolio theory developed by Markowitz and Sharpe. **Mutual funds** are financial institutions that accept money from savers and then use these funds to buy a variety of securities. **International mutual funds** are portfolios of securities from various countries.

International mutual funds have several advantages over individual foreign securities. First, international mutual funds pool funds and thus reduce risk by diversification. Second, investors would have to pay extra transaction and information costs if they attempted to buy foreign securities directly in foreign markets. Third, international mutual fund investors circumvent many legal and institutional barriers associated with direct portfolio investments in foreign markets.

There are two classes of international mutual funds: open-end and closed-end. **Open-end mutual funds** are funds whose total number of shares under management grows and shrinks as investors buy and sell the fund. They stand ready to issue and redeem shares at prices that reflect the net-asset value of underlying foreign shares. **Closed-end funds** are funds where the amount of money under management is fixed. They issue a fixed number of shares against an initial capital offering and these shares then trade in secondary markets at prevailing market prices. These shares are not redeemable at the underlying net-asset value of the underlying foreign shares. There are approximately 300 US-based international mutual funds, which can be grouped into several families of mutual funds from a US perspective:

1 Global funds invested in US and non-US securities.
2 International funds invested in only non-US securities.
3 Regional mutual funds invested in particular geographical areas.
4 Country funds invested in single countries.

16.3.2 American depository receipts (ADRs)

Investors may purchase ADRs, which are traded on organized exchanges and/or in the over-the-counter markets. ADRs are securities distributed in the USA backed by foreign stock. Exchanges around the world have listing requirements before they accept a firm's shares for trading. Rules for listing vary markedly from country to country, with US requirements being among the most restrictive. Banks have created ADRs so that foreign companies can avoid these restrictions on trading in the USA. The total number of ADRs listed on major US stock exchanges increased from 176 in 1990 to 550 in 2003. In addition, there are approximately 1,000 private ADRs, which are not listed and are harder for an individual to invest in. Figure 16.8 shows that ADRs have become a convenient investment vehicle on foreign securities in recent years.

American depository receipts represent the ownership of underlying foreign stocks that are held in custody by the bank that issues them. In other words, the bank holds the foreign shares and trades ADRs that represent title to those shares held on deposit. In effect, the bank owns the shares and trades claims against those shares. ADR investors are entitled to all the privileges of stock ownership including dividend payments. The bank, the issuer of ADRs, usually collects the dividends in local currency and transfers the dollar-equivalent to the ADR investors. Today, ADRs have become so popular that companies have begun to issue global depository receipts. **Global depository receipts** are similar instruments to ADRs, but can be simultaneously issued on stock exchanges all over the world.

16.3.3 Direct purchases of foreign securities

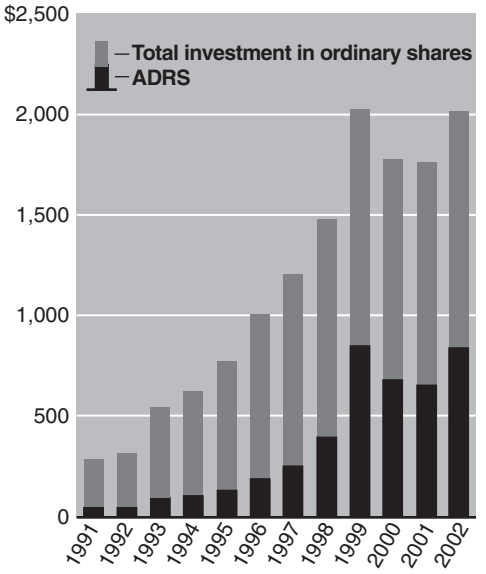
Investors may buy foreign securities listed on foreign exchanges through stockbrokers for inclusion in their portfolios. This method of international diversification, however, is not recom-

Americans Look Abroad

US investors can buy stock in a non-US company by purchasing ordinary shares on US or foreign exchanges, or by purchasing American depositary receipts (ADRs)

ADRs become a convenient investment vehicle

ADR ownership as a part of US total investment in non-US companies; all figures in billions



Note: 2001 figure is preliminary; 2002 is forecast

Companies that attract many US investors

Foreign-based companies with US ownership of 30% or more, ranked by their US sales

COMPANY (Country)	INDUSTRY	% OF STOCK WITH US OWNERSHIP
BP (UK)	Energy	**34%**
Nortel Networks (Canada)	Telecommunications	**60**
Tyco Int'l (Bermuda)	Diversified mfg/ services	**74**
AXA Group (France)	Financial services	**30**
Unilever (Netherlands/UK)	Consumer products	**32**
News Corp. (Australia)	Media, publishing	**39**
Henkel (Germany)	Chemicals, household cleaning prods, cosmetics	**31**

Source: Citibank

Figure 16.8 Total American investment in foreign securities

Source: *The Wall Street Journal*, July 2, 2001, p. C20.

mended for small investors because of market imperfections such as insufficient information, transaction costs, tax differentials among countries, and different exchange rate risks.

Alternatively, investors may invest in foreign securities listed on US exchanges in the same way as they can buy any US stock listed on a US exchange. Because the number of foreign securities listed on US exchanges is limited, this route by itself may be inadequate to obtain full international diversification benefits.

16.3.4 Hedge funds

Hedge funds are private partnerships with a general manager and a number of limited partners. Unlike other investment tools such as stocks and mutual funds, these hedge funds are largely unregulated investment pools open to only wealthy investors. Many hedge funds use short posi-

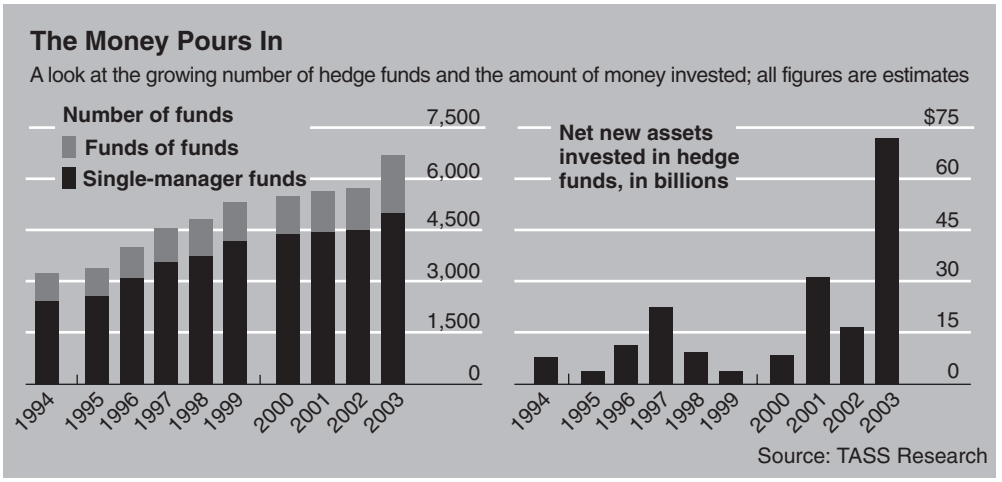


Figure 16.9 Hedge funds: the number of funds and the net new assets
Source: *The Wall Street Journal*, July 11, 2004, p. C1.

tions, or bets that prices will fall, to offset their securities holdings. Some bet on cross-border mergers and acquisitions, convertible securities, or foreign currencies. They frequently use borrowed money in an effort to boost returns. Hedge funds have grown in popularity in recent years, both because of their oversized returns and their aura of exclusivity.

Figure 16.9 shows that the number of hedge funds operating worldwide by the end of 2003 had reached 6,500, with just under $75 billion in net new assets invested in hedge funds during the year. Most hedge funds are small, with less than $100 million in invested capital. A few dozen hedge funds have a capital base larger than $1 billion. Most of these funds were reported as being based in the USA.

According to Tremont Capital's TASS Research hedge-fund tracking division, $72.2 billion gushed into hedge funds in 2003, more than twice that in the next highest year. The trend has continued in 2004 and TASS estimated that there were 7,700 funds as of July 2004, with $800 billion in assets under management.

Hedge funds have recently become the target of frequent criticism in the financial press, because of the lucrative compensation packages paid to management, the fact that they are unregulated, and the huge speculative positions taken by some hedge funds (see Global Finance in Action 16.1). For these reasons, experts suggest that an investor should ask the following questions before putting money into a hedge fund: First, how does the investment strategy work? Second, what are the risks? Third, what market conditions favor the manager's strategy – and which ones work against it? Fourth, what is the manager's experience and track record? Fifth, how long do I have to wait before I can withdraw my money? Sixth, how are the manager and the consultant helping select the hedge fund compensated?

Global Finance in Action 16.1

The Near Collapse of a Prominent Hedge Fund

In late September 1998, a group of large financial institutions urgently invested $3.5 billion in Long-Term Capital Management (LTCM), a prominent hedge fund, to prevent its imminent collapse. These firms – Goldman Sachs, Merrill Lynch, Morgan Stanley Dean Witter, J. P. Morgan, Chase Manhattan, United Bank of Switzerland, and several others – had been encouraged to undertake the rescue by the Federal Reserve Bank of New York, which feared that a sudden failure of the fund could significantly disrupt world financial markets. The label "hedge fund" refers to investment companies that are unregulated because they restrict participation to a relatively small number of wealthy investors. The amount invested in hedge funds reached about $300 billion by mid-1998.

The LTCM was formed in 1994, by a former Salomon vice chairman John Meirwellen, two Nobel laureates Robert Merton and Myron Scholes, former students of Professors Merton and Scholes, and several other prominent investors. The fund posted profits of 43 percent in 1995 and 41 percent in 1996. However, in August 1998 alone, LTCM's positions dropped 40 percent as a result of financial crises in Russia and several other countries. These bad outcomes were compounded by the huge amount of debt that LTCM had used to finance its transactions. Like other hedge funds, LTCM used derivative instruments to structure its investment transactions. Before its final crisis, LTCM had only $4 billion of equity capital, but over $100 billion in futures contracts, forward contracts, options, swaps, and other assets.

How could some of the world's best-known investors, some of the most famous economists, and some of the smartest mathematicians get crushed so quickly? LTCM had made a variety of investments all over the world, focused primarily on the expectation that various financial markets spread and volatility would converge to their historical norms. LTCM's leverage and its trading strategies made it vulnerable to the extraordinary financial market conditions that emerged after Russia's devaluation of the ruble and declaration of a debt moratorium on August 17, 1998.

Russia's actions sparked "a flight to quality" in which investors avoided risk and sought out quality. As a result, volatility, risk, and liquidity spreads rose sharply in markets around the world. For example, LTCM had made heavy bets that interest rates throughout Europe would move closer together as many of its nations moved toward monetary union. But with investors suddenly more eager to buy deutsche mark bonds, the spread between German and other European-government bonds widened rapidly – precisely what LTCM had bet against and thus causing the fund's bets to lose money. In another instance, the yield spread between US Treasuries and private securities also sharply widened – again what the fund had bet against.

Source: *The Economic Report of President to Congress*, 1999, pp. 63–7.

16.3.5 Investment in US multinational companies

It used to be the case that if you wanted to invest globally, you bought foreign stocks. But the recent wave of cross-border mergers and acquisitions along with accelerated globalization by US companies have turned many US shareholders into global investors, whether they like it or not. Thus, investors may choose securities of US-based multinational companies (MNCs) for their international portfolio diversification. An MNC represents a portfolio of international operations, thus its performance is somewhat insulated from US market downturns. An MNC can reduce risk by diversifying sales not only among industries, but also among countries. This means that the MNC as a single firm can achieve stability similar to that of an internationally diversified portfolio.

16.3.6 Global investing

Empirical studies conclude that international diversification pushes out the efficient frontier, thus allowing investors simultaneously to reduce risk and increase return. This benefit exists for a number of reasons. First, more profitable investments are possible in an enlarged universe, because faster-growing economies create higher returns or investors may see another advantage from currency gains. Second, the advantages of international diversification may occur because companies in different countries are subject to divergent cyclical economic fluctuations.

The US portion of total world capital markets has dropped from 70 percent in 1980 to 45 percent in 2000. During that same period, nondollar stock markets frequently outperformed their US counterparts. Yet the average American investor has less than 10 percent of his or her portfolio invested in international securities. Some stockbrokers, such as Launny Steffens, Executive Vice President of Merrill Lynch, think that investors would be better off patterning their asset allocations much more closely to total world capitalizations. Of course, opportunity varies region by region, country by country. And some regions and countries come with greater risk – liquidity, political, or currency risk.

The manager of a US stock fund has just one way to beat the competition, by making better stock picks. But an international stock fund manager has three different ways to add value: by picking countries, by picking currencies, and by picking stocks.

How can US investors best select a global fund? Some helpful hints may cut down on the potential for loss (Clements 1992). They are: (1) stick with large players in the global market; (2) combine funds to minimize the effect of the failure of one fund on the total portfolio; (3) select regional rather than totally global funds; (4) consider combining regional funds with stock or bond index funds; and (5) try publicly traded funds. These suggestions will not assure success, but can reduce the likelihood of failure.

SUMMARY

Political and economic events in the 1980s and the 1990s underscored the growing importance of free flows of finance, trade, and investment among countries. These changes, along with an improved ability to collect and analyze data, give us low-cost information about foreign securities. As a result, investors are realizing substantial benefits from international investment. In this chapter, we saw that international stock and bond diversification can yield higher returns with less risk than investment in a single market.

In the past 20 years or so, researchers have convincingly argued, in terms of the mean-variance model, the case for international portfolio investments, as opposed to purely domestic diversification. A major reason for such a case is that international investment offers a broader range of opportunities than domestic investment even in a market as large as the USA or Europe. Studies have stressed the following two points: (1) adding foreign securities to a purely domestic portfolio reduces the total risk of the portfolio because of a low correlation between foreign securities and the domestic market; and (2) in the past, international portfolios could have yielded both a higher return and a lower volatility than purely domestic portfolios.

Even though investors are increasingly interested in foreign securities, investment in foreign securities represents a small portion of their total investment in stocks and bonds. Most commonly expressed barriers to international investment include: (1) excessive information and transaction costs; (2) double taxation of foreign investment profits; (3) foreign-exchange regulations and currency risk; (4) greater rate-of-return volatility; (5) unfamiliarity with operating procedures of foreign stock exchanges; (6) unavailability of high-quality financial data for foreign companies; and (7) significant delays of transactions and settlements associated with foreign securities.

Questions

1 Discuss both unsystematic risk and systematic risk within an international context.
2 What is the market portfolio? Why is the market portfolio important?
3 Many studies have found that intercountry correlations tend to be substantially lower than intracountry correlations. Explain some reasons for this fact. What significance does this finding have for international investment?
4 Describe the efficient portfolio, the efficient frontier, and the optimum portfolio.
5 Is the standard deviation of bond returns in any particular market typically higher or lower than the standard deviation of stock returns in that market? Does this information make any difference for investors?
6 Is it possible for an international portfolio to reduce the domestic systematic risk?
7 Describe American depository receipts and global depository receipts.
8 What are the different methods of international diversification?

Problems

1 The expected rate of return on the market portfolio is 20 percent. The riskless rate of interest is 10 percent. The beta of a multinational company is 0.5. What is the cost of this company's common equity?

2 At present, the riskless rate of return is 10 percent and the expected rate of return on the market portfolio is 15 percent. The expected returns for five stocks are listed below, together with their expected betas.

Stock	Expected return	Expected beta
A	0.22	1.5
B	0.30	1.3
C	0.12	0.8
D	0.15	0.7
E	0.14	1.1

On the basis of these expectations, which stocks are overvalued? Which stocks are undervalued?

3 The prices of a common stock were \$40, \$50, and \$60 for the last 3 days. Compute the average stock price and the standard deviation.

4 A portfolio manager wishes to invest a total of \$10 million in US and British portfolios. The expected returns are 15 percent on the US portfolio and 12 percent on the British portfolio. The standard deviations are 10 percent for the US portfolio and 9 percent for the British portfolio. Their correlation coefficient is 0.33. What is the expected return and standard deviation of an international portfolio with 25 percent invested in the US portfolio and 75 percent in the British portfolio?

5 An international portfolio with a total investment of \$10 million consists of a US portfolio and a foreign portfolio. The US portfolio requires an investment of \$5 million and the foreign portfolio requires an investment of \$5 million. The standard deviations are 4 percent for the US portfolio and 4 percent for the foreign portfolio.

(a) If these two portfolios are perfectly positively correlated, what is the standard deviation of the international portfolio?

(b) If the two portfolios have a correlation coefficient of 0.2, what is the standard deviation of the international portfolio?

(c) If the two portfolios are perfectly negatively correlated, what is the standard deviation of the international portfolio?

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Case Problem 16: Investing in DaimlerChrysler in the USA

Thirty-five years ago, when an Indiana accounting professor, Dan Edwards, placed an order to buy shares of Sony Corp., his broker tried to talk him out of it, saying "nobody has ever heard of that company." Nevertheless, Professor Edwards persisted, and his broker made the purchase. To begin with, it took 2 days for the order to go through; once it did, Professor Edwards couldn't find price quotes without calling his broker. When annual reports came, they were in Japanese.

How times have changed. Thanks largely to the rise of American depository receipts (ADRs), these days US investors can trade many foreign shares, such as DaimlerChrysler, with no more difficulty than it takes to buy domestic shares. Created in 1927 by financier J. P. Morgan as a way of facilitating US investment abroad, an ADR is a negotiable certificate issued by a US bank in the USA to represent the underlying shares of foreign stock, which are held in a custodian bank. ADRs are sold, registered, and transferred in the USA in the same way as any share of domestic stock. Fueled by Americans' interest in foreign markets, ADRs now account for more than 5 percent of all trading volume on the major US exchanges. Three of the 10 most active NYSE stocks in 1996 were ADRs – Telefonos de Mexico SA, Hanson PLC, and Glaxo Wellcome PLC. Currently, there are more than 1,400 ADRs in the USA. This figure represents a 50 percent increase from only 7 years ago. "The ADR market has grown like a jerry-

built house for the last few years," says Eric Fry, President of Holl International, a San Francisco management firm. "It started at 2,500 square feet, and now it's 14,000 square feet."

In 1993, Daimler-Benz management decided to adjust its financial reporting in order to list shares of stock as ADRs on the New York Stock Exchange (NYSE). This decision resulted from months of negotiations between Daimler-Benz, the NYSE, and the SEC (Securities and Exchange Commission). In 1993, Daimler-Benz saw profits fall by 25 percent from the previous year, and prospects for the future were not bright. The company relied historically on strong profits for cash flow; therefore, its management realized that it would have to look to other sources of cash to fund future growth. One way to raise funds was to issue shares of stock in foreign stock exchanges such as the NYSE.

Daimler-Benz was Europe's largest industrial company – best known for its vehicle division, Mercedes-Benz – but it consisted of 23 business units housed in five divisions: passenger cars, commercial vehicles, aerospace, services, and directly managed business. In November 1998, Daimler-Benz purchased Chrysler for $40.5 billion in its ADRs, which created the world's second-largest company on the *Fortune* Global 500. This newly combined company, named DaimlerChrysler, became the fifth-largest automaker in the world ranked by production. The world's top five automakers based on 1998 production of cars and light trucks are GM (7.8 million units), Ford (6.5 million units), Toyota (4 million units), Volkswagen (3.9 million units), and DaimlerChrysler (3.6 million units).

Unlike other mergers, the overall goal of this merger is just growth. DaimlerChrysler said that it would generate annual savings and revenue gains of at least $3 billion, with no plant closures or layoffs planned. The company's top integration priorities included: (1) combining efforts to boost Chrysler and Daimler sales in Asia and Latin America; (2) building and selling an extra 30,000 units of the Mercedes M-class sport-utility vehicle around the world; (3) identifying ways to use Daimler diesel engines in Chrysler cars and trucks; (4) developing a Daimler-Benz minivan, working with Chrysler's minivan platform team; (5) eliminating overlapping research into fuel cells, electric cars, and advanced diesel engines; and (6) consolidating the functions of marketing and finance.

Figure 16.10 shows that this combined company posted substantial gains in both sales and profits in 1998 over 1997. Furthermore, DaimlerChrysler predicted a 4 percent growth in sales and operating profit in 1999. Analysts did not dispute the company's forecast for even faster growth in sales and earnings beyond 1999. In just 4 months after the historic merger, however, the portion of US investors in DaimlerChrysler dropped from 44 percent in November 1998 to 25 percent in March 1999. In the meantime, the company's share price fell 21 percent from a 52-week high of $108.625 on January 6, 1999, to $86 on March 23, 1999, in NYSE composite trading. These two pieces of bad news – the drop in US ownership and the decline in the share price – caused DaimlerChrysler in March 1999 to abruptly end its efforts to purchase Japan's Nissan Motor Co.

Apparently, the overall goal of DaimlerChrysler at the time of their merger – just growth – turned out to be an unrealizable dream. Figure 16.11 shows that the company's revenues and profits fell sharply after their 1998 merger. Consequently, DaimlerChrysler announced its restructured plan for Chrysler Group in February 2001. Under this plan, the company would: (1) cut 26,000 jobs, close six plants, and reduce car and truck output by 15 percent; (2) lower parts and materials costs by $7.8 billion through 2003; (3) cut manufacturing expenses by $1.8 billion and sell noncore assets; (4) lower the break-even point from 113 percent to 83 percent;

DaimlerChrysler's Dilemma

Sales and profits are strong …
In billions of euros

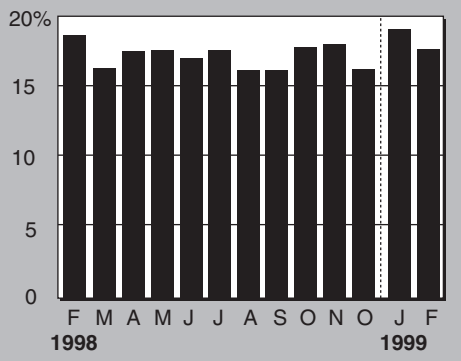
	1998	1997	PERCENT CHANGE
Profit	5.22	4.06	+29%
Sales	131.78	117.57	+12%

NOTE: Excludes merger costs and nonrecurring items

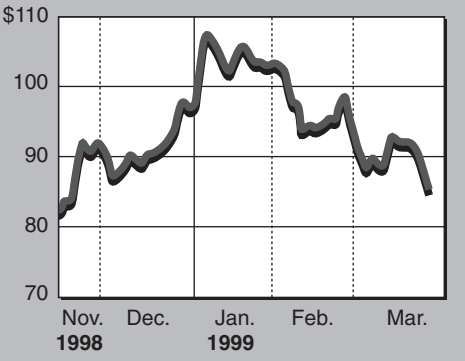
But US investors are fleeing
Percentage of DaimlerChrysler shareholders in the USA

When the merger took effect in November 1998	44%
Now	25%

US market share is steady …
Figure are for passenger and light trucks only



Though the stock has declined
Symbol: DCX, daily stock price



Note: Until Nov. 1998, the companies operated independently as Daimter-Benz AG and Chryster Corp.
Source: The company, PricewaterhouseCoopers

Figure 16.10 Key financial statistics of DaimlerChrysler

Source: J. Ball, "DaimlerChrysler Frets Over Loss of US Shareholders", *The Wall Street Journal*, Mar. 24, 1999; reprinted by kind permission.

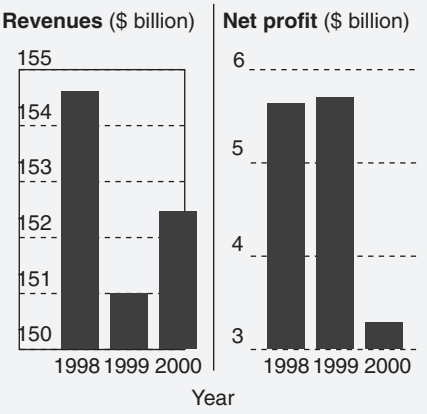


Figure 16.11 DaimlerChrysler's revenues and profits

Source: *The Detroit News*, Feb. 27, 2001, p. A4.

(5) reduce fixed costs by $2.5 billion by cutting workforce, trimming white-collar benefits, and noncore asset sales; (6) increase annual revenues by $4.8 billion by 2003; and (7) reduce engineering costs through a variety of actions. However, critics charge that DaimlerChrysler should have taken these actions when they merged in 1998. Some observers argue that all major merged companies restructure their business operations at the time of the merger by laying off thousands of workers, closing factories, firing long-time managers, and spinning off noncore businesses.

Case Questions

1 Describe American depository receipts in some detail.
2 Why did Daimler-Benz and other foreign companies decide to list their ADRs on the NYSE?
3 Briefly describe how to choose ADRs.
4 What is the downside of ADR investment?
5 Both sales and profits in DaimlerChrysler posted big gains in 1998 and expected to increase even faster beyond 1999. In the meantime, the company's US ownership and share price declined sharply in the first 4 months after the merger. Explain this apparent conflict between the company's profits and its share price.
6 To list their stocks in the New York Stock Exchange, foreign companies have to comply with the registration and disclosure requirements established by the US Securities and Exchange Commission (SEC). Use the website of the SEC, www.sec.gov/, to review disclosure requirements in SEC final rules related to foreign investment and trade.

Source: M. Allen, "Foregoing Funds," *The Wall Street Journal*, June 27, 1996, Section R; J. Ball, "Daimler-Chrysler Frets Over Loss of US Shareholders," *The Wall Street Journal*, Mar. 24, 1999, p. B4; S. Carney and D. Howes, "Retooling Chrysler: Will it Work?" *The Detroit News*, Feb. 27, 2001, pp. A1, A4; C. Park, "Daimler to Make New York Debut in October," *The Financial Times*, July 28, 1993, p. 23; A. Raghavan and C. Harlan, "Daimler-Benz's Listing is Likely to Draw More Foreign Firms to the US Market," *The Wall Street Journal*, Mar. 3, 1993, p. A4; G. Stern and S. Lipin, "Proposed Merger of Automobile Titans May Spur Global Shakeout of Industry," *The Wall Street Journal*, May 7, 1998, p. A10; and G. Yip, "Home Advantage," *The Wall Street Journal*, Apr. 26, 1999, p. R12.

CHAPTER 17

Corporate Strategy and Foreign Direct Investment

Opening Case 17: How Can Companies Get the Most Out of Their Foreign Investment?

We can classify the benefits of foreign direct investment into two broad categories: tangible and intangible. Some benefits, such as reductions in labor, capital, and logistics costs, are tangible and easy to measure; others, such as new ideas from foreign research centers, customers, and suppliers, are intangible and difficult to measure. If foreign manufacturing operations play a negligible strategic role, the tangible benefits usually dominate the decision to manufacture abroad. As a company upgrades the strategic role of its foreign manufacturing operations, however, it stresses the intangible benefits more.

Many multinational companies (MNCs) establish and manage their foreign plants only for the benefits of tax concessions, cheap labor, and capital subsidies. However, Ferdows (1997) argues that higher market share and greater profits can only be achieved if both tangible and intangible benefits are realized. When an MNC employs a foreign plant to produce intangible benefits, the plant will have a better chance to be innovative, to be productive, to achieve low costs, and to provide exemplary service to customers throughout the world. To get more out of its foreign factories, therefore, the MNC should use them to get closer to their customers and suppliers, to attract skilled and talented employees, and to create centers of expertise for the entire company.

Some companies indeed invest abroad to seek technology, managerial expertise, and other intangible benefits. For example, German, Japanese, and Korean companies have purchased US-based electronics firms for their technology. Take a look at LG's acquisition of Zenith as an example. On July 17, 1995, LG Electronics of Korea

acquired Zenith, the last remaining TV manufacturer in the United States, to obtain its HDTV and multimedia technologies. This is because changes in international competitiveness had compelled LG to engage in its own aggressive research and development.

Source: K. Ferdows, "Making the Most of Foreign Factories," *Harvard Business Review*, Mar./Apr. 1997, p. 82.

Direct investments are equity investments such as the purchase of common stock, the acquisition of entire firms, or the establishment of new subsidiaries. The US Department of Commerce defines **foreign direct investment (FDI)** as investment in either real capital assets or financial assets with a minimum of 10 percent equity ownership in a foreign firm. Most MNCs invest overseas directly for a variety of reasons. Chapter 2 discussed key economic motives for overseas direct investment. This chapter discusses several practical issues of FDI in three sections. The first section describes the overall concept of FDI. The second section covers inflows of FDI to developing countries. The third section considers cross-border mergers and acquisitions.

17.1 An Overview of Foreign Direct Investment

Decisions on capital expenditures involve the allocation and commitment of funds to investment projects whose returns are expected to extend beyond 1 year. Such investments usually require very large sums of money and are made in expectation of benefits over an extended period. Capital investment decisions are not readily reversible once they are made. Used plants and most used equipment in foreign countries have limited markets. In certain areas, production methods are rapidly outdated by increasingly higher levels of technology. Moreover, foreign investments are much riskier than domestic investments. Thus, the rational use of capital resources is critical for the future well-being of an MNC.

17.1.1 The benefits of foreign investment

COMPANY BENEFITS MNCs invest their capital abroad to utilize their oligopoly-created advantages. These advantages include proprietary technology, management know-how, multinational distribution networks, access to scarce raw materials, production economies of scale, financial economies of scale, and possession of a strong brand or trade name. The use of such oligopolistic advantages could enable an MNC to reduce its cost of capital and to increase its profitability, thereby increasing the value of the firm.

HOST-COUNTRY BENEFITS There are three basic forms of cross-border financial flows: portfolio investment, FDI, and bank lending. FDI forms one of the most important links between

developing and industrial countries because it is stable. For example, FDI flows to Southeast Asia had proved to be much more stable than other forms of financial flows during the Asian financial crisis of 1997–8.

Host countries, particularly developing countries, can benefit from FDI in many ways:

1 Foreign investment induces the transfer of technology and skills that are frequently in short supply.
2 It increases both national employment and domestic wages.
3 It provides local workers with an opportunity to learn managerial skills.
4 It contributes to tax revenues and helps balance the international balance of payments.

17.1.2 Arguments against foreign investment

Although foreign investment tends to contribute much needed resources to host countries, developing countries in particular many view it with misgivings. There are many arguments against foreign investment. Most of these arguments have to do with conflicts between company goals and host-government aspirations:

1 Foreign investment brings about the loss of political and economic sovereignty.
2 It controls key industries and export markets.
3 It exploits local natural resources and unskilled workers.
4 It undermines indigenous cultures and societies by imposing Western values and lifestyles on developing countries.

It seems that, while FDI has the potential to contribute positively to development, there is no guarantee that it will have no harmful impact on host countries. The question of foreign investment, however, need not be a zero-sum game. A feasible framework for investment must be set up to define the rights and responsibilities of both parties. This framework should allow for a reasonable return to the investor and positively contribute to the development of a host country.

17.1.3 How to invest abroad: modes of foreign investment

When a company decides to invest its money abroad, it has seven distinct alternatives available: construction of new plants, mergers and acquisitions, joint ventures, equity alliances, licensing agreements, franchising agreements, and contract manufacturing.

CONSTRUCTION OF NEW PLANTS (INTERNAL GROWTH) Companies can penetrate foreign markets by establishing new operations in foreign countries to produce and sell new products. Some companies may prefer this internal growth because they can tailor their foreign operations to their exact needs. For example, General Motors had spent several years determining the market size for its cars in China before the company decided to build a $1 billion auto assembly plant in the country. Such a demand forecast or potential market size depends on many factors, such as competition, income, population, economic conditions, and the feasibility of serving nearby foreign markets. However, it would take some time for MNCs to reap any rewards from inter-

nal growth, because they have to build a plant and establish a customer base first. We discuss this type of foreign investment in detail in chapter 18.

MERGERS AND ACQUISITIONS (EXTERNAL GROWTH) Although internal growth is usually natural and economical, the process of growth may be too slow. These days, many MNCs acquire other firms in foreign countries to penetrate foreign markets rather than building factories that may take years to complete. Some companies purchase parts of foreign firms to obtain a stake in foreign operations. In many cases, MNCs acquire foreign firms to obtain the instant access to the market that they serve and to reduce their competitors. For example, in December 1998, British Petroleum purchased Amoco of the United States to expand their US market share and to reduce one of its major US competitors. We discuss cross-border mergers and acquisitions in detail in the second half of this chapter.

THE JOINT VENTURE A joint venture is owned by two or more firms. Sometimes the owners of a joint venture are from several different countries. Many MNCs penetrate foreign markets by forming a joint venture with companies that reside in those markets. Most joint ventures permit two companies to use their respective comparative advantages in a given project. For example, General Mills of the USA and Nestlé of Switzerland formed a joint venture so that the cereals produced by General Mills could be sold through the huge global distribution network established by Nestlé.

The basic advantage of a joint venture is that it enables a company to generate incremental revenue or cost savings. A joint venture, however, normally faces many complex problems. Because representatives of both companies sit on the board of directors, it is difficult to forge a consensus, especially when an MNC and host-country firms form a joint venture. Nevertheless, these days international joint ventures crop up everywhere. The rush of new technology, the expense of staying on the leading edge, the demands of customers, and worldwide competition have required many MNCs to form a wide range of joint ventures and partnerships.

EQUITY ALLIANCES An alliance whereby one company takes an equity position in another company is known as an **equity alliance**. In some cases, each party takes an ownership in the other. The purpose of the equity ownership is to solidify a collaborative contract so that it is difficult to break, particularly if the ownership is large enough to secure a board membership for the investing company. The airline industry epitomizes the use of equity alliances. IBM maintains more than 500 equity alliances around the world.

LICENSING AGREEMENTS Under a **licensing agreement**, an MNC (the licensor) allows a foreign company (the licensee) to produce its products in a foreign country in exchange for royalties, fees, and other forms of compensation. MNCs can set up their own production facilities abroad or license a local firm to manufacture their products in return for royalties. AT&T has a licensing agreement to build and operate part of India's telephone system. Sprint Corp. has a licensing agreement to develop telecommunications services in England.

Advantages to a licensor include: (1) a relatively small amount of investment, (2) an opportunity to penetrate foreign markets, (3) lower political and financial risks, and (4) an easy way to circumvent foreign market entry restrictions. Benefits to a licensee include: (1) a cheap way to obtain new technology, (2) an easy way to diversify into other product lines, and (3) an opportunity to capitalize on its unique positions, such as the channels of distribution, the financial resources, and the marketing know-how.

Like all aspects of good business, successful licensing requires management and planning. Because there is no global clearinghouse for technology, the matching process stretches around the world, with a wide variety of intermediaries. The process is further complicated because of politics, international laws, different cultures, and global secrecy. Consequently, a continuous stream of profitable licensing agreements comes from hard thinking, good planning, and large outlays for research and development.

FRANCHISING AGREEMENTS Under a **franchising agreement**, an MNC (franchiser) allows a foreign company (franchisee) to sell products or services under a highly publicized brand name and a well-proven set of procedures. Under this arrangement, the franchiser allows the franchisee not only to sell products or services but also assists on a continuing basis in the operation of the business.

Franchising is most associated with the USA and accounts for about one third of US retail sales. Some 500 US franchisers have approximately 50,000 outlets worldwide. Fast-food operations, such as McDonald's, Kentucky Fried Chicken, and Dunkin Donuts, are the most numerous. For example, McDonald's alone has almost 10,000 restaurants in 100 countries. Other types of franchisers are hotels (Hilton), soft drinks (Coca Cola), clerical services (Kelly Services), and automotive products (Midas).

CONTRACT MANUFACTURING In **contract manufacturing**, an MNC contracts with a foreign manufacturer to produce products for them according to their specifications. The contract manufacturer does not market the products that it produces. Instead, the MNC markets the products under its own brand name, just as Wal-Mart sells a variety of products made by contract manufacturers under its own brand name. Thus, the buying public normally does not realize that the selling company has not actually produced the product. Sometimes, MNCs subcontract assembly work or the production of parts to independent companies overseas.

17.2 Foreign Direct Investment in Developing Countries

Table 17.1 shows that in 2003, for the first time, China attracted more foreign investment than the USA. A survey by consulting firm A. T. Kearney of more than 150 chief executives predicted that China would remain the world's hottest destination for foreign investment in the near future. Because of the rush to China, Asia is for the first time likely to overtake Europe as an investment destination, said Kearney. Worldwide, foreign direct investment fell 21 percent in 2003 from 2002 as economies around the world, with the exception of China and a few others, grew slowly or not at all.

FDI into the USA fell from $70 billion in 2002 to $40 billion in 2003, down 87 percent from the peak in 2000. Reduced capital flows into the USA can cut the value of the dollar and lead to higher interest rates. It also can slow expenditures on technology and improvements that help boost productivity and corporate profits. China's huge investment inflows come at a sensitive time for relations with the biggest trading partners. The USA, Japan, and Europe have criticized China recently for its fixed exchange rate, which some economists believe takes jobs from other countries and artificially cuts the costs of its exports by significantly undervaluing its currency.

The flow of equity-related finance to developing countries takes two forms: portfolio investment and direct investment. Figure 17.1 shows that combined inflows of both forms totaled a

Table 17.1 Foreign direct investment (billions of US dollars)

	2000	*2001*	*2002*	*2003*
World	$1,393.0	$823.8	$651.2	$512.0
USA	314.0	144.0	72.0	40.0
China	40.8	46.8	53.7	53.0

Source: *USA Today*, Sept. 5, 2003, p. 3B; and *The Wall Street Journal*, June 28, 2004, p. A2.

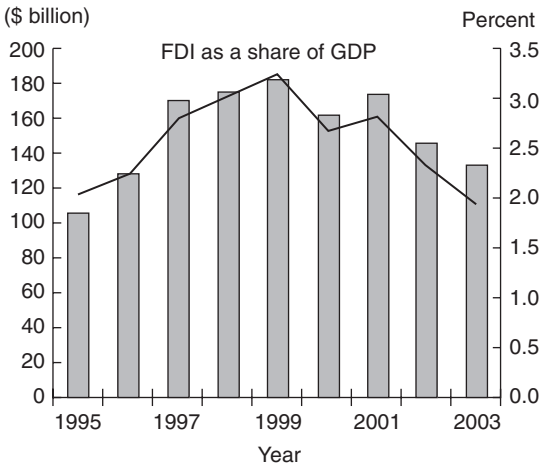


Figure 17.1 Net inward FDI flows to developing countries, 1995–2003
Source: The World Bank, *Global Development Finance*, 2004, p. 78.

net of about $135 billion in 2003, down from $178 billion in 2001 and from their peak of $196 billion in 1997.

Figure 17.2 shows that net FDI flows to developing countries have fallen sharply since 2001. The decline in FDI flows to developing countries was associated with a slowdown in privatization and mergers-and-acquisitions transactions (figure 17.3). Despite the overall decline in FDI flows to developing countries and another rise in the share of FDI accounted for by China, there was a decline in the overall concentration. The dip in FDI flows in 2003 was almost entirely due to the decline in flows to Latin America and the Caribbean. Three factors accounted for that decline. First, the regional recession undermined incentives to invest in the region. Second, no large mergers and acquisitions of the kind that inflated the inflows numbers in recent years occurred in 2003. Finally, the process of privatization has moved toward completion. It also appears that the Iraq conflict and severe acute respiratory syndrome (SARS) had a limited impact on FDI in 2003.

The downturn in FDI flows to developing countries occurred against even sharper decline in global FDI flows in 2003. As a result, developing countries' share in global FDI flows actually rose. However, when viewed against the plunge in debt outstanding to private-sector creditors,

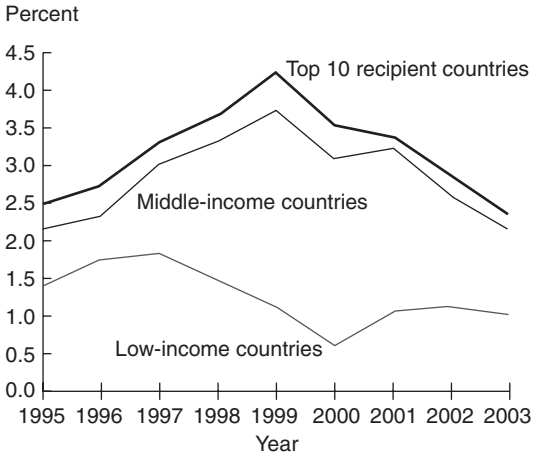


Figure 17.2 FDI as the share of GDP in developing countries, 1995–2003
Source: The World Bank, *Global Development Finance*, 2004, p. 79.

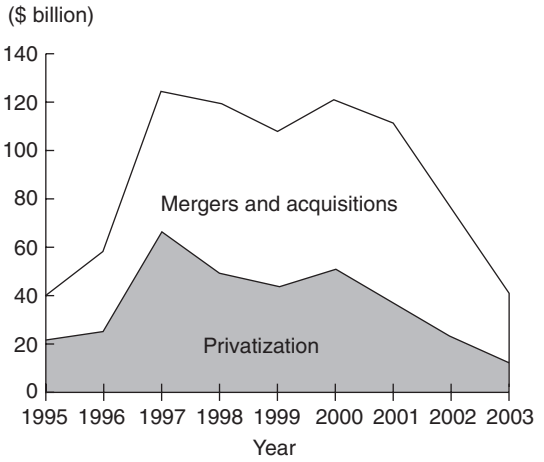
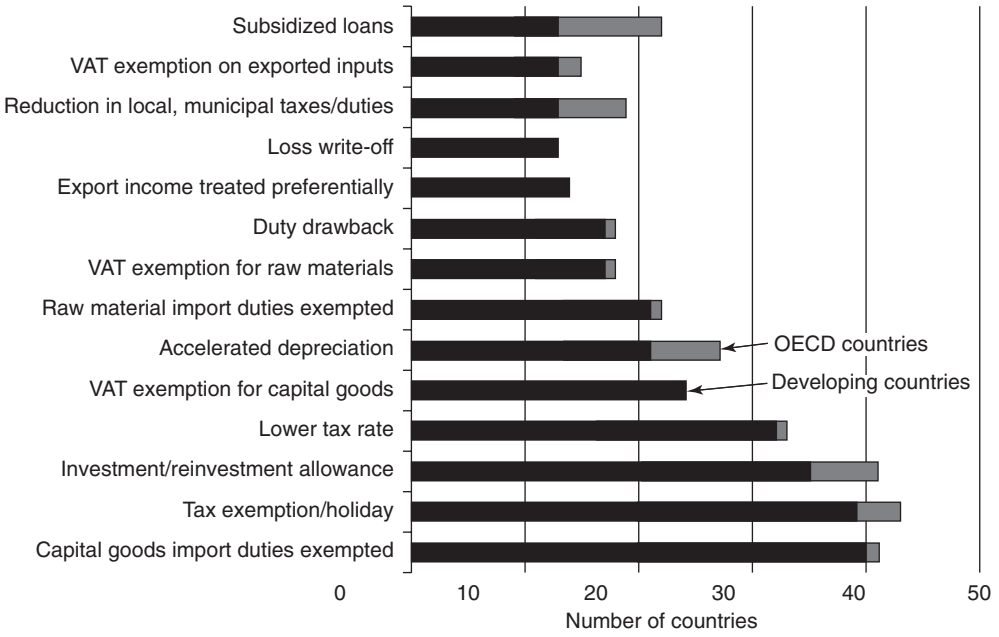


Figure 17.3 Privatization and M&A in developing countries, 1995–2003
Source: The World Bank, *Global Development Finance*, 2004, p. 79.

discussed in chapter 12, the flow of private-sector equity-related capital appears remarkably robust.

17.2.1 An improved investment climate

Perhaps the best way of improving a country's investment climate is to remove obstacles that impede foreign investment, although many are unavoidable, inadvertent, or unintended. Bad



Note: VAT is value added tax. Data on fiscal and financial incentives were compiled for 71 developing and 20 OECD countries. The most common incentives (used in at least 18% of developing countries) are shown in the chart.

Figure 17.4 Incentives for foreign direct investment

Source: The World Bank, *Global Economic Prospects*, 2003, p. 80.

roads, primitive port facilities, and the lack of local capital or qualified local technicians constitute unavoidable obstacles to investment. In some cases, the government of a country permits some obstacles to exist, but for reasons other than their effect on private foreign investment. As examples, the existence of a communist dictatorship in Cuba and the social orientation of Syria deter foreign investment. Finally, there are unintended obstacles that the government of the host country is anxious to avoid. These obstacles include a broad range of conditions, from excessive red tape to corruption in the courts.

There are two broad groups of reasons why MNCs will invest heavily in developing countries: various incentive programs and emerging market-based capitalism. The shortage of capital in many parts of the world and an almost universal desire for economic growth have recently compelled many countries to institute incentive programs for private foreign investment. Several surveys have found that developing countries have various incentive programs for foreign investors. As shown in figure 17.4, these incentives include tariff exemptions, tax incentives, financial assistance, and others. These and other incentive programs undoubtedly motivate MNCs to invest in those countries that offer them.

Many developing countries are embracing market-based capitalism. Privatization, liberalization of trade, a positive attitude toward foreign investment, a relaxation of the tight state control, stock market development, and sounder macroeconomic policies – these are all enthusiastically embraced by foreign investors. More concretely, these are the measures that make investment

possible by putting companies on the block and allowing foreigners into the market. One critical factor of the domestic policy environment in attracting foreign investment is whether the government operates with transparency, credibility, and stability. Corporate governance – an independent board of directors, mechanisms for citizens to monitor public behavior, and rules that constrain corruption – is essential to sustained FDI inflows.

17.3 Cross-Border Mergers and Acquisitions

These days, companies look for and need to explore growth opportunities on a global basis. In principle, the growth of the foreign presence in any national economy could take place in either of two ways. Companies could grow primarily through the construction of new production facilities in a foreign country, financed either through the establishment of new subsidiaries or through investment by their existing facilities in the foreign country. Alternatively, companies could grow through the acquisition of existing foreign firms.

Obviously, both kinds of growth have recently taken place in the USA and other countries. For example, ventures such as the establishment of Japanese automobile plants in the USA have occurred simultaneously with events such as Daimler's acquisition of Chrysler. In quantitative terms, however, acquisitions (external growth) are much larger than the construction of new production facilities abroad (internal growth). Although internal growth is usually natural and economical, the process of growth may be very slow. In recent years, a company's growth through a merger with the existing business activities of a foreign firm has received substantial attention as an alternative to internal growth.

In chapter 18, we consider the purchase of an individual asset as a capital budgeting decision. When a company is buying another company, it is making an investment. Thus, the basic principles of capital investment decisions apply. But mergers are often more difficult to evaluate. First, the financial manager must be careful to define benefits. Second, the financial manager needs to understand why mergers occur and who gains or loses as a result of them. Third, the acquisition of a company is more complicated than the purchase of a new machine, because special tax, legal, and accounting issues must often be addressed. Finally, the integration of an entire company is much more complex than the installation of a single new machine.

17.3.1 Terminology

A **merger** is a transaction that combines two companies into one new company. An **acquisition** is the purchase of one firm by another firm. Although we have drawn the formal distinction between a merger and an acquisition, the two terms are often used interchangeably. The parties in a merger can be classified as an acquiring company and an acquired company. The acquiring company, also known as a bidder, initiates the offer, while the acquired company, often called a target company, receives the offer.

Acquisitions are also categorized as being either friendly or hostile. A friendly takeover is an offer made directly to the firm's management or its board of directors. In a hostile takeover, the acquiring company often bypasses the target company's management and approaches its shareholders directly with a tender offer for the purchase of their assets. A **tender offer** is an offer to buy a certain number of shares at a specific price and on a specific date for cash, stock, or a com-

bination of both. A tender offer is usually associated with a hostile takeover, but it is also used in friendly takeovers when the target company's management approves the offer before it is presented to shareholders.

17.3.2 Mergers and corporate governance

The market-based system of corporate governance used in the United States and the United Kingdom is characterized by a highly diversified equity ownership, a large portion of public debt and equity capital, and a relatively independent management team. The bank-based system of corporate governance used in Japan, France, and Germany depends on a concentrated ownership in the hands of a main bank and the firm's business partners for both debt and equity capital. Figure 17.5 shows that corporate ownership is more widely dispersed in the USA and the UK than in France, Germany, and Japan. The structure of these corporate governance systems influences top executive turnover and the market for corporate control.

In the USA, management is much more likely to be disciplined through either friendly takeovers or hostile takeovers. Corporate control contests in the USA tend to be large-scale, aggressive, financially motivated, and arm's-length deals that often involve private investors and other corporations. Hostile acquisitions frequently provoke equally forceful defensive maneuvers by the management of target firms.

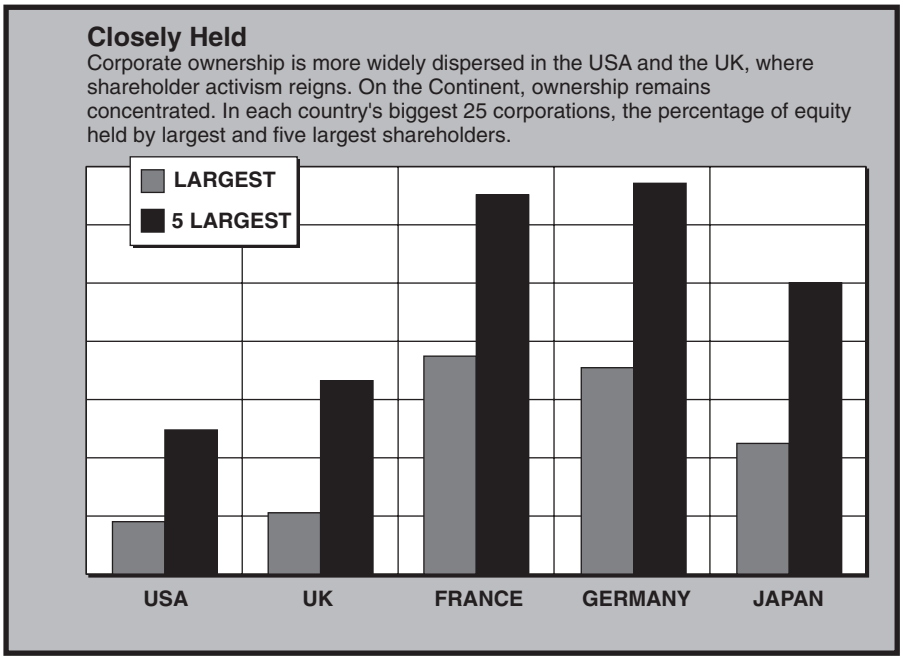


Figure 17.5 Corporate ownership in five major countries

Source: *The Wall Street Journal*, Apr. 26, 1999, p. R15; reprinted by kind permission.

In Japan, corporate takeovers are typically managed from inside rather than in the public markets by the company's main bank, by its business partners, or by both. Hostile acquisitions are almost nonexistent in Japan, due to the concentration of equity ownership in the hands of the main bank and other keiretsu members.

Corporations in most countries around the world have a supervisory board charged with monitoring and supervising the management team on behalf of the stakeholders. The composition of the board, its powers, and its responsibilities vary widely across countries. In the USA this board, called the board of directors, represents a dispersed set of shareholders and usually includes outsider directors who have no other business contact with the corporation.

In Japan, it is rare for a board member to come from a group other than the corporation's management or from a close affiliate of the corporation, such as another keiretsu member or the main bank. The Japanese word **keiretsu** refers to the large, financially linked groups of companies that play a significant role in the country's economy. The governance of most large Japanese corporations is thus dominated by an inner circle of inside managers, their bankers, and their business partners. These board differences between the USA and Japan explain why there are many hostile acquisitions in the USA and why, on the other hand, there are hardly any hostile acquisitions in Japan.

WEAKENING CROSS-HOLDINGS IN JAPAN In Japan, banks and borrowers or manufacturers and suppliers held an intricate network of shares in each other for decades. Those ties have been weakening as these networks of mutual shareholdings have slowly turned from benefit to burden. Cross-holdings have depressed corporate returns on equity, locking in outdated business alliances and hampering the formation of more forward-looking ones. Consequently, companies and banks unloaded approximately $50 billion in cross-held shares between January 1999 and February 2000. Gary Evans, a corporate strategist in Tokyo, figured that the percentage of all Japanese outstanding shares cross-held by corporations would fall to 25 percent in 2000, as compared to 42 percent in 1990 (Spindle 2000).

The industries in which cross-holdings are falling fastest – airlines, railways, steel, and banking – are considered to be among the most outdated in Japan. In addition, industry executives and analysts say that the selling of shares is a sign that restructuring efforts are bearing some fruit. For example, after handing control over to a management team from Renault SA of France, Nissan Motor Co. announced a restructuring plan in 1999; it called on Nissan to cut the number of companies in its core group from more than a thousand to four. Industrial Bank of Japan, in the midst of a three-way merger, stated that it planned to sell about a quarter of its three trillion yen of stakes in borrowers and allied companies over a 4-year period, beginning in 1999.

Analysts say that the selling of cross-held shares could eventually reach a point at which sufficient numbers of shares are available to spark a boom in mergers and acquisitions, perhaps even in hostile takeovers. That could spur a still more dramatic restructuring of old-line corporate Japan.

17.3.3 Some accounting aspects of mergers

A merger can be treated on the books of the acquiring company as either a pooling of interests or a purchase of assets. If a merger is financed with an exchange of stock, it may qualify for the pooling of interests. Under the **pooling-of-interest** method, the items on the balance sheets of

the two companies are added together, so that the merger would not create goodwill. The firms that like pooling most are those with a lot of intangible assets – intellectual property, brand names, copyrights, patents, customer lists, and research and development. The obvious advantage of this method is that there are no charges against future earnings and thus it would produce higher reported earnings. As a result, this form of business merger has been popular in practice and has caused the recent surge in mergers and acquisitions.

It is, then, no wonder that the use of pooling in mergers and acquisitions by dollar volume increased from only 5 percent in the early 1990s to 55 percent in the late 1990s (King 2000). However, the Financial Accounting Standards Board (FASB), the US accounting rulemaker, eliminated the pooling-of-interest method effective July 1, 2001. Most financial officers expect the ban on pooling to slow, but not stop, merger activity.

If a merger is made with cash, the merger must be treated as a purchase of assets. The purchase method views a merger as an investment for the acquiring company. Under the **purchase-of-assets** method, the acquired assets or companies are usually recorded in the accounts of the acquiring company at the market value of assets given in exchange. If the acquiring company pays more than the book value of the acquired company, the excess is treated as goodwill. Goodwill write-offs are not deductible for income tax purposes. This accounting treatment results in lower reported earnings for several years; thus, this form of business merger is not popular in practice.

17.3.4 A new merger movement

It was not exactly merger mania like the merger boom in the 1990s, but companies started to make acquisitions again in 2003. After a 3-year deal-making downturn, the pace of mergers and acquisitions finally accelerated in the second half of 2003 (figure 17.6). The worldwide volume of announced transactions edged up 10 percent to $1.33 trillion in 2003 from $1.21 trillion in 2002, but this volume is still only 40 percent of the record $3.4 trillion of transactions racked up in the merger craze of 2000. The renewed interest in pursuing mergers and acquisitions came amid the signs of an improving economy and a rising stock market. For 2005 and beyond, worldwide merger advisors believe that the cautious enthusiasm for mergers will continue, particularly in sectors such as financial institutions, health care, and consumer products.

17.3.5 Motives for cross-border mergers and acquisitions

A company's acquisition of another firm is economically justified only if it increases the total value of a firm. The traditional approach to the valuation of the firm consists of four basic steps:

1 Determine the earnings after taxes that the company expects to produce over the years, or earnings before taxes multiplied by (1 – tax rate).
2 Determine the capitalization rate (discount rate) for these earnings.
3 Determine the extent to which the company may be leveraged or the adequate amount of debt.
4 Compute the total value of the firm from the following formula:

As the economy recovered and stock market indexes took off, there was renewed interest in mergers and acquisitions. But the pace didn't approach the records set in late 1999 and early 2000. Global volume and number of deals.

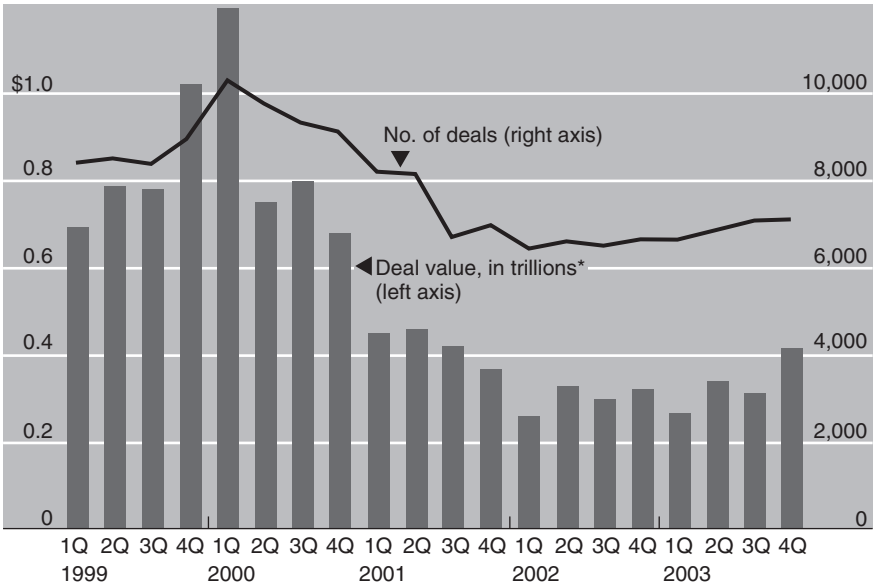


Figure 17.6 A pickup in merger activity

Source: *The Wall Street Journal*, Jan. 2, 2004, p. R15.

$$\text{value of firm} = \frac{\text{earnings before taxes}\,(1 - \text{tax rate})}{\text{capitalization rate}}$$

One can examine the effect of a merger on each of the factors that affect the total value of the firm.

EARNINGS BEFORE TAXES A merger itself creates a larger physical size and opportunities for a synergistic effect. The **synergistic effects** of business mergers are certain economies of scale due to the firm's lower overhead. The merger allows the firm to acquire necessary management skills and to spread existing management skills over a larger operation. There are also opportunities to eliminate duplicate facilities and to consolidate the functions of production, marketing, and purchasing. Finally, the merger enables the firm to enjoy greater access to financial markets and thus to raise debt and equity at a lower cost of capital. These types of better management, operating economies, and financial economies can increase the profit margin and also reduce risks.

Example 17.1

Assume that Buyco Corporation, with a 10 percent cost of capital, is analyzing the acquisition of the Sellco Corporation for $1 million. Sellco has expected net cash flows (earnings after taxes plus depreciation) of $100,000 per year indefinitely. Furthermore, the synergistic effect of the merger (in this case, combining production facilities) will add $20,000 per year to net cash flow indefinitely.

The present value of net cash flows from this merger is $1.2 million [($100,000 + $20,000)/0.10]. As a result, the acquisition appears to represent a desirable alternative for the expenditure of cash with a positive value of $200,000 ($1,200,000 – $1,000,000).

A company is often able to improve its risk–return performance through international acquisition rather than through domestic acquisition. The key element here is the correlation coefficient between acquired firms and an acquiring firm. When firms with low degrees of correlation are combined with each other, the acquiring firm is able to reduce its risk of expected return. Companies from different countries tend to be less correlated with each other than are domestic companies. For example, the economic cycles of different countries do not tend to be totally synchronized. On the other hand, most domestic companies tend to be highly correlated with each other, because they depend on the same state of economy.

TAX CONSIDERATIONS The tax benefit for mergers comes from the fact that the tax loss carryforward expires at the end of a certain number of years unless the firm makes sufficient profits to offset it completely. There are two situations in which mergers could actually avoid corporate income taxes. First, when a profitable company acquires companies with a large tax loss carryforward, it can reduce its effective tax rate and consequently increase its net operating income after taxes. Second, a company with a tax loss carryforward may acquire profitable companies in order to use its carryforward.

Example 17.2

In this example, we assume that all losses can be carried forward. Company A acquires company B, which has a $220,000 tax loss carryforward. Company A, with a tax rate of 40 percent, expects to earn $100,000 a year for the next 3 years.

As shown in table 17.2, the tax shield value of a carryforward is equal to the loss involved times the tax rate ($220,000 × 0.40 = $88,000). On the basis of the carryforward, company A can reduce its total taxes from $120,000 to $32,000, and thus it could pay $88,000 for the carryforward alone (this is on a nondiscount basis). Earnings after taxes also have gone up by $88,000 ($268,000 – $180,000). Obviously, company B's anticipated operating gains and losses for future years must also be considered in analyzing the deal.

Table 17.2 The effects of a tax loss carryforward

	Year 1	*Year 2*	*Year 3*	*Total values*
Company A without merger				
Earnings before taxes	$100,000	$100,000	$100,000	$300,000
Taxes (40%)	40,000	40,000	40,000	120,000
Earnings after taxes	$ 60,000	$ 60,000	$ 60,000	$180,000
Company A with merger				
Earnings before taxes	$100,000	$100,000	$100,000	$300,000
Tax loss carryforward	100,000	100,000	20,000	220,000
Earnings before tax	$ 0	$ 0	$ 80,000	$ 80,000
Taxes (40%)	0	0	32,000	32,000
Earnings after taxes	$100,000	$100,000	$ 68,000	$268,000

Accounting and tax laws may create even more competitive advantages for acquiring firms in some countries. If the acquiring company pays more than the net worth of the acquired company, the excess is treated as goodwill. Goodwill write-offs are not deductible for federal income taxes in some countries. This accounting treatment results in lower reported earnings for several years. However, in most industrialized countries, goodwill does not affect the acquiring company's earnings. Thus, foreign companies with more favorable accounting and tax laws may be able to bid higher prices for target companies.

Example 17.3

Suppose that company C and firm D try to acquire Echo Corporation with a $4 million book value (net worth) for $6 million. Company C is located in a country in which goodwill write-offs are not deductible for income taxes, but firm D is located in a country in which companies are allowed to deduct goodwill amortization for tax purposes. The tax rate of 40 percent is the same for company C and firm D.

Because a company can acquire a firm with $4 million book value for $6 million, $2 million of goodwill is created on the books of the acquiring company. If it must be written off over a maximum period of 10 years, this would cause a $200,000-per-year reduction in reported earnings ($2 million/10 years). Because the write-offs of goodwill are not tax-deductible expenses for company C, the company suffers the full amount of the deduction without any tax relief. On the other hand, firm D would realize $800,000 in real cash savings ($2,000,000 $\times$ 0.40) over 10 years, because firm D is allowed to deduct goodwill amortization for tax purposes. Hence, the firm could pay $800,000 more due to this goodwill tax advantage alone.

THE CAPITALIZATION RATE An important advantage of mergers is the fact that earnings of larger companies are capitalized at lower rates. The securities of larger companies have better marketability than those of smaller companies. Larger companies are also better known among investors. An acquiring company can develop these factors, which lead to lower required rates of return and higher price–earnings ratios. Consequently, the value of the acquiring firm exceeds the values of the companies operating separately.

A potential benefit of international acquisition is the lower required rate of return for the acquiring company. The required rate of return varies among countries because the cost of capital is different from country to country. As a result, companies in some countries may find acquisitions more attractive than companies in other countries.

DEBT CAPACITY The appropriate mix of debt and equity reduces the overall cost of capital and thus raises the market value of the firm. There are two situations in which a merger can raise the debt capacity for the acquiring company above the sum of the debt capacities for the individual firms prior to the merger. First, there are companies that fail to make optimum use of debt. Second, it is frequently possible for the acquiring company to borrow more than the companies were able to borrow individually.

Companies normally finance a portion of international acquisitions with borrowed funds. Companies in some countries have more flexibility to borrow, because investors and creditors in these countries are more receptive to higher debt ratios. The debt ratio for most companies in Denmark, Finland, Norway, and Sweden, for example, is higher than the comparable debt ratio for American companies. In other words, companies in Scandinavian countries have more flexibility to borrow than US companies. Thus, US companies may be more successful in international acquisitions because they can borrow in countries where higher degrees of financial leverage are tolerated than in the USA.

Example 17.4

Suppose that the cost of debt (6 percent), the cost of equity (10 percent), the tax rate (50 percent), and annual earnings after taxes ($10,000) are the same for company X and firm Y. Company X's optimal capital structure is 20 percent debt and 80 percent equity. Firm Y is a multinational company and thus enjoys a higher debt ratio of 60 percent without additional risk. Compare the cost of capital for these two companies and their market value.

The weighted average costs of capital are 8.6 percent $[(0.20 \times 0.06)(1 - 0.50) + (0.80 \times 0.10)]$ for company X and 5.8 percent $[(0.60 \times 0.06)(1 - 0.50) + (0.40 \times 0.10)]$ for firm Y. Market values are $116,279 for company X ($10,000/0.086) and $172,414 for firm Y ($10,000/0.058). The multinational firm enjoys a lower cost of capital, a higher market value, and a higher share price because it has greater borrowing capacity. As cheaper debt is added to the capital structure, the cost of capital falls. This increases the value of the firm. Because this increase in the firm's value accrues to the owners of the firm, the price of the firm's stock rises.

OTHER CONSIDERATIONS A variety of other factors affect international acquisitions: exchange rate movements, country barriers, and strategic choices, among others.

The ideal time for Japanese investors to buy a US company is when the spot rate of the US dollar is perceived to be very low and is expected to appreciate over time. Several studies have confirmed that international acquisitions are, in fact, influenced by exchange rate movements. A study by Rohatyn (1989), for example, found that the combination of a relatively weak dollar and a strong Japanese stock market in the late 1980s encouraged Japanese acquisitions of US firms.

Many national governments impose explicit and implicit barriers to foreign acquisitions of their domestic companies. These barriers prevent or discourage international acquisitions rather than offering advantages to specific acquiring companies. All countries have one or more agencies that monitor mergers and acquisitions, but they vary among countries. International acquisitions are tolerated more in the USA than in Japan. Consequently, it is much easier for Japanese investors to purchase a US firm than for US investors to purchase a Japanese firm.

To achieve corporate growth, companies these days view the world as a total business community. They consider international acquisitions as a viable alternative for achieving a corporate growth strategy. Newman (1990) suggested that a growth-oriented company can globally close four types of growth gaps between its sales potential and its current actual performance. A product-line gap can be closed by introducing improved or new products. A distribution gap may be reduced by expanding an existing distribution network. A usage gap is reduced by inducing current nonusers. A competitive gap can be closed by making inroads into the market position of direct competitors. These strategic choices encourage companies to engage in international acquisitions.

SUMMARY

Once companies decide to enter new foreign markets, their next concern is how to enter the foreign market. Theory views the construction of new plants, mergers and acquisitions, joint ventures, equity alliances, licensing agreements, franchising agreements, and contract manufacturing as foreign-entry alternatives through investment. This chapter has covered a number of practical issues in foreign direct investment, such as the benefits and drawbacks of foreign investment, inflows of foreign investment to developing countries; and international mergers and acquisitions.

Questions

1 What are foreign market-entry alternatives?
2 Are US government restrictions on imports likely to increase or decrease foreign direct investment in the USA?

3 It is fair to assume that Toyota and Ford are automobile manufacturers that desire to benefit from economies of scale. Suppose that Toyota decides to establish distribution dealerships in foreign countries, while Ford decides to establish manufacturing subsidiaries in foreign countries. Which company is more likely to benefit from economies of scale? Which company has less to lose if the venture fails?
4 What are the distinct alternatives available to companies for their foreign investment?
5 What is the major difference in mergers and corporate governance between the USA and Japan?
6 Discuss some reasons for the recent decline of foreign direct investment in developing markets.
7 Explain why mergers are often more difficult to evaluate than the establishment of new production facilities.
8 What are the factors affecting international acquisitions?

Problems

1 GM is analyzing the acquisition of a British company for $1 million. The British company has expected cash flows of $90,000 per year. The synergistic benefits of the merger will add $10,000 per year to cash flow. Finally, the British company has a $50,000 tax loss carryforward that can be used immediately by GM. GM is subject to a 40 percent tax rate and has a 10 percent cost of capital. Should GM acquire this British company?
2 The cost of debt (10 percent), the cost of equity (15 percent), the tax rate (50 percent), and annual earnings after taxes ($10,000) are the same for a domestic firm and a multinational company. The firm's target debt ratio (optimum capital structure) is 20 percent, while the company's target debt ratio is 50 percent.
   (a) Determine the weighted average costs of capital for these two enterprises.
   (b) Determine the market values of the two enterprises.
3 Assume that the worldwide profit breakdown for Ford is 85 percent in the USA, 5 percent in Japan, and 10 percent in the rest of the world. On the other hand, the worldwide profit breakdown for Toyota is 40 percent in Japan, 35 percent in the USA, and 25 percent in the rest of the world. Earnings per share are $5 in the USA, $8 in Japan, and $10 in the rest of the world for both companies.
   (a) What are the weighted average earnings per share of Ford and Toyota?
   (b) Which company is likely to have the international competitive advantage?
4 We will assume that IBM is analyzing the acquisition of a privately held French company. The French company is more similar to Low Tech (LT) than any other company whose stock is traded in the public market. To establish a fair market price for the French company, IBM has compiled the statistics presented in the following table. Estimate the market value of

the French company (FM) in the following three ways: (a) the price–earnings ratio, (b) market value/book value, and (c) the dividend growth model.

Variables	*French company*	*Low Tech*
Earnings per share	$ 2.00	$ 4.00
Dividend per share in year 1	$ 1.50	$ 2.00
Annual dividend growth rate	0.04	0.04
Price per share	?	$40.00
Book value per share	$16.00	$20.00
Cost of equity	?	0.14
Number of shares outstanding	1 million	1.2 million

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Case Problem 17: BP's Acquisition of Amoco

On December 31, 1998, British Petroleum PLC (BP) bought Amoco Corp., the fourth-largest US oil company, for $52.41 billion in stock, then the largest industrial merger in history. This deal surpassed the $40.5 billion dollar purchase of Chrysler Corp. by Germany's Daimler-Benz AG, completed in November 1998. The combined company, named BP Amoco, would remain the world's third-largest oil company, but the deal would make it a bigger rival to the number one, Royal Dutch/Shell, and the number two, Exxon Corp., in size and scope (see figure 17.7): $108 billion in annual revenue, 14.8 billion barrels in oil and gas reserves, 1.9 million barrels of daily oil production, $6.4 billion in annual profit, $132 billion in market value, and 100,000

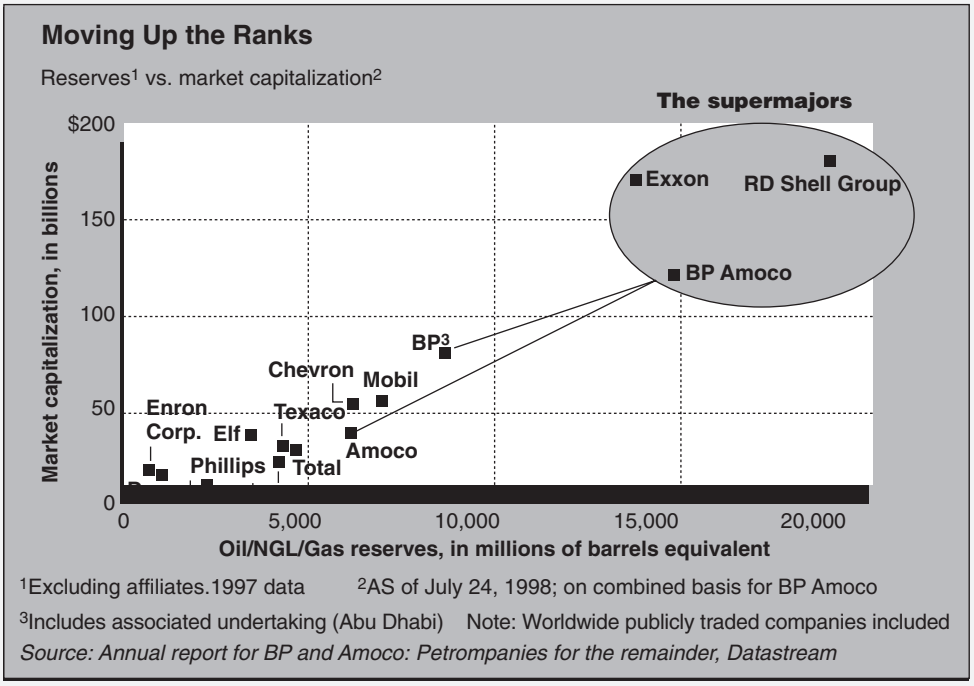

Figure 17.7 Major oil companies: their reserves and market capitalization
Source: BP Amoco.

employees. Amoco shareholders received a 0.66 BP American depository receipt for each share of Amoco. This price represents a premium of about 15 percent to the value of Amoco before the merger. BP used the pooling-of-interest accounting treatment in acquiring Amoco instead of the purchase-of-asset accounting treatment.

"The potential for cost-cutting and improving efficiencies is enormous," said analyst Fadel Gheit at Fahne-Stock & Co. "There will be no weakness in the new company, which will have the two top international players looking over their shoulders."

By combining operations, BP Amoco contended that it would cut $2 billion in annual costs from its operations by the end of the year 2000, boost its annual pretax profits by a few hundred million dollars in the next 2 years, and reduce the cost of capital substantially. This combined company failed to increase its earnings in 1999, but the merger boosted shareholder value substantially through December 1999.

BP had already demonstrated that it knows how to hold down costs, most notably during a big reorganization that took place in the early 1990s, when it slashed its payroll deeply. Now, led by Chief Executive John Brown, BP was expected to apply some of the same discipline to Amoco, whose performance on the cost-cutting front had lagged. But, just as important, there was also the potential for substantial growth. The combined company's revenues would enable it to finance more development itself, keep costs down, and help win more victories at auctions of oil reserves.

Analysts stated that the assets of these two companies complimented each other. BP brought a huge worldwide exploration and production operation to the company, plus a strong European retail network. As for Amoco, it was the largest natural gas producer in North America and had a large US gasoline marketing network. Both companies had petrochemicals operations that would become among the largest in some areas. Both also operated in the niche area of solar energy and would pose a challenge to that market's leader, Germany's Siemens AG.

More specifically, BP Amoco Chairman John Brown said that beyond the projected $2 billion in savings, he expected additional savings and growth opportunities. He pointed to such areas as Azerbaijan, the oil-rich Central Asian nation where both companies are major players. Other synergies would include deeper-water exploration and production, where BP would bring its expertise to Amoco's fields in the Gulf of Mexico. Similarly, the deal could combine Amoco's lower development costs with BP's cheaper exploration costs.

Since BP announced its proposed acquisition of Amoco in August 1998, a wave of merger activity has hit the oil industry. These more recent acquisitions include Exxon's agreement to buy Mobile for $75 billion, BP Amoco's proposed merger with Arco for $25 billion, the agreement by France's Total SA to buy Belgium's Petrofina SA for $15 billion, and proposed alliances among national oil companies of Brazil, Mexico, Saudi Arabia, and Venezuela. Why have all these oil mergers and alliances happened in recent years? First, the most successful companies, such as BP and Exxon, had already slashed costs. When costs have been cut to the bone, merger remains a route to higher profits. Second, advances in drilling and other oil technologies have enabled oil companies to discover previously untapped oil fields. In addition, these new technologies have allowed hundreds of players to produce ever larger amounts of petroleum at ever lower costs.

Case Questions

1 Explain how BP Amoco could cut $2 billion in costs and boost annual pretax profits by a few hundred million dollars for the first 2 years.
2 Explain how this merger could reduce its cost of capital substantially.
3 Why did BP treat its merger with Amoco as a pooling transaction rather than a purchase transaction?
4 Explain how the BP–Amoco merger could boost its shareholder wealth as reflected by its stock price. According to the case, the combined company did not earn more money after the merger, but its stock price increased. How do you explain this apparent conflict between earnings and stock price?
5 Briefly explain American depository receipts. The last closing price per share for Amoco stock was about $52. What was the closing price of BP American depository receipts (ADRs) on its last trading day?

6 Some websites, such as www.dbc.com and www.quicken.com, provide many pieces of information about publicly held companies for investors. Use several websites of your choice to compare some key financial statistics of BP Amoco with those of its major competitors.

Sources: B. Bahree, "Big Oil Mapped Mergers Before Turmoil," *The Wall Street Journal*, Dec. 9, 1998, p. A17; R. Frank and S. Liesman, "While BP Prepares New US Acquisition, Amoco Counts Scars," *The Wall Street Journal*, Mar. 31, 1999, pp. A1, A8; G. Steinmetz, C. Goldsmith, and S. Lipin, "BP to Acquire Amoco in Huge Deal Spurred by Low Energy Prices," *The Wall Street Journal*, Aug. 12, 1998, pp. A1, A8; and BP Amoco *Annual Report*, 1998 and 1999.

CHAPTER 18

International Capital Budgeting Decisions

Opening Case 18: External Factors Affecting Foreign Project Analysis

Foreign-exchange rates, interest rates, and inflation are three external factors that affect multinational companies (MNCs) and their markets. Changes in these three factors stem from several sources, such as economic conditions, government policies, monetary systems, and political risks. Each factor is a significant external variable that affects areas such as policy decisions, strategic planning, profit planning, and budget control. To minimize the possible negative impact of these factors, MNCs must establish and implement policies and practices that recognize and respond to their influences.

These three factors – exchange rates, interest rates, and inflation – affect sales budgets, expense budgets, capital budgeting, and cash budgets. However, they are particularly useful when evaluating international capital budgeting alternatives. Foreign-exchange rates have the most significant effect on the capital budgeting process. A foreign investment project will be affected by exchange rate fluctuations during the life of the project, but these fluctuations are difficult to forecast. There are methods of hedging against exchange rate risks, but most hedging techniques are used to cover short-term positions.

The cost of capital is used as a cutoff point to accept or reject a proposed project. Because the cost of capital is the weighted average cost of debt and equity, interest rates play a key role in a capital expenditure analysis. Most components of project cash flows – revenues, variable costs, and fixed costs – are likely to rise in line with inflation, but local price controls may not permit internal price adjustments. A capital expenditure analysis requires price projections for the entire life of the project. In some

countries, the inflation rate may exceed 100 percent during a 3-year period, a condition known as hyperinflation. These and other factors related to inflation make the capital budgeting process extremely difficult.

Source: Paul V. Mannino and Ken Milani, "Budgeting for an International Business," *Management Accounting*, Feb. 1992, pp. 36–41.

The basic principles of analysis are the same for foreign and domestic investment projects. However, a foreign investment decision results from a complex process, which differs, in many aspects, from the domestic investment decision.

Relevant cash flows are the dividends and royalties that would be repatriated by each subsidiary to a parent firm. Because these net cash flows must be converted into the currency of a parent company, they are subject to future exchange rate changes. Moreover, foreign investment projects are subject to political risks such as exchange controls and discrimination. Normally, the cost of capital for a foreign project is higher than that for a similar domestic project. Certainly, this higher risk comes from two major sources, political risk and exchange risk.

This chapter is composed of four major sections. The first section describes the entire process of planning capital expenditures in foreign countries beyond 1 year. The second section examines how international diversification can reduce the overall riskiness of a company. The third section compares capital budgeting theory with capital budgeting practice. The fourth section covers political risk analysis.

18.1 The Foreign Investment Decision-Making Process

The foreign investment decision-making process involves the entire process of planning capital expenditures in foreign countries beyond 1 year. The 1-year time frame is arbitrary, but a 1-year boundary is rather widely accepted. There are many steps and elements in this process. Each element is a subsystem of the capital budgeting system. Thus, the foreign investment decision-making process may be viewed as an integral unit of many elements that are interrelated. Here we assume that the entire foreign investment decision-making process consists of 11 phases: (1) the decision to search for foreign investment, (2) an assessment of the political climate in the host country, (3) an examination of the company's overall strategy, (4) cash flow analysis, (5) the required rate of return, (6) economic evaluation, (7) selection, (8) risk analysis, (9) implementation, (10) expenditure control, and (11) post-audit.

18.1.1 The search for foreign investment

The availability of good investment opportunities sets the foundation for a successful investment program. Hence, a system should be established to stimulate ideas for capital expenditures abroad and to identify good investment opportunities. Moreover, good investment opportuni-

ties come from hard thinking, careful planning, and, frequently, large outlays for research and development.

The first phase in the foreign investment decision-making process is an analysis of the forces that lead some company officials to focus on the possibilities of foreign investment. If a company recognizes foreign investment as a legitimate program, its search for foreign investment opportunities will start. The economic and political forces in the host countries are largely responsible for the expansion of foreign investment. Many companies also desire foreign investment to seek new markets, raw materials, and production efficiency. Chapter 2 described these and other motives for foreign investment in detail.

It is not easy to pinpoint one motive for a decision to invest abroad in any particular case or to find out exactly who initiated a foreign project. The decision to search for foreign investment comes at the end of a series of events, and it is a combination of several motivating forces and activities of different persons. Typically, the decision to look abroad depends on the interaction of many forces. Considerations such as profit opportunities, tax policy, and diversification strategies are economic variables that may affect a decision to look overseas. In addition, environmental forces, organizational factors, and a drive by some high-ranking officials inside a company could be major forces leading a company to look abroad.

18.1.2 The political climate

Political risks may exist for the domestic investment. Price controls may be established or lifted, some regulated industries may be deregulated, or quotas and tariffs on cheap imported components may be imposed. Certainly, there are more political risks in foreign investment. For one thing, at least two national governments become involved in a foreign investment project – that of the home country of the parent company and that of the host country of the subsidiary. The goals of the two countries may differ; laws may change; rights to repatriate capital may be modified; and, in an extreme situation, assets may be seized by a host government without adequate compensation.

One major concern of MNCs is the possibility that the political climate of a host country may deteriorate. The multinational financial manager must analyze the political environment of the proposed host country and determine whether the economic environment would be receptive to the proposed project. In general, projects designed to reduce the country's need for imports and thus save foreign exchange are given the highest priority by the host government.

Political actions, such as exchange controls and discrimination, adversely affect company operations. Thus, the analyst should emphasize such factors as the host government's attitudes toward foreign investment, the desire of the host country for national rather than foreign control, and its political stability. The analyst should also determine whether adequate and prompt compensation is guaranteed if a host country nationalizes alien assets in the public interest.

18.1.3 The company's overall strategy

If the initial screening of the political climate is favorable, the MNCs can move on to the next stage of the decision-making process. The analyst then assesses the usefulness of each alternative within the company's overall strategy to determine how foreign operations may perpetuate current

strengths or offset weaknesses. This approach allows a company to reduce alternatives to a manageable number. At this stage, the company must check whether the project conflicts with company goals, policies, and resources. The analyst must also evaluate whether the company has the experience to handle the project and how the project could be integrated into existing projects.

The company's overall strategy consists of objectives, policies, and resources. In capital expenditure analysis, there are objectives to be attained and policies designed to achieve these objectives. If a particular set of policies is not consistent with the stated objectives, either the policies or the objectives should be revised. The company must also have resources necessary to carry out its policies. If resources are not available, they must be acquired, or the policies and/or the objectives must be revised.

THE COMPANY GOAL The primary goal of the MNC is to maximize its stock price. The market price of the firm's stock reflects the market's evaluation of its prospective earnings stream over time and the riskiness of this stream. Thus, the company must attempt to accept projects whose profits are higher and whose risks are lower.

COMPANY POLICY If the company has carefully established policies to achieve its goal, it can overcome the threat of competitors and use its oligopolistic advantages. The company should systematically evaluate individual entry strategies in foreign markets, continuously audit the effectiveness of current entry modes, and use appropriate evaluation criteria.

COMPANY RESOURCES Resources are assets that enable the company to carry out its objectives and policies; they include marketing skills, management time and expertise, capital resources, technological capabilities, and strong brand names.

18.1.4 Cash flow analysis

The fourth stage of the screening process involves a standard cash flow analysis. The after-tax cash outflows and inflows directly associated with each project must be estimated to evaluate capital investment alternatives. An MNC must forecast its expected expenditures for the proposed project. Ordinarily, it obtains these forecasts from data of similar ventures. A company may also make forecasts by such techniques as the percent-of-sale method or a linear regression analysis. An important difference in the application of cash flow analysis for foreign investment is that a company must make two sets of cash flow analyses, one for the project itself and one for the parent company.

THE DEMAND FORECAST The first step in analyzing cash flows for any investment proposal is a forecast of demand. These estimates of usage are highly correlated with historical demand, population, income, alternative sources of products, competition, the feasibility of serving nearby markets, and general economic conditions.

There are a number of reasons for emphasizing market size in the investment decision-making process. First, the expected market size can be used as an indication of profit possibilities for the proposed investment project. Second, small markets tend to have high uncertainty. If a market

is small, the MNC has little or no leeway in case of an erroneous estimate. Third, small markets are not worth the effort. Because management is one of scarce resources in a company, the proposed project should be large enough to support management time on project analysis.

DUTIES AND TAXES Because foreign investment cuts across national boundaries, a unique set of tax laws and import duties may be applicable. An MNC must review the tax structure of the host country. In this analysis, the evaluator would include the definition of a taxable entity, statutory tax rates, tax treaties, treatment of dual taxation, and tax incentive programs. The MNC should also know whether the host government imposes customs duties on imported production equipment and materials not obtainable from local sources.

FOREIGN-EXCHANGE RATES AND RESTRICTIONS Another important feature of foreign investment analysis is that project inflows available to the investor are subject to foreign-exchange rates and restrictions. When the host country has a stable exchange rate, no problems are presented. However, if the exchange rate is expected to change or allowed to float, cash flow analysis becomes more complicated, because the analyst must forecast the exchange rate that may be applicable to convert cash flows into hard currencies.

It is equally important to recognize that many host governments have various exchange control regulations. Under these regulations, permission may be required to buy foreign exchange with local currency for payment of loan interest, management fees, royalties, and most other billings for services provided by foreign suppliers. Processing applications for permission to purchase foreign exchange may take a long time. Moreover, the granting of permission to buy foreign exchange does not guarantee that a related foreign exchange will be available in time, because commercial banks can allocate only such amounts as are made available by a central bank.

Many factors affect the blockage of funds to nonresidents. They include an expected shortage of foreign exchange, a long-run deficiency of the foreign exchange, and certain types of domestic political pressures. If all funds are blocked in perpetuity, the value of a project is zero to the parent company. However, in actuality funds are likely to be only partially blocked, because MNCs have many ways to remove blocked funds. These methods include transfer price adjustments, loan repayments, royalty adjustments, and fee adjustments. Furthermore, most host countries limit the amount of fund transfers to nonresidents or block the transfer of funds only on a temporary basis. Nevertheless, MNCs must analyze the effect of blocked funds on project return. It is critical that an analyst determines the amount of blocked funds, their reinvestment return, and ways in which funds can be transferred under the host country's law.

PROJECT VERSUS PARENT CASH FLOWS To determine after-tax profits from a proposed project, the MNC must develop a demand forecast, forecast its expected expenditures, and review the tax structure of the host country. The estimated sales, less estimated expenses, plus noncash outlays such as depreciation, gives the cash inflows from operations.

Typically, an MNC desires to maximize the utility of project cash flows on a worldwide basis. The MNC must value only those cash flows that can be repatriated, because only these funds can be used for investment in new ventures, for payment of dividends and debt obligations, and for reinvestment in other subsidiaries. Project cash flows would have little value if they could not be used for these alternatives.

Project cash flows and parent cash flows can be substantially different due to tax regulations and exchange controls. Moreover, some project expenses, such as management fees and royalties, are returns to the parent company. In general, incremental cash flows to the parent company are worldwide parent cash flows after investment minus worldwide parent cash flows before investment. These differences raise the question of which cash flows should be used as the relevant cash flows in project evaluation. Because the value of a project is determined by the net present value of future cash flows to an investor, a foreign investment analyst should use cash flows available for repatriation as the relevant cash flows. Hence, the MNC must analyze the impact of taxation, exchange controls, and other operational restrictions on cash flows to the parent company.

CAPITAL BUDGETING AND TRANSFER PRICING Cash flow analysis of a foreign investment project involves many unique environmental variables. They include (1) different tax systems, (2) foreign-exchange risk, (3) project versus parent cash flows, (4) restrictions on remittance of funds, and (5) political, financial, and business risks. In these five environmental variables, a transfer pricing policy is an integral part of each of the following three issues: First, MNCs should know the amount of funds they can withdraw from their foreign investment. Transfer price adjustments, dividends, royalties, and management fees are the only techniques to withdraw funds where there are restrictions on fund flow movements. Second, transfer pricing policies are regarded as one of the best ways to reduce a variety of taxes, such as income taxes, tariffs, and other taxes. Third, transfer pricing policies are one of the better means of minimizing foreign-exchange losses from currency fluctuations, because they enable MNCs to shift funds from one country to another. However, it is important to understand that use of market-based transfer prices may lead to the better investment decision, because transfer price adjustments may significantly distort the profitability of a foreign project.

18.1.5 The cost of capital

The **cost of capital** is the minimum rate of return that a project must yield in order to be accepted by a company. This minimum rate of return is sometimes called the discount rate or the required rate of return. The cost of capital is an extremely important financial concept. It acts as a major link between the firm's foreign investment decision and the wealth of the owners as determined by investors in the global marketplace. It is in effect the "magic number" used to decide whether a proposed foreign investment will increase or decrease the firm's stock price. Clearly, only those projects expected to increase stock price would be accepted. Because it plays a key role in international capital expenditure analysis, chapter 19 discusses the cost of capital for foreign investment projects in detail.

18.1.6 Economic evaluation

Once cash flows and the required rate of return have been determined, the company begins the formal process of evaluating investment projects. Many techniques have been developed for evaluating projects under conditions of certainty. They range from simple rules of thumb to sophisticated mathematical programming methods. The four most commonly used methods for an

economic evaluation of individual projects are payback, average rate of return, internal rate of return, and net present value.

The literature on capital expenditure analysis favors the net-present-value and internal-rate-of-return methods, which are sometimes called the **discounted cash flow approaches**. The two discounted cash flow approaches provide a more sophisticated basis for ranking and selecting investment projects, because the payback and average-rate-of return methods have various limitations. These two methods clearly recognize that money has a time value and that money in the near future is more valuable than money in the distant future. They also use the cash flows of a project over its entire life span. Analysts can avoid difficult problems underlying the measurement of income by using cash flows, thus eliminating such irrelevant influences as depreciation methods and inventory valuation.

The **net present value** of a project is the present value of its expected cash inflows minus the present value of its expected cash outflows. The **internal rate of return** is the discount rate that equates the present value of the net cash flows to the present value of the net cash investment, or the rate that provides a zero net present value. The decision rule tells us to (1) accept a project if its net present value is positive and (2) accept a project if its internal rate of return is greater than a firm's cost of capital.

The net-present-value and internal-rate-of-return methods lead to the same decision in many situations. These two rules lead to the same decision if the following conditions hold:

1 Investment proposals under consideration are mutually independent and they are free of capital rationing constraints.
2 All projects are equally risky, so that the acceptance or rejection of any project does not affect the cost of capital.
3 A meaningful cost of capital exists to the extent that a company has access to capital at that cost.
4 A unique internal rate of return exists; every project has just one internal rate of return.

In the absence of these assumptions, the two discounted cash flow approaches may lead to different decisions, thus making the capital budgeting decision much more complex.

When the net-present-value and internal-rate-of-return methods produce different answers, net present value is better for a number of reasons:

1 The net present value is easier to compute than the internal rate of return.
2 If the primary goal of a firm is to maximize the value of the firm, the net-present-value method leads to the correct decision, while the internal-rate-of-return method may lead to an incorrect decision.
3 A single project may have more than one internal rate of return under certain conditions, whereas the same project has just one net present value at a particular discount rate.
4 Once computed, the internal rate of return remains constant over the entire life of the project. This assumption about static conditions is hardly realistic during a period of rising interest rates and inflation. Uneven discount rates present no problems when the net-present-value method is used.
5 In the net-present-value method, the implied reinvestment rate approximates the opportunity cost for reinvestment. However, with the internal-rate-of-return method, the implied reinvestment assumption does not approximate the opportunity cost for reinvestment at all.

Although the net-present-value method is theoretically superior, the internal-rate-of-return method has certain advantages. First, internal rate of return is easier to visualize and interpret, because it is identical with the yield to the maturity of bonds or other securities. Second, we do not need to specify a required rate of return in the computation. In other words, it does not require the prior computation of the cost of capital. Third, business executives are more comfortable with internal rate of return, because it is directly comparable to the firm's cost of capital.

18.1.7 Selection

Each of the capital budgeting techniques described in the previous section measures the rate of return on a uniform basis for all projects under consideration. A project or a set of projects will be chosen at this stage if the following three assumptions hold: first, the company has a definite cutoff point that all projects must meet; second, all cash outflows and inflows from each project are known with absolute certainty; and, third, the company's investment programs are not constrained by any lack of funds. The final selection of projects depends on three kinds of capital budgeting decisions: the accept–reject decision, the mutually exclusive choice decision, and the capital rationing decision.

The selected project must successfully pass the accept–reject decision. If projects under consideration are mutually independent and not subject to capital rationing constraints, the company must accept all projects whose expected rate of return exceeds its hurdle rate in order to maximize stockholder wealth. The **hurdle rate** may be based on the cost of capital, the opportunity cost, or some other arbitrary standard. However, it is important to recognize the possibility that (1) certain projects may compete with each other and (2) available projects may exceed available funds. Mutual exclusiveness and capital rationing constraints are two cases in which otherwise profitable projects are rejected. Investment proposals are said to be mutually exclusive if the acceptance of one project means the rejection of all the other projects. Capital rationing refers to an upper ceiling on the size of capital expenditures during a given period of time.

18.1.8 Risk analysis

Up to this point, we have assumed that the dollar cash flows will certainly occur. In reality, all foreign investment projects are subject to various risks – business and financial risks, inflation and currency risks, and political risks. A change in some of these risks may have a decisive impact on the financial consequences of a particular project. Furthermore, the risks vary widely from country to country.

Only a few of the financial variables are normally known with a fair degree of accuracy in advance. Investors are basically risk averters. If investors do not know in advance exactly which future events will occur, they will have to determine the risk–return trade-off in order to choose attractive projects.

Many MNCs use the risk-adjusted discount rate and the certainty equivalent approach to adjust for project estimates. The **risk-adjusted discount rate** is a rate that consists of the risk-less rate of return plus a risk premium. Assume that the cost of capital for a firm is 10 percent

when the riskless rate of return is 7 percent. This 3 percent difference between the cost of capital and the riskless rate of return reflects the degree of risk for the company. The company may increase its discount rate by 2 percent to a total of 12 percent for a mildly risky project, by 5 percent to a total of 15 percent for a more risky project, and so on. Hence, the risk-adjusted discount rate accounts for the time value of money and the relative risk of the project in terms of a risk premium.

The **certainty equivalent approach** is a method used to adjust for project risk in the numerator of the net-present-value formula. In other words, while the risk-adjusted discount rate adjusts for risk in the denominator of the net-present-value formula, the certainty equivalent approach adjusts for risk in the numerator of the same equation.

When an analyst uses the certainty equivalent approach, the annual cash flows are multiplied by a certainty equivalent coefficient, which is a certain cash flow divided by an uncertain cash flow. If the analyst is indifferent between a certain $140 and an uncertain $200, its coefficient is 0.70 ($140/$200). The coefficient assumes a value of between 0 and 1. It varies inversely with risk. If a firm perceives greater risk, it uses a lower coefficient that would deflate the dollar return value. Once all the risky cash flows are adjusted downward to reflect uncertainty through the use of the coefficient, the analyst then discounts these certain cash flows at the risk-free rate of interest to determine the certain net present value.

18.1.9 Implementation, control, and post-audits

The last three steps of the capital budgeting system consist of implementation, expenditure control, and post-audits.

IMPLEMENTATION Authorization to expend funds for the accepted projects may be obtained by submission of individual capital expenditure requests in accordance with formal procedures set forth by the budget director. These procedures typically cover the use of standard forms, the channels for submission and review, and the authority requirements and limits for approval.

CONTROL There is a specific phase of the capital budgeting process during which the practical cost control of a foreign project becomes important. This is the time between the approval of the project and its completion. The expenditure control of a foreign project in process is designed to increase the probability that it is completed within the established guidelines. This phase is particularly important for foreign investment projects, because operations are typically supervised from a distance.

POST-AUDIT Because multinational capital budgeting decisions are made on the basis of assumptions in foreign countries, estimates and actual results may differ. Thus, when a foreign project is completed, the firm should perform a post-audit on the entire project to determine its success or failure. The results of post-audits enable the firm to compare the actual performance of a foreign project with established standards. If the capital budgeting process used by an MNC has been successful, the system is likely to be reinforced. If the system has been unsatisfactory, it is likely to be revised or replaced for future foreign projects.

Example 18.1

In September 2004, the government of Jordan requested that the International TV Corporation establish a plant in Jordan to assemble television sets. The company wishes to invest 1,500 Jordanian dinars in the proposed plant in return for an increase in tariffs against other companies in the industry. The JD1,500 will be financed with only common stock, all of which will be owned by the parent company. The plant is to be depreciated over a 5-year period on a straight-line basis for tax purposes. It is expected to have a salvage value of JD750 at the end of 5 years. The company will pay income taxes at 20 percent on net income earned in Jordan and no withholding taxes on dividends repatriated. In this case, the United States also has a 50 percent tax rate with direct credit for Jordanian taxes. This means that net income earned in Jordan by US companies will be subject to a total of 50 percent tax. Expected revenues, operating costs, and applicable exchange rates are given in tables 18.1–18.3. There is no restriction on dividend repatriation, but depreciation cash flows may not be repatriated until the company is liquidated. These cash flows can be reinvested in Jordanian government bonds to earn tax-exempt interest at the rate of 8 percent. The company's cost of capital is 15 percent.

Table 18.1 shows the projected cash flows for the proposed plant. It is important to recognize that for the first year a total tax of 50 percent (JD225) will be levied: 20 percent in Jordanian tax (JD90) and 30 percent in US tax (JD135).

Table 18.1 Projected earnings after taxes for the proposed project

	Year 1	*Year 2*	*Year 3*	*Year 4*	*Year 5*
Revenues	JD1,500	JD1,650	JD1,800	JD1,950	JD2,100
Operating costs	900	900	1,050	1,050	1,200
Depreciation	150	150	150	150	150
Taxable income	JD 450	JD 600	JD 600	JD 750	JD 750
Total tax at 50%	225	300	300	375	375
Earnings after tax	JD 225	JD 300	JD 300	JD 375	JD 375

Table 18.2 shows the depreciation cash flows and interest-compounded depreciation cash flows at the termination of the project at the end of 5 years. Thus, a total of JD880 will be repatriated to the USA along with the plant's fifth-year earnings of JD375 at the end of 5 years.

The last two steps in the analysis are: (1) to convert the cash flows from dinars to dollars and (2) to determine the net present value of the plant. Table 18.3 shows these two computation steps. It should be noted that the fifth-year cash flow of JD2,005 consists of dividends (JD375), the estimated salvage value of the plant (JD750), and the interest-accumulated depreciation cash flows (JD880).

The current exchange rate of five dinars to the dollar is expected to hold during the first year. However, the dinar is expected to depreciate at a rate of 5 percent per year after the

Table 18.2 Depreciation cash flows

Year	*Depreciation*	*Interest factor at 8%*	*Terminal value, year 5*
1	JD150	1.360	JD204
2	150	1.260	189
3	150	1.166	175
4	150	1.080	162
5	150	1.000	150
			JD880

Table 18.3 The parent's net present value

Year	*Cash flows*	*Exchange rate*	*Cash flows*	*Present value at 15%*	*Cum. net pres. value*
0	–JD1,500	5.00	–$300	–$300	–$300
1	225	5.00	45	39	–261
2	300	5.25	57	43	–218
3	300	5.51	54	36	–182
4	375	5.79	65	37	–145
5	2,005	6.08	330	164	19

first year. The expected cash flows in dollars are obtained by dividing the cash flows in dinars by the exchange rates. The dollar cash flows are then discounted at the firm's cost of capital (15 percent) to arrive at a present value figure for each year. Cumulative net present values are the final amounts given in table 18.3. We see that, from the parent's point of view, the plant would break even on a discounted cash flow basis during the fifth year. Because the net present value of the project is positive ($19), the International TV Corporation should accept the proposed plant in order to maximize the market value of the company. The project's internal rate of return is approximately 17 percent. Because the internal rate of return (17 percent) is greater than the cost of capital (15 percent), the internal-rate-of-return criterion also indicates acceptance.

18.1.10 Real option analysis

The literature on capital investment analysis pays insufficient attention to the possibility of future options over an investment project. Ordinarily, an investment project is evaluated as though a company were committed to the project over its entire economic life. However, it may be more profitable to expand or retire an investment project before the end of its estimated economic life rather than continue its operation. When investment proposals are originally considered, key financial variables are identified and assumptions are made in order to arrive at a choice. As time

passes, some unforeseen problems can occur and they could affect these key variables. Initial assumptions may turn out to be incorrect, or perhaps some additional investment opportunities may arise.

Real option analysis is the application of option pricing models to the evaluation of investment options in real projects. Option pricing models work best for simple options on financial assets, such as stocks, interest rates, currencies or commodities, but they are also useful for foreign investment analysis, because a key variable faced by every foreign project is uncertainty. Currency, political, and cultural risks are the most prominent additional risks in foreign investment. Additionally, business risk on foreign projects is higher than that of domestic projects. When uncertainty is high, an MNC's investment opportunities can be viewed as real options (Butler 2004). Real options include (1) options to expand or contract, (2) options to accelerate or delay, and (3) options to continue or retire.

18.2 Portfolio Theory

In the real world, practically no company or individual invests everything in a single project. Thus, it is useful to consider the risk and return of a particular project in conjunction with its counterparts in existing assets or new investment opportunities. **Portfolio theory** deals with the selection of investment projects that would minimize risk for a given rate of return, or that would maximize the rate of return for a given degree of risk. Such a portfolio is sometimes called the optimum portfolio.

Markowitz and Sharpe developed a powerful technique for a simultaneous risk–return analysis of multiple projects. Although the technique was applied first for the selection of portfolios of common stocks, it is also applicable to the evaluation of capital investment projects. This approach employs two basic measures: an index of expected value and an index of risk. The expected value for a portfolio of investments is simply the sum of the individual present values for the projects that make up the portfolio. The standard deviation as a measure of risk for the portfolio, however, is not so easily measured. There are many business situations in which the risks of individual projects tend to offset each other. Thus, successful diversification makes it possible for the company to have the risk of a portfolio less than the sum of the risks of the individual projects.

Example 18.2

A company has two proposed projects in an isolated Caribbean island whose major industry is tourism: (A) build a suntan lotion factory and (B) build a disposable umbrella factory. Project A's sales, earnings, and cash flows are highest in sunny years. Contrary to project A, project B's sales, earnings, and cash flows are highest in rainy years. Project A has a cost of $800, while project B has a cost of $1,000. These two projects are mutually independent and their possible net cash flows at the end of 1 year are given in table 18.4. Assume that the cost of capital is 5 percent.

Table 18.4 Net cash flows under different weather conditions

		Net cash flows	
Weather conditions	*Probability*	*Project A*	*Project B*
Sunny year	0.50	$2,000	$ 0
Rainy year	0.50	0	2,000

Because the expected net cash flow for each project is $1,000 ($2,000 × 0.5 + $0 × 0.5), their net present values (NPV) are computed as follows:

$$NPV_A = \frac{\$1{,}000}{(1.05)^1} - \$800 = \$152$$

$$NPV_B = \frac{\$1{,}000}{(1.05)^1} - \$1{,}000 = -\$48$$

The standard deviation of a project (σ) is computed as follows:

$$\sigma = \sqrt{\sum_{i=1}^{n} (R_i - R)^2 P_i} \tag{18.1}$$

where R_i is the net cash flow associated with the ith event (i.e., a particular weather condition such as a sunny summer or a rainy summer), R is the expected net cash flow, and P_i is the probability of the ith event. Thus, the standard deviations of projects A and B can be obtained as follows:

$$\sigma_A = \sqrt{(\$2{,}000 - \$1{,}000)^2 (0.50) + (\$0 - \$1{,}000)^2 (0.50)} = \$1{,}000$$

$$\sigma_B = \sqrt{(\$0 - \$1{,}000)^2 (0.50) + (\$2{,}000 - \$1{,}000)^2 (0.50)} = \$1{,}000$$

Project A has a net present value of $152 and project B has a net present value of –$48. Both projects have an equal standard deviation of $1,000. Project B would have no chance of being accepted, because its expected net present value is negative. Project A has a positive net present value of $152, but most investors are likely to reject the project because its risk is too high.

We can completely eliminate unsystematic risk by combining these two projects, because the unsystematic risks of individual projects tend to offset each other. Whether you have a sunny year or a rainy year, the expected net cash flow of this combination is $2,000 and their combined net present value is $104 ($152 – $48). The standard deviation of this two-project portfolio is zero (0) because the portfolio always produces a net present value of $104. When we consider projects A and B separately, both projects are clearly undesirable. However, when we treat them as a portfolio, we find the portfolio acceptable.

Total risk elimination is possible in example 18.2 because there is a perfect negative relation between the returns on projects A and B. In practice, such a perfect relation is rare. The returns on most domestic projects are highly interrelated with each other, because they depend on the same state of economy. However, the returns on foreign projects and domestic projects are less interrelated with each other, because they depend on different states of economy. As a result, international diversification is more effective than domestic diversification.

18.3 Capital Budgeting Theory and Practice

18.3.1 Project evaluation techniques

Over 35 years have passed since Stonehill and Nathanson (1968) surveyed 110 US and non-US MNCs to determine their foreign capital budgeting practices. Since then, research on the subject has not only refined its theoretical base but also expanded the knowledge of actual practices used by MNCs. The literature on foreign capital investment theory reveals that business firms should use discounted cash flow techniques for ranking and selecting overseas projects, because these methods recognize the time value of money and employ cash flows of a project over its life span.

Table 18.6 (see Case Problem 18) illustrates the extent to which discounted cash flow methods were used by MNCs that participated in various surveys from 1980 to 1994. These empirical studies revealed two important points: first, discounted cash flow approaches are more popular than rules of thumb; and, second, internal rate of return is more popular than net present value. Thus, most MNCs use discounted cash flow approaches for ranking and selecting overseas projects. The five studies cited in table 18.6 show that at least half of the respondents used discounted cash flow approaches, ranging from 50 percent according to Kelly's study to 81 percent in Stanley's study.

18.3.2 Company goals

Most leading finance textbooks now agree with Anthony (1960) and Donaldson (1963) that a firm should, first of all, maximize the wealth of stockholders. The best measure of stockholder wealth is the market value of a firm's stock, because the market value reflects the effects of all financial decisions. The financial decisions made by the managers of a firm determine the level of its stock price by affecting the riskiness and size of its earnings. In other words, the maximization of stockholder wealth depends on the trade-off between risk and return. These relationships are diagramed in figure 18.1. Although practically all financial decisions involve such risk–return trade-offs, this model is particularly important for capital budgeting decisions because capital investments are profitable, but they are subject to a variety of risks.

Investment decisions – usually requiring very large sums of money – are made in expectation of benefits over an extended period. Once capital budgeting decisions have been made, they are extremely costly to reverse. Most used plant and equipment have a limited market. In certain areas, production methods are rapidly outmoded by increasingly higher levels of technology. Moreover, most financial variables used in the analysis of capital expenditures are not accurately known in advance. Because investors and business executives are risk averters, efficient management of capital expenditures has become essential for healthy company growth.

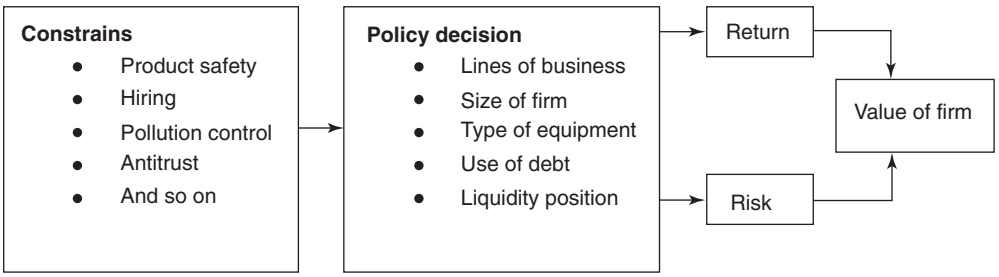

Figure 18.1 The risk–return trade-off and company goals

In other words, more sophisticated capital budgeting techniques may be economically justified only if they increase the total value of a firm. Academic writers favor "sophisticated" capital budgeting techniques (e.g., the net-present-value method) over rules of thumb (e.g., the payback method). They argue that use of sophisticated methods will lead to higher earnings and less risk, thereby increasing the market price of the common stock. Thus it seems reasonable to suspect that a significant relationship exists between stock prices and capital budgeting practices. The hypothesis may be stated in the following way: firms using a more sophisticated capital budgeting system enjoy higher stock prices than do firms using a less sophisticated capital budgeting system.

Risk and performance measures based on the firm's common stock market values are better than risk and performance measures based on any other criterion. However, most writers on capital budgeting reject this view on the grounds that shareholders know little about corporate capital budgeting practices. Therefore, previous research studies have determined firm risk and performance measures from accounting data. To investigate the changes and effects of capital budgeting practices on risk and return, we can examine the results of capital budgeting studies to test the following two hypotheses:

1 Firms using a more sophisticated capital budgeting system have greater profitability than firms using a less sophisticated system.
2 Firm using a more sophisticated capital budgeting system are less risky than firms using a less sophisticated system.

Our literature review indicated that only a handful of empirical studies had tested these two hypotheses. Some tested these two hypotheses for domestic investment projects, but these studies found no significant relationship between budgeting practices and risk or return. We found only one such study for foreign investment projects. The study of 121 respondents by Stanley and Block (1984) revealed a strong interest in stockholder wealth maximization as the primary goal of the firm. In explaining why firms in their study might choose one capital budgeting method over another, the factors of firm size, corporate goals, beta coefficients (systematic risk), and foreign sales as percent of total sales were used to test for significant relationships. However, their study failed to establish any significant relationship between capital budgeting practices and earnings performance (stockholder wealth maximization) or risk (beta coefficients). Stanley and

Block, like other researchers, narrowly defined capital budgeting practices as the use or nonuse of specific capital budgeting methods, such as payback or internal rate of return.

18.4 Political Risk Management

Foreign investment decisions must be made today on the basis of the likely political climate for many years to come. **Political risk** is an assessment of economic opportunity against political odds. Thus, political risk assessment requires that MNCs evaluate both economic and political indicators. Political risk management refers to steps taken by companies to protect against economic losses from unexpected political events.

When the goals of MNCs and their host countries conflict, MNCs face a variety of political risks. The primary goal of an MNC is to maximize the wealth of its stockholders. On the other hand, most host countries desire to develop their economies through greater utilization of local factors of production, in order to maintain more control over key industries through less reliance on foreign capital and know-how, and to strengthen their international position through fewer imports and more exports.

Multinational investors should understand the forces at work when political uncertainty occurs, so that they can forecast future business climates, establish appropriate objectives, and take precautionary measures when necessary. In this section, we discuss the nature of political risks, types of political risks, political risk forecasting, and responses to political risks.

18.4.1 The nature of political risks

Traditionally, conflicts between MNCs and host countries have occurred over such issues as conversion of an economy to the style of a specific political system, joint ventures, control of key industries, contribution to balance of payments, national sovereignty, and economic development. Such conflicts are not limited to developing countries. More subtle, yet very real, conflicts exist between MNCs and developed countries.

It is frequently difficult to separate political and economic risks. While government decisions are political by definition, underlying forces behind the decisions may be purely economic. For example, funds to nonresidents may be blocked because of an unexpected shortage of foreign exchange or a long-run deficiency of the foreign exchange, instead of certain types of domestic political pressures. Some government decisions are partly political and partly economic. The United Nations imposed economic sanctions against Iraq in the fall of 1990 because of Iraq's invasion of Kuwait. The Organization of American States imposed economic sanctions against Haiti in 1994 because of Haiti's human rights violations. Finally, the USA and several other Western countries have imposed a variety of economic sanctions against Afghanistan, Cuba, Iran, Libya, and North Korea for many years.

Countrywide political risks depend on three broad groups of variables: political climate, economic climate, and foreign relations. The political climate may be measured by tendencies toward subversion, rebellion, or political turmoil. Multinational investors should consider such factors as levels of political violence, the existence of extreme tendencies among political parties, and recurring governmental crises.

Investment analysts should make an overall assessment of the economic climate to protect foreign investment from political risks. Relevant economic factors include the likelihood of government intervention in the economy, levels of interest and inflation rates, persistent balance-of-payments deficits, levels of foreign debts, and worsening monetary reserves.

Finally, multinational investors should determine the extent to which host countries manifest hostility toward other countries. Important factors here are incidence of conflict with their neighbors, evidence of an arms race, and sizes of defense budgets.

18.4.2 Types of political risk

Empirical studies have revealed some interesting findings about the attitudes of US and British MNCs toward political risk. Kelly and Philippatos (1982) surveyed 67 US companies to obtain the perceived importance of five variables in political risk. Goddard (1991) surveyed 51 British companies to determine the importance of six variables in political risk. Ranked in descending order of importance, their findings appear in table 18.5. Although there are several different types of political risk, these risks can be divided into two broad categories for all practical purposes: actions that restrict the freedom of a foreign company to operate in a given host environment, and actions that result in the takeover of alien assets.

OPERATIONAL RESTRICTIONS Actions that restrict the freedom of a foreign company include operational restrictions such as employment policies; locally shared ownership; loss of transfer freedom; exchange controls; financial, personal, or ownership rights; breaches or unilateral revisions in contracts and agreements; discrimination through taxes or compulsory joint ventures; and damage to property or personnel from riots, revolutions, and wars.

Funds are usually blocked in the host country when operational restrictions are imposed. There are a number of ways to remove blocked funds. The most obvious way is to arrange swaps between corporations. Here, each corporation lends to the other in the country where its own funds are restricted. Other methods include transfer price adjustments and other adjustments

Table 18.5 Types of political risk and their importance

USA		*UK*	
Rank	*Variable*	*Rank*	*Variable*
1	Restrictions on remittances	1	Expropriation or nationalization
2	Operational restrictions on ownership, employment, and market shares	2	Political stability within the country
3	Expropriation or nationalization of dividends	3	Restrictions on remittances and royalties
4	Discrimination	4	Currency stability
5	Breaches in agreements	5	Tax changes
6	Others	6	Exchange controls

Source: Goddard, "Political Risk in International Capital Budgeting," in R. K. Kolb, ed., *The International Financial Reader*, Miami, FL: Kolb Publishing, 1991, p. 360.

such as fees, royalties, and loan repayments. Of course, most of these methods raise some serious ethical and legal questions. Moreover, black market operations may not be available for relatively large transfers of money and highly visible transactions, such as an attempt to terminate company operations in a small, developing country.

EXPROPRIATION Sales of business assets to local shareholders, compulsory sales of business assets to local and federal government units, and confiscation of business assets with or without compensation all come under the heading of **expropriation**.

Ball and McCulloch (1999) say that many governments nationalize both foreign and domestic companies, and may do so for a number of reasons:

1 The government believes that it could run the business more efficiently.
2 The government believes that the company is concealing its profits.
3 Left-wing governments, oftentimes after being elected, nationalize business firms.
4 Politicians wish to win popular support as they save jobs by putting dying industries on a life support system.
5 The government can control a company or industry by pumping money into the company or industry.

Business operations in foreign countries are subject to the power of host countries. It is customary to seize foreign assets for a public purpose without discrimination and with adequate compensation. Although these three rules are in accordance with traditional principles of international law, they have often been ignored by some developing countries.

Kennedy (1993) analyzed 79 countries in terms of political regimes and their expropriation policies. This study revealed that during the 1960–87 period, these 79 developing countries nationalized l,118 foreign companies in 599 separate actions. The overwhelming majority of expropriations were politically motivated acts that had been undertaken by only a few governments. In fact, only 28 governments out of more than the 300 total accounted for two-thirds of all acts of expropriation.

Figure 18.2 shows expropriation trends from 1960 to 1987. We could divide relations between MNCs and host governments into three eras: MNC domination (1945 to early 1960s), MNC–host government confrontation (mid-1960s to 1980), and MNC–host government realignment (1980s). The history of expropriation activity by less developed countries tracks these three periods quite well. By the mid-1960s, the number of expropriation acts had risen significantly, but the forced divestment of foreign direct investment was most pronounced in the 1970–9 period. In the 1980s, the number of expropriation acts dropped dramatically.

According to Kennedy (1993), there were six primary reasons why a significant upsurge in expropriation would not return in the 1990s and beyond. First, the international demonstration effect today discourages expropriation, because market-oriented systems and privatization are being adopted even in the most socialist of countries. Second, unlike the expectations of traditional dependency theorists, the history of mass expropriation has demonstrated that the economic consequences of such a policy are generally negative. Third, adverse economic consequences would be further aggravated today by the lack of foreign aid from socialist countries, which helped cushion this negative impact in the past. Fourth, if the move toward a market-oriented system and privatization creates significant real growth and prosperity for most people,

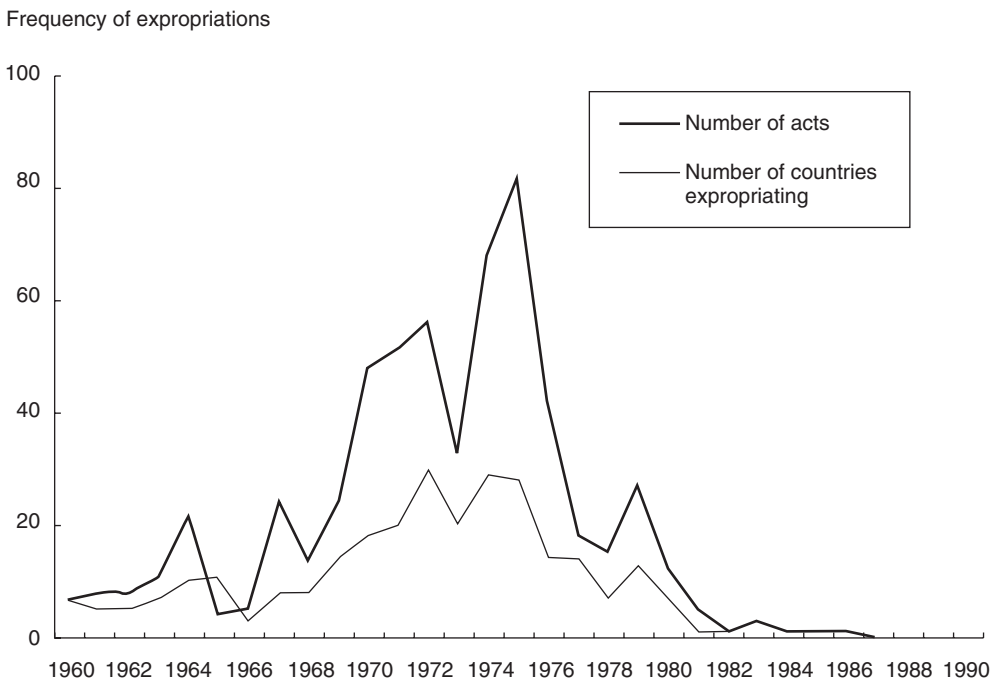

Figure 18.2 Expropriation acts, by year

Source: C. R. Kennedy, "Multinational Corporations and Expropriation Risk", *Multinational Business Review*, Spring 1993, p. 45.

then the loss of sovereignty over key sectors may be politically accepted. Fifth, the enhanced capabilities of developing countries have reduced their sense of dependency on external factors and have increased their policy options in managing multinational companies. Sixth, the current political impact of colonial or neocolonial experiences on foreign direct investment policy has receded.

18.4.3 Forecasting political risks

Once a manager has examined political risks and their implications, the manager shifts her attention to forecasting these risks in foreign countries where her company has business interests. As MNCs have become more experienced and more diversified, they have maintained political forecasting staffs on the same level as economic forecasting staffs.

In political risk analysis, a manager gives special attention to the "nationalism" of a host country. Nationalism represents loyalty to one's country and pride in it, based on shared common features such as race, language, religion, or ideology. In other words, it is an emotion that can hinder or prevent rational dealings with foreigners. Some effects of nationalism on MNCs are: (1) requirements for minimum local ownership; (2) reservation of certain industries for local

companies; (3) preference of local suppliers for government contracts; (4) limitations on number and type of foreign employees; (5) protectionism based on quotas and tariffs; and (6) expropriation or confiscation of assets.

A number of political-risk assessment techniques are available to MNCs. Some popular techniques include the following:

- The **delphi technique** combines the views of independent experts in order to obtain the degree of political risk on a given foreign project or a particular foreign country. The opinions of these experts about political risk are collected and averaged. One advantage of this method is that political-risk assessment is made easily and quickly. However, its major disadvantage is that it is completely based on opinions rather than facts and analyses.
- The **grand tour** relies on the opinions of company executives visiting the country where investment is being considered. Their visit usually involves a series of meetings with government officials, local businesspeople, and potential customers. This method places responsibility for political-risk assessment in the hands of those who must carry out the proposed investment project. But the results of such a visit can be very superficial and may produce only selected pieces of information.
- The **old hand** depends upon the advice of an outside consultant. Typically, such consultants are college professors, diplomats, local politicians, or businesspeople. The knowledge and experience of the advisor determine the quality of the political-risk assessment.
- Some companies use **quantitative analysis** – statistical techniques – to assess political risk. The basic purpose of these statistical methods is to supplement personal judgment and increase forecasting accuracy. The list of factors to be considered in quantitative methods varies from forecaster to forecaster. But all of these methods combine three major factors: external economic indicators, internal economic indicators, and political indicators.

MULTIPLE METHODS Any of the techniques described here may be used to assess political risk. Some companies may utilize a number of methods in an attempt to obtain a good picture of the situation. If these methods should all produce about the same results, more confidence may be placed in the findings. If they give widely divergent results, a more careful investigation is needed. Because political-risk assessment is extremely important for success or failure of a project, the multiple-method approach appears to be a sound policy.

18.4.4 Responses to political risks

Forecasting political risk is critical to an MNC in deciding on a particular project. The MNC can protect itself against political risks with government insurance policies and guarantee programs. Chapters 13 and 14 have described these in some detail.

DEFENSIVE MEASURES BEFORE INVESTMENT There are three types of defensive measures before investment: concession agreements, planned divestment, and adaptation to host-country goals.

Many host countries have recently increased their surveillance of foreign operations within their borders. An MNC ought to negotiate concession agreements to minimize subsequent polit-

ical risks. The concession agreement spells out contractual obligations of the foreign investor and the host government. Careful negotiations may result in contracts that address such critical issues as provision for arbitration of disputes, funds remittances, transfer prices, local equity participation, method of taxation, price controls, the right to exports, and limitations on nationality of personnel.

Planned divestment has been frequently suggested as one of the most important preinvestment strategies in order to avoid subsequent operational restrictions and expropriations. **Planned divestment** provides for the sale of majority ownership in foreign affiliates to local nationals during a previously agreed-upon period of time. Planned divestment is often a necessary condition for entry into foreign markets, or it may be imposed on already existing companies.

The concession agreement specifies the rights and responsibilities of both the foreign company and the host country, but it is often revised to adapt to changing host-country priorities. When the foreign company sticks to the legal interpretation of its concession agreement, the host-country government uses pressures in areas not covered by the agreement. If these pressures do not work, the host-country government reinterprets the agreement to obtain changes from the foreign company. Thus, it is advisable for MNCs to voluntarily adapt to changing host-country priorities whenever possible.

DEFENSIVE MEASURES AFTER INVESTMENT Once managers have decided to invest and take preinvestment defensive measures, they can use several operating strategies to cope with political risks. We have grouped them for convenience into two categories: strategies that are necessary to be a good citizen of the host country and strategies to alleviate political risks. In addition, joint ventures can be used to diffuse political risks.

Many foreign affiliates attempt to harmonize their policies with their host-country priorities and goals. They may hire an increasing number of local persons for positions initially held by representatives of the parent-company management. They may share ownership with host-country private or public companies. They may develop and use local sources of supply for their raw materials and component requirements. They may try to export their products to bolster host-country reserves of foreign exchange.

Many operational policies and organizational approaches can be used to alleviate political risks. MNCs may maintain technological superiority over local companies and other competing foreign firms. The challenge here is to introduce technological improvements into the host country on a continuing basis. An MNC may integrate individual subsidiaries into a worldwide production and logistical system through highly interrelated international operations. Under such an integration, a subsidiary alone cannot operate or compete successfully, as is the case in the petroleum industry. Control of key patents and processes, joint-venture arrangements, capitalization with a thin equity base and a large local debt proportion, and control of key export markets for a subsidiary's products are examples of policy actions that can alleviate political risks.

Joint ventures with local partners have been frequently suggested as one answer to national demands for an ownership share in certain industries. A joint venture can improve the public image of a subsidiary, provide more capital, and deter operational restrictions. Joint ventures with investors from a number of different countries, such as the USA, Italy, and the UK, can make operational restrictions extremely costly, because they could distress private investors in all three countries and thus impair good economic relations with these national groups of business executives.

SUMMARY

This chapter has focused on the capital investment decision-making process. Although we have broken down the entire decision-making process for foreign investment projects into components and relationships for a detailed inspection, these stages should not be used mechanically. Some steps may be combined, some may be subdivided, and others may be skipped altogether without jeopardizing the quality of the capital budgeting system. It is likely, however, that several of these steps will be in progress simultaneously for any project under consideration. For example, if expenditure controls and post-audits are not planned until the economic evaluation of a project is completed, the capital budgeting process will hardly be realistic. Decisions for expenditure controls and post-audits affect plans, just as planning decisions affect controlling decisions. Thus, the capital budgeting process consists of several related activities that overlap continuously rather than following an ideally prescribed order. Because all steps in the capital investment decision-making process are interwoven, their relationships should not permanently place any one stage first or last in a sequence.

Foreign investment projects involve many complex variables, which do not exist in domestic projects. Two major risks for foreign investment projects are political risk and foreign-exchange risk. In chapters 9 and 10, we considered the nature of foreign-exchange risk and some methods to reduce it. In the last part of this chapter, we described the nature of political risk and some techniques to minimize it. A company may incur losses from political risks because of governmental action, which interferes with the completion of contractual obligations between the foreign company and its host government. Political risks cannot be predicted in the same way as credit losses and thus cannot be offset precisely in measurable ways. Thus, MNCs must understand the types of political risks that they can expect to encounter, assess the likelihood of the encounter, and take various protective measures to minimize the risks.

Project cash inflows and outflows are analyzed after first identifying foreign investment alternatives. Parent cash flows are then obtained by dividing the project cash flows by the exchange rates. Within this context, the net present value of parent cash flows must be positive for a foreign project to be acceptably profitable. In conjunction with the earlier stages of analysis, some adjustments should be made to facilitate risk.

Questions

1 List the 11 phases of the entire decision-making process for a foreign investment project. Should the decision-maker consider these stages one at a time or analyze several of them simultaneously?
2 Given the added political and economic risks that exist overseas, are multinational companies more or less risky than purely domestic companies in the same industry? Are purely domestic companies insulated from effects of international events?
3 Why should subsidiary projects be analyzed from the parent's perspective?

4 List additional factors that deserve consideration in a foreign project analysis but are not relevant for a purely domestic project.
5 Why are transfer pricing policies important in cash flow analysis of a foreign investment project?
6 Most academicians argue that net present value is better than internal rate of return. However, most practitioners say that internal rate of return is better than net present value. Present the arguments for each side.
7 List popular risk-assessment and risk-adjustment techniques. What is the major difference between these two types of risk analysis?
8 Have researchers established a significant relationship between capital budgeting practices and the market price of the common stock? What is the major reason for their finding on this topic?
9 Discuss the nature of political risk.
10 List two major forms of political risk.
11 List some forms of defensive measures against political risks before investment.
12 Why did the number of expropriations decline in the 1980s?

Problems

1 Assume that the American Electrical Corporation (AEC) is considering the establishment of a freezer manufacturing plant in Spain. AEC wants to invest a total of 10,000 Spanish pesetas in the proposed plant. The Pts10,000 will be financed with only common stock, all of which will be owned by the parent company. The plant is to be depreciated over a 5-year period on a straight-line basis for tax purposes. It is expected to have a salvage value of Pts5,000 at the end of 5 years. Spain has 35 percent corporate income tax and no withholding taxes on dividends paid. The USA has 50 percent corporate income tax with direct credit for Spanish taxes. Spain does not impose any restrictions on dividend repatriation, but it does not allow the parent company to repatriate depreciation cash flows until the plant is liquidated. These depreciation cash flows may be reinvested in Spanish government bonds to earn 8 percent tax-exempt interest. The cost of capital used to analyze the project is 15 percent. The current exchange rate of Pts5.00 per US dollar is expected to hold during year 1, but the Spanish peseta is expected to depreciate thereafter at a rate of 5 percent a year. Assume the following revenues and operating costs in terms of Spanish pesetas:

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenues	10,000	11,000	12,000	13,000	14,000
Operating costs	6,000	6,000	7,000	7,000	8,000

(a) Determine the projected earnings after taxes for the proposed plant.
(b) Determine the interest-compounded depreciation cash flows at the end of 5 years.
(c) Determine the net present value of the plant, the profitability index, and the internal rate of return for the plant in terms of the US dollar.

2 The Wayne Company currently exports 500 calculators per month to Jordan at a price of $60 and the variable cost per calculator is $40. In May 1990, the company is approached by the government of Jordan with a request that it establish a small manufacturing plant in Jordan. After a careful analysis, the company decides to make an equity investment of $1 million, half of which will represent working capital and the other half-fixed assets. The company will sell the plant to a local investor for the sum of $1 at the end of 5 years and the central bank of Jordan will repay the company for the working capital of $500,000. In return for an increase in tariffs against other companies, the Wayne Company is willing to sell its calculators in Jordan for $50 per unit. In addition, the company will have to buy certain raw materials from local suppliers and will have to use local managers. The total costs of the local managers and materials will be $15 per calculator. Other materials will be purchased from the parent at $10 per unit and the parent will receive a direct contribution to overhead after variable costs of $5 per unit sold. Under this arrangement, the company expects that it will sell 1,000 calculators per month. The fixed assets are to be depreciated on a straight-line basis over a 5-year period. The company will have to pay income taxes at 50 percent on profits earned in Jordan. The USA also has a 50 percent tax rate with direct credit for Jordanian taxes. The current exchange rate is 10 Jordanian dinars per dollar and it is expected to stay the same for the next 5 years. There is no restriction on cash flow repatriation.
(a) Determine the net present value of the project at 10 percent.
(b) The Wayne Company has been informed that, if it decides to reject the project, it would lose its entire export sales. How does this affect the decision by the Wayne Company?

3 Problems 1 and 2 highlight the complexities involved in foreign investment decisions. Identify these problems.

4 A project with an initial cost of $15,000 is expected to produce net cash flows of $8,000, $9,000, $10,000, and $11,000 for each of the next 4 years. The firm's cost of capital is 12 percent, but the financial manager perceives the risk of this particular project to be much higher than 12 percent. The financial manager feels that a 20 percent discount rate would be appropriate for the project.
(a) Compute the net present value of the project at the firm's cost of capital.
(b) Compute the risk-adjusted net present value of the project.

5 A project has a cost of $1,400. Its net cash flows are expected to be $900, $1,000, and $1,400 for each of the next 3 years. The respective certainty equivalent coefficients are estimated to be 0.75, 0.55, and 0.35. With a 6 percent risk-free discount rate, determine the certain net present value.

6 Project F has a cost of $3,000 and project G has a cost of $4,000. These two projects are mutually independent and their possible net cash flows are given below. Assume that the cost of capital is 10 percent.

		Net cash flows	
Economic condition	Probability	Project F	Project G
Boom	0.50	$8,000	$ 0
Recession	0.50	0	8,000

(a) Determine the net present value of projects F and G.
(b) Determine the standard deviation of projects F and G.
(c) Determine the portfolio net present value and the portfolio standard deviation.
(d) Discuss the significance of the portfolio effect in terms of international context.

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Case Problem 18: Multinational Capital Budgeting Practices

The literature on foreign capital investment theory reveals that business firms should use discounted cash flow techniques for ranking and selecting overseas projects because these methods recognize the time value of money and employ cash flows of a project over its life span. Table 18.6 illustrates the extent to which discounted cash flow methods were used by companies that were surveyed from 1980 to 1994. These empirical studies revealed two important points: first, discounted cash flow approaches are more popular than rules of thumb; second, internal rate of return is more popular than net present value.

Table 18.6 The use of primary project evaluation techniques

Evaluation method	*Oblak (1980)*	*Kelly (1982)*	*Stanley (1984)*	*Kim (1984)*	*Shao (1994)*
Payback	10%	18%	5%	12%	25%
ARR	14%	27%	11%	14%	14%
IRR	60%	36%	65%	62%	40%
NPV	10%	14%	16%	9%	17%
Others	6%	5%	3%	3%	4%
Total	100%	100%	100%	100%	100%

Thus, most MNCs use discounted cash flow approaches for ranking and selecting overseas projects. The five studies cited in table 18.6 show that at least half of the respondents used discounted cash flow approaches, ranging from 50 percent according to Kelly's study to 81 percent in Stanley's study. Although the findings vary in these surveys, their overriding implication suggests that discounted cash flow approaches are unmistakably more popular than rules of thumb. In fact, the use of those techniques favored by academicians has become so commonplace in recent years that we do not need more empirical studies to confirm the adoption of discounted cash flow techniques by most MNCs.

The results are not strictly comparable, because terms such as "exclusive," "most important," and "primary" used by these surveys are not synonymous. On the other hand, the key characteristics for most of these surveys are so similar that our inferences are valid. The firms surveyed were drawn mostly from large industrial categories; sample sizes were relatively large; respondents and sample groups were surveyed by mail; and research methods were carefully adhered to. The respondents revealed that most companies use discounted cash flow approaches for foreign investment projects. With this fact established, it is reasonable to expect that firms using such sophisticated techniques as internal rate of return should make better investment decisions and thus perform better than firms using such unsophisticated techniques as payback.

Case Questions

1 What are the disadvantages of the payback method and the average-rate-of-return method?
2 What are the conditions under which the net-present-value and internal-rate-of-return methods will lead to the same capital-budgeting decision?
3 Why is the net-present-value method theoretically better than the internal-rate-of-return method?
4 Why is internal rate of return more popular than net present value in practice?
5 The website of the Bank for International Settlements, www.bis.org/cbanks.htm, and the website of the US State Department, www.state.gov, give economic information on most countries around the world. Access these websites to obtain economic information that can be used to assess the feasibility of projects in a developing country.

Source: Kim, S. H. and G. Ulferts, "A Summary of Multinational Capital Budgeting Practices," *Managerial Finance*, Spring 1996, pp. 75–85.

CHAPTER 19

The Cost of Capital for Foreign Projects

Opening Case 19: GM's Target Debt Ratio in its Overseas Expansion

Analysts say that global vehicle production will double in the next 20 years. "Projected growth in the global auto industry is going to occur in places other than North America and Europe, and most of that growth is going to occur in Asia," said Jim Bright, a Ford spokesman in Detroit. Thus, it should come as no surprise that European, Japanese, and US automakers have been expanding their operations in Asia aggressively.

General Motors (GM) sold 443,000 vehicles in the Asia-Pacific market in 1998, which accounted for 4 percent of the market. And GM wished to expand its Asian market to 10 percent by 2005. To accomplish its sales goal, GM has recently begun to establish a strong presence in Asia through construction of new plants, acquisitions and alliances, and strategic partnerships (see figure 19.1). As part of its aggressive expansion in Asia, GM made an offer to buy Daewoo Motor of Korea for $5.5 billion in December 1999. Daewoo Motors, the debt-laden number two Korean automaker, is an affiliate of the Daewoo Group, which is being dismantled by its creditors after amassing almost $80 billion in liabilities.

GM's plan for Daewoo Motors includes a $5.5 billion cash payment, its offer of a one-third equity stake to creditors, and its demand for creditors to write off a substantial portion of their Daewoo Motors' debt. All these financial arrangements are designed to insure that the new Daewoo Motors's balance sheet will reflect a debt ratio of 40 percent. Analysts think that this 40 percent debt ratio is GM's target debt ratio, the combination of equity and debt that minimizes its cost of capital and maximizes its market value. How did GM arrive at a 40 percent debt ratio? In fact, GM's

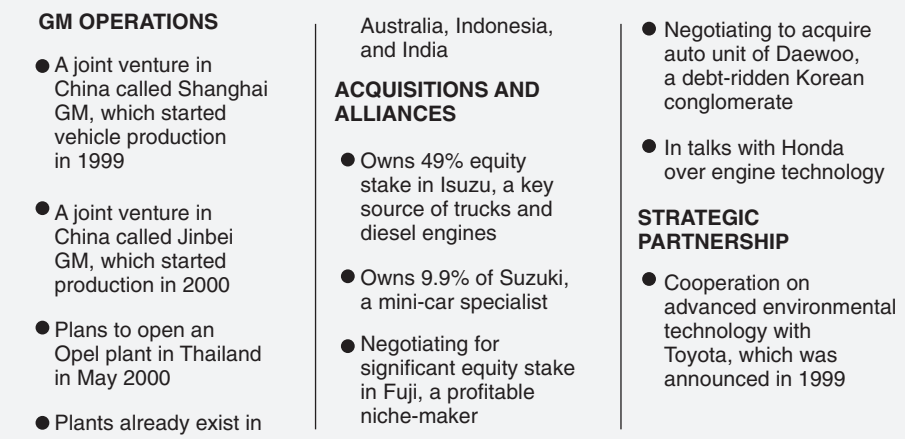

Figure 19.1 GM's Asia-Pacific forays
Source: GM.

overall debt ratio of 1999 turned out to be approximately 40 percent. Apparently, GM has been using this 40 percent debt ratio as its successful formula in its foreign expansion.

GM's turnaround strategy for Daewoo Motors includes the following objectives: (1) reduce Daewoo Motors's debt ratio from 70 percent to 40 percent; (2) integrate its Korean supplier network into GM's global network; (3) dispatch an international management team to show up new management; (4) make it GM's global center of expertise for inexpensive cars and sport-utility vehicles; (5) expand its design and engineering capabilities; (6) acquire nearly all of its Korean vehicle-making operations; and (7) absorb most of its foreign units in Europe and Asia. GM, Daewoo Motors, and the Korean Development Bank signed final documents for acquisition by GM of Daewoo Motors in 2002. Under the agreement, a new company called GM Daewoo Auto and Technology was created. With the new management team in place, a solid stream of cash from GM, and improved operations, GM Daewoo has achieved significant productivity increases at its existing facilities, built new facilities, and revitalized the once-unstable product line. These factors and the turnaround strategy for this new company, along with the use of its target debt ratio, have enabled GM Daewoo to improve its financial performance significantly in the past few years.

In June 2003, however, GM backed away from its goal of achieving 10 percent market share in its Asia-Pacific business by 2005 and revised its strategy there – with much more focus on China and less on Japan. GM's market share fell from 5.7 percent in 2001 to 4.6 percent in 2002. During the first quarter of 2003, GM held about 4 percent of the market. GM still believes that most of the projected growth in the global automobile industry will be in Asian countries, such as China, South Korea, and

Thailand. GM's presence in Asia is formidable and will continue to grow, because otherwise it could risk losing its global leadership position. GM has automotive facilities and sales offices in 15 Asian countries. Main manufacturing and assembly operations are located in Australia, China, Indonesia, Korea, Vietnam, and Thailand.

Sources: "GM Offers Daewoo Creditors a Stake in Korean Firm in Exchange for Debt," *The Wall Street Journal*, Dec. 21, 1999, p. A3; "GM Pursues New Links with Japanese," *The Wall Street Journal*, Dec. 3, 1999, p. A3; "GM Alters Strategy in Asia Pacific," *The Detroit News*, June 12, 2003, pp. 1B, 4B; and www.gm.com.

In chapter 18, we discussed two discounted cash flow approaches: the net-present-value method and the internal-rate-of-return method. These methods evaluate the net cash flows of a project in terms of the required rate of return to determine its acceptability. The actual required rate of return applied by a multinational company (MNC) may be the cost of capital adjusted for political and exchange risks.

In this chapter, we consider four major topics. First, we discuss the weighted average cost of capital and its component costs of capital (the cost of debt and the cost of equity). In addition, this first section explains how corporate and country characteristics influence the cost of capital for multinational cases. Second, we analyze a firm's capital structure, which consists of long-term debt and common equity. In doing so, we explain how an MNC considers corporate and country characteristics when it establishes its capital structure. Third, we describe the relationship between the marginal cost of capital and foreign investment analysis. The marginal cost of capital refers to the cost of additional funds that the firm wishes to raise. Fourth, we compare the cost of capital and the capital structure across countries.

19.1 The Weighted Average Cost of Capital

The **weighted average cost of capital (WACC)** is a weighted average of the component costs: the cost of debt, the cost of preferred stock, and the cost of equity. The WACC is normally used as the firm's cost of capital for a number of reasons. First, if a single component cost is used as a criterion for acceptance, projects with a low rate of return may be accepted while projects with a high rate of return may be rejected. Some low-return projects would be accepted because they could be financed with a cheaper source of capital, such as debt. Some high-return projects would be rejected because they have to be financed with an expensive source of capital, such as equity. Second, if a firm accepts projects that yield more than its WACC, it can increase the market value of its common stock. In this situation, the market value of the common stock increases because these projects are expected to earn more on their equity-financed portion than the cost of equity.

The WACC is the cost for each type of capital multiplied by its proportion of the total amount of all capital issued by the firm:

$$k = \frac{S}{B+S}(k_e) + \frac{B}{B+S}(k_i) \tag{19.1}$$

where k is the weighted average cost of capital, k_e is the cost of equity, k_t is the after-tax cost of debt, B is the market value of the firm's debt, and S is the market value of the firm's equity.

19.1.1 The cost of equity

Interest and preferred dividends are directly measurable components of debt and preferred stocks, but we do not have such a measurable element for the cost of common equity. The reason is apparent once we realize that dividend declarations on common stock are made at the discretion of a firm's board of directors. Consequently, the cost of common equity is the most difficult concept to measure.

The **cost of equity** for a firm is the minimum rate of return necessary to attract investors to buy or hold a firm's common stock. This required rate of return is the discount rate that equates the present value of all expected future dividends per share with the current price per share. If dividends per share are expected to grow at a constant growth rate indefinitely, we can measure the cost of equity by the following formula:

$$k_e = \frac{D_1}{P} + g \tag{19.2}$$

where D_1 is the expected dividends per share to be paid at the end of 1 year, P is the current market price per share, and g is the annual dividend growth rate.

An alternative approach to the above dividend valuation model for the cost of capital is the capital asset pricing model (CAPM) described in chapter 16. If a market is in equilibrium, the expected rate of return on an individual security (j) is stated as follows:

$$R_j = R_f + (R_m - R_f)\beta_j \tag{19.3}$$

where R_j is the expected rate of return on security j; R_f is the riskless rate of interest; R_m is the expected rate of return on the market portfolio, which is a group of risky securities such as Standard & Poor's 500 Stocks; and β_j is the systematic risk of security j. This equation is known as the **security market line**, which consists of the riskless rate of interest (R_f) and a risk premium [$(R_m - R_f)\beta_j$] for a particular firm j; the term ($R_m - R_f$) is known as the **market risk premium**.

The CAPM is based on the assumption that intelligent risk-averse investors seek to diversify their risks. As a result, the only risk that is rewarded with a risk premium is systematic or undiversifiable risk. This theory suggests that the cost of capital for MNCs is generally lower than the cost of capital for domestic companies. In chapter 16, we saw that a well-diversified MNC company can significantly cut the systematic risk of a well-diversified domestic company. Within the international context, systematic risk relates to such global events as worldwide recessions, world wars, and changes in the world energy supply. Unsystematic risk relates to such national events as expropriation, currency controls, inflation, and exchange rate changes.

One potential problem with using the CAPM is how to compute beta (β). Beta may be estimated solely on the basis of subjective probability distributions. But it is a common practice to use past data to estimate future betas. If the beta computed from historical data is a reliable surrogate for a future beta, financial managers have an important tool in formulating profitable investment decisions. Some empirical surveys indicate that past betas are useful in predicting

future betas. Betas tend to have greater stability when the number of securities in a portfolio is larger and when the time intervals being studied are longer.

Another approach to measuring the cost of equity is the **price–earnings ratio**, which is the price per share divided by the earnings per share. More accurately, the price–earnings ratio can be used to determine the rate of return demanded by shareholders. If we denote the price–earnings ratio by "P–E ratio," we can calculate the cost of equity using the following formula:

$$k_e = \frac{1}{\text{P–E ratio}} \tag{19.4}$$

As shown in equation 19.4, the cost of equity is one (1) divided by the P–E ratio. Thus a high P–E ratio suggests a low cost of capital. This model assumes a zero growth rate in profits and a 100 percent dividend payout ratio, so that equation 19.4 is identical with equation 19.2.

The main difference between the three approaches to the cost of equity is that the dividend valuation model and the P–E ratio emphasize the total risk of expected returns, while the CAPM emphasizes only the systematic risk of expected returns. In any case, the cost of equity is some function of the market's preference for return and risk.

19.1.2 Cost of debt

The **explicit cost of debt** for a firm may be defined as the discount rate that equates the net proceeds of the debt issue with the present value of interest and principal payments. If we want to express all cost-of-capital rates on an after-tax basis, we must adjust this explicit cost of debt for taxes, because interest charges are usually tax deductible. We denote the after-tax cost of debt by k_t and determine it using the following equation:

$$k_t = k_i(1-t) \tag{19.5}$$

where k_i is the before-tax cost of debt and t is the tax rate.

MNCs must account for a number of complicated factors to measure the cost of debt. First, MNCs can borrow in Eurocurrency markets, international bond markets, or national capital markets. Hence, they must – in order to measure the before-tax cost of debt – estimate interest rates and the proportion of debt to be raised in each market. Second, MNCs must – in order to measure the after-tax cost of debt – estimate tax rates in each market in which they intend to borrow and determine the deductibility of interest by each national tax authority. Third, the nominal cost of principal and interest in foreign currency must be adjusted for foreign-exchange gains or losses when MNCs issue debt denominated in a foreign currency.

For example, the before-tax cost of foreign currency denominated debt equals the before-tax cost of repaying the principal and interest in terms of the parent's own currency. This before-tax cost of capital includes the nominal cost of principal and interest in foreign-currency terms, adjusted for any foreign-exchange gains or losses:

$$k_i = (k_f \times k_a) + k_p \tag{19.6}$$

where k_f is the before-tax interest in foreign-currency terms, k_a is the additional interest due to exchange rate change, and k_p is the additional principal due to exchange rate change.

Example 19.1

A US company borrows euros for 1 year at 7 percent. During the year, the euro appreciates 9 percent relative to the dollar. The US tax rate is 35 percent. What is the after-tax cost of this debt in US dollar terms?

The before-tax cost of this debt is computed as follows:

$$\begin{aligned} k_i &= (k_f \times k_a) + k_p \\ &= (0.07 \times 1.09) + 0.09 \\ &= 16.63\% \end{aligned}$$

The added 9.63 percent cost of this debt in terms of US dollars is reported as a foreign-exchange transaction loss. The nominal interest rate of 7 percent and the added cost of 9.63 percent are deductible for tax purposes. Thus, the after-tax cost of this debt would be:

$$\begin{aligned} k_t &= k_i(1-t) \\ &= 0.1663(1-0.35) \\ &= 10.81\% \end{aligned}$$

19.1.3 The appropriate cost of capital

If MNCs make separate allowance for different levels of risk in foreign projects, they must use the WACC as an appropriate cost of capital. They have three choices in deciding their subsidiary cost of capital: (1) the cost of capital to the parent company, (2) the cost of capital to the subsidiary, or (3) some weighted average of the two.

If a parent company finances the entire cost of its foreign project by itself, the cost of capital to the parent company may be used as the appropriate cost of capital. If its foreign subsidiary obtains all of the capital for the project overseas, the foreign cost of capital may be used as the appropriate cost of capital. In most cases, however, the MNC uses the whole world as a combined source of funds. Thus, the appropriate cost of capital is usually an overall weighted average of the two.

If the analyst wishes to reflect local inflation for local projects, the inflation-adjusted discount rate may have to be used as an appropriate cost of capital. However, inflation tends to be built into the cost of debt and equity for a company, because the WACC reflects such anticipated price changes. When lenders and equity holders anticipate price increases, they will demand a rate of return higher than in ordinary cases, so that the WACC reflects inflation. Thus, the MNC should not add an increase to the discount rate derived from the cost of capital in order to adjust for inflation.

19.2 The Optimum Capital Structure

The **optimum capital structure** is defined as the combination of debt and equity that yields the lowest cost of capital. In this situation, the amount of capital to be obtained is fixed, but the debt ratio is changed to determine the optimum capital structure. For example, the capital structure of companies in the same industry varies widely from country to country because of different environmental variables.

19.2.1 Book-value versus market-value weights

To measure the WACC, we first calculate the cost of each component of the capital structure. Once we have computed the costs of individual components of the capital structure, we need to weigh them according to some standard. Two alternative ways to specify the proportions of the capital structure are practiced, as follows:

- **Book-value weights** are derived from the stated values of individual components of the capital structure on the firm's current balance sheet. There are two major advantages to book-value weights. First, the proportions of the capital structure are stable over time, because book-value weights do not depend on market prices. Second, book-value weights are easy to determine, because they are derived from stated values on the firm's balance sheet. However, book-value weights may misstate the WACC, because the market values of bonds and stocks change over time and thus do not reflect the desired capital structure.
- **Market-value weights** are based on the current market prices of bonds and stocks. Because the primary goal of a firm is to maximize its market value, market-value weights are consistent with the company's objective. The market values of a business's existing securities depend on the expected earnings of the company and the risk of the securities as perceived by investors. In other words, market values reflect assessments of current buyers and sellers of future earnings and risk. Thus, the WACC with market-value weights should be the valid average rate of return required by investors in the firm's securities.

19.2.2 Implications

The traditional approach to valuation and leverage assumes that an optimum capital structure exists. This model implies that the varying effects on the market capitalization rates for debt and equity allow the firm to lower its cost of capital by the intelligent use of leverage (debt). Debt has two types of cost: explicit cost and implicit or bankruptcy cost. The explicit cost is the interest rate, whereas the implicit cost refers to added debt that increases the cost of equity and debt.

If we start with an all-equity capital structure, the introduction of debt enables a firm to lower its cost of capital. The WACC falls with increases in leverage because the increase in the cost of equity does not completely offset the use of low-cost debt. Therefore, the traditional approach implies that beyond some point both the cost of equity and the cost of debt increase at an increasing rate. With the heavy use of leverage, the increase in the cost of equity more than offsets the use of low-cost debt. Thus, at a critical point, such as a 40 percent debt ratio in figure 19.2, the subsequent introduction of additional leverage increases the overall cost of capital. The optimum capital structure is the point at which the WACC bottoms out.

Example 19.2

A company is planning to raise $200 million for foreign investments. It wishes to hold the amount of capital constant and to change only the combination of financing sources. As given in table 19.1, there are three different financial structures under consideration by the company: A, B, and C.

Table 19.1 Three different financial plans

Financial plan	*After-tax cost*	*Weight*	*Weighted average cost*
Plan A:			
Debt	6.5%	20%	1.3%
Equity	12.0%	80%	9.6%
WACC			10.9%
Plan B:			
Debt	7.0%	40%	2.8%
Equity	12.5%	60%	7.5%
WACC			10.3%
Plan C:			
Debt	9.0%	60%	5.4%
Equity	15.0%	40%	6.0%
WACC			11.4%

The company initially reduces the cost of capital with leverage, but beyond plan B the continued use of debt increases the cost of capital. Most theorists believe that there is a U-shaped capital-cost curve in relation to debt–equity mixes for the company. Figure 19.2 shows that the optimum capital structure occurs at a 40 percent debt ratio.

Most companies use 30–50 percent debt in their capital structure without exceeding norms acceptable to creditors and investors. This rather broad, flat area with a wide range of debt ratios, 30–50 percent in figure 19.2, is usually called an optimal or target debt range, where little difference exists in the cost of capital. The optimal range of the flat area and the location of a particular company's debt ratio within that range are determined by a variety of noncost variables, such as availability of capital and financial risk. The international availability of capital to an MNC and its lower financial risk permit it to maintain its desired debt ratio, even if significant amounts of new funds must be raised. In other words, the marginal cost of capital for an MNC is constant for a broad range of its capital budget.

In summary, the company's optimum capital structure simultaneously (a) minimizes the company's WACC, (b) maximizes the value of the company, and (c) maximizes the company's share price. As debt is added to the capital structure, the WACC falls. This increases the value of the firm. Because this increase in the company's value accrues to the owners of the company, the price of the company's stock rises.

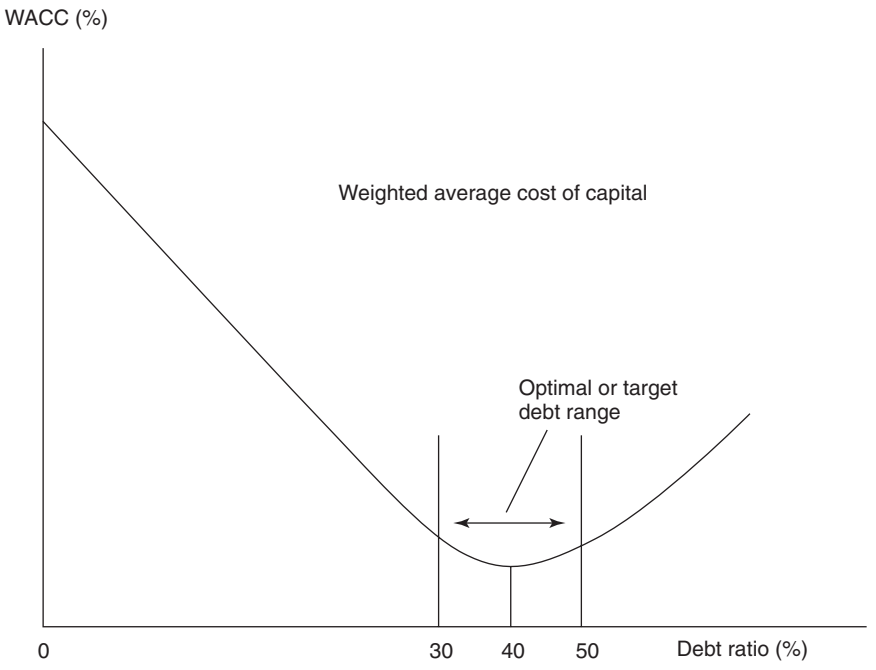

Figure 19.2 Debt ratio and the cost of capital

19.3 The Marginal Cost of Capital and Investment Decisions

When companies raise funds for new investment projects, they are concerned with the marginal cost of new funds. Companies should always expand their capital budget by raising funds in the same proportion as their optimum capital structure. However, as their capital budget expands in absolute terms, their marginal cost of capital (MCC) will eventually increase. This means that companies can tap only the capital market for some limited amount in the short run before their MCC rises, even though the same optimum capital structure is maintained. The **marginal cost of capital** is the cost of an additional dollar of new funds.

THE OPTIMUM CAPITAL BUDGET In one analysis, we hold the total amount of capital constant and change only the combination of financing sources. We seek the optimum or target capital structure that yields the lowest cost of capital. In a second analysis, we attempt to determine the size of the capital budget in relation to the levels of the MCC, so that the optimum capital budget can be determined. The **optimum capital budget** is defined as the amount of investment that maximizes the value of the company. It is obtained at the intersection between the internal rate of return (IRR) and the MCC; at this point total profit is maximized.

A variety of factors affect a company's cost of capital: its size, access to capital markets, diversification, tax concessions, exchange rate risk, and political risk. The first four factors favor the MNC, whereas the last two factors appear to favor the purely domestic company. For a number

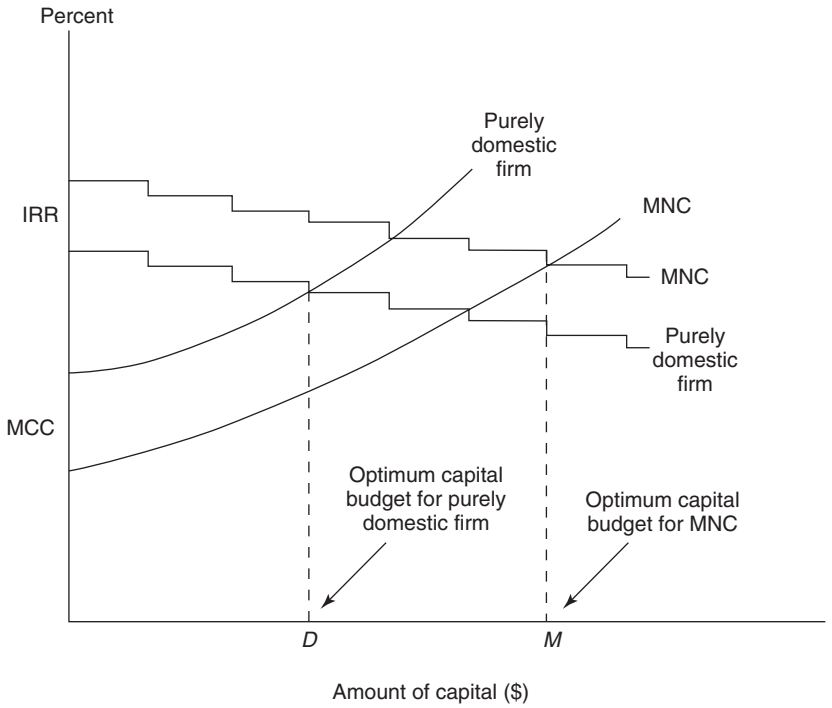

Figure 19.3 Optimum capital budget: domestic firm versus multinational

of reasons, as shown in figure 19.3, MNCs usually enjoy a lower cost of capital than purely domestic companies. First, MNCs may borrow money at lower rates of interest because they are bigger. Second, they may raise funds in a number of capital markets such as the Euromarkets, local capital markets, and foreign capital markets. Third, their overall cost of capital may be lower than that of purely domestic companies, because they are more diversified. Fourth, they may lower their overall taxes, because they can use tax-haven countries, tax-saving holding companies, and transfer pricing.

It seems reasonable to assume that investments outside the United States are, for a US company, riskier than investment in US assets. However, this is not necessarily true, because returns on foreign investments are not perfectly positively correlated with returns on US investments. In other words, MNCs may be less risky than companies that operate strictly within the boundaries of any one country. Consequently, to minimize risk, companies should diversify not only across domestic investment projects but also across countries. The lower overall risk of MNCs tends to reduce their overall cost of capital.

Figure 19.3 shows that the optimum capital budget (*M*) of a typical MNC is higher than the optimum capital budget (*D*) of a purely domestic company. MNCs can tap foreign capital markets when domestic capital markets are saturated, and their risk is lower than that of domestic companies. International capital availability and lower risk permit MNCs to lower their cost of capital and to maintain a constant MCC for a broad range of their capital budget. They have more investment opportunities than purely domestic companies. These two factors – the lower

cost of capital and better investment opportunities – give MNCs higher optimum capital budgets than the optimum capital budgets of domestic companies.

Many analysts believe that some countries, such as Germany and Japan, enjoy capital cost advantage mainly due to their high leverage. As the debt ratio increases, the weighted average cost of capital decreases because of the heavier weight of low-cost debt compared to high-cost equity. The low cost of debt is, of course, due to the tax deductibility of interest.

Example 19.3

Assume that there are two countries: X and Y. The cost of debt (10 percent), the cost of equity (15 percent), and the tax rate (50 percent) are the same for these two countries. However, X's capital structure is 20 percent debt and 80 percent equity, while Y's capital structure is 50 percent debt and 50 percent equity. Compare the cost of capital in the two countries. The WACC for country X is 13 percent $[(0.20 \times 0.10)(1 - 0.50) + (0.80 \times 0.15)]$. If we apply the same costs of debt and equity to the more leveraged country, it would have a WACC of 10 percent $[(0.50 \times 0.10)(1 - 0.50) + (0.50 \times 0.15)]$. Hence, the more leveraged country (Y) has a lower cost of capital than the less leveraged country (X).

Companies in Germany and Japan have greater borrowing capacity because their creditors tolerate a high degree of financial leverage. Traditionally, banks in both countries have played a much more important role in corporate financing than capital markets. Companies in both countries could carry a high degree of financial leverage because banks frequently hold bonds and stocks of these companies. Finally, German and Japanese companies have close working relationships with their governments. Hence, it may be in the best interest of the governments to rescue failing companies through direct subsidies and long-term loans, which have enabled these companies to carry a high degree of financial leverage.

19.4 Cultural Values and Capital Structure

Can cultural values be used to predict capital structure across countries? Differences in institutional backgrounds provide only a partial answer to the question of why countries have differences in capital structure (Chui et al. 2002). Researchers from different disciplines have investigated the effects of culture on various business practices, such as the study of management functions, organization design, business performance, compensation practices, cross-border acquisition performance, and managerial attitudes, the perceived importance of job outcomes and job satisfaction, and investor stock-trading decisions. Alternatively, Sekely and Collins (1988) analyzed the relationship between economic variables and international differences in capital structure, but their test results indicated no significant relationship between the two. These two groups of researchers

found the role of culture to be active in differences in the capital structure (debt ratio) across countries.

Empirical studies have found that capital structure norms for companies vary widely from one country to another, but they cluster together for companies domiciled in the same industry. For example, Sekely and Collins (1988) compared debt ratios for 677 companies in nine industries from 23 countries. The researchers concluded that cultural factors, such as political, legal, social, institutional, and tax environments, cause debt ratios to cluster by country rather than by industry or size. They classified these 23 countries into several cultural "realms" with similarities in capital structure norms:

Anglo-American region	Australia, Canada, South Africa, the United States, and the United Kingdom
Latin American region	Argentina, Brazil, Chile, and Mexico
West Central Europe	Benelux, Switzerland, and Germany
Mediterranean Europe	France, Italy, and Spain
Scandinavian region	Denmark, Finland, Norway, and Sweden
Indian Peninsula	India and Pakistan
Southeast Asia	Malaysia and Singapore

Table 19.2 shows mean debt ratios for these seven regions. They found low debt ratios in the Southeast Asian, Latin American, and Anglo-American groups of countries. They found high debt ratios in the Scandinavian, Mediterranean Europe, and Indian Peninsula groups. The West Central European counties had debt ratios in the middle of the seven groups.

Have these debt ratio norms of different regions changed since 1988? Yes, but not much, according to a study by Chui, Lloyd, and Kwok. Like the 1988 study, this 2002 study found low debt ratios in the Southeast Asian, Anglo-American, and Latin American groups of countries; it found high ratios in the Mediterranean Europe and Scandinavian groups. One major exception is West Central Europe, whose mean debt ratio has changed from the middle group to the high group. The increase in the high debt ratio of the West Central Europe has almost exclusively to do with the increased debt ratios of German companies. The high cost of German unification may be partly blamed for this increase in its overall debt ratio. Chui, Lloyd, and Kwok compared debt ratios for 5,591 companies in four different industries across 22 countries, to determine the impact of cultural factors on national corporate debt ratios. To achieve this objective, they tested two hypotheses: (1) the corporate debt ratio of a country is negatively related to the country's

Table 19.2 Debt ratios for seven regions

	Sekely and Collins (1988)	*Chui et al. (2002)*
Anglo-American region	0.53	0.46
Latin American region	0.46	0.51
West Central Europe	0.59	0.65
Mediterranean Europe	0.70	0.60
Scandinavian region	0.69	0.56
Indian Peninsula	0.67	–
Southeast Asia	0.35	0.48

level of conservatism; and (2) the corporate debt ratio of a country is negatively related to the country's level of mastery. Conservatism includes values that are important in close-knit harmonious relationships, in which the interests of the individual are not viewed as distinct from those of the group. These values are primarily concerned with security, conformity, and tradition. Mastery accentuates active mastery of the social environment through self-assertion, by placing more emphasis on control and individual success. Such values promote their surroundings and propel them ahead of others.

Their empirical findings support these two hypotheses at both the national and firm levels, which mean that countries with high scores on the cultural dimensions of "conservatism" and "mastery" tend to have low corporate debt ratios. The results are robust even after controlling for the industry effect, the differences in economic performance, legal systems, financial institution development, and other well-known determinants of debt ratios in each country (such as assets tangibility, agency cost, firm size, and profitability).

SUMMARY

The cost of capital, the optimum capital structure, and the optimum capital budget have a major impact on an MNC's value. The cost of capital is used to evaluate foreign investment projects. The optimum capital structure is a particular debt ratio that simultaneously (a) minimizes the company's WACC, (b) maximizes the value of the company, and (c) maximizes its share price. The optimum capital budget is the amount of investment that will maximize an MNC's total profits.

Although the main issues used to analyze the cost of capital in the domestic case provide the foundation for the multinational case, it is necessary to analyze the unique impact of foreign-exchange risks, institutional variables, and cultural values. International capital availability, lower risks, and more investment opportunities permit MNCs to lower their cost of capital and to earn more profits.

Questions

1 Explain both systematic risk and unsystematic risk within the international context.
2 What are the complicated factors in measuring the cost of debt for multinational companies?
3 List three choices in deciding a foreign subsidiary's cost of capital. Which of these three choices is usually used by most multinational companies?
4 What factors affect a company's cost of capital? Why do multinational companies usually enjoy a lower cost of capital than purely domestic companies?
5 Some observers believe that American companies can borrow in Japan at relatively low rates of interest. Comment on this argument.

6 In 2002, Chui, Lloyd, and Kwok attempted to find answers to the question of how cultural values can be used to predict capital structure across countries, and why knowing the culture of the country is important for the determination of capital structure. Discuss their findings in some detail.
7 Explain why foreign investments for a US company may be less risky than its investment in US assets.
8 Why is the optimum capital budget of a multinational company typically higher than that of a purely domestic company?
9 Explain why the capital–cost gap across major industrial countries may fall in the future.

Problems

1 A foreign project has a beta of 0.50, a risk-free interest rate of 8 percent, and the expected rate of return on the market portfolio is 15 percent. What is the cost of capital for the project?
2 A US company borrows Japanese yen for 1 year at 8 percent. During the year, the yen appreciates 10 percent relative to the dollar. The US tax rate is 50 percent. What is the after-tax cost of this debt in US dollar terms?
3 The cost of debt (10 percent), the cost of equity (15 percent), and the tax rate (50 percent) are the same for countries A and B. However, A's capital structure is zero percent debt and 100 percent equity, while B's capital structure is 50 percent debt and 50 percent equity. Compare the cost of capital in the two countries.
4 A company earns $300 per year after taxes and is expected to earn the same amount of profits per year in the future. The company considers three financial plans: A with a debt ratio of 20 percent and a WACC of 15 percent; B with a debt ratio of 40 percent and a WACC of 10 percent; and C with a debt ratio of 80 percent and a WACC of 20 percent. Which debt ratio will maximize the value of the company?
5 Assume that a company wishes to sell $6 million worth of bonds and $14 million worth of common stock. The bonds have 13 percent before-tax interest and the stock is expected to pay $1.4 million in dividends. The growth rate of dividends has been 8 percent and is expected to continue at the same rate. Determine the weighted average cost of capital if the tax rate on income is 50 percent.

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Case Problem 19: Do Multinational Firms Have Lower Debt Ratios than Domestic Firms?

Authors of international finance textbooks have suggested a number of practical concepts. First, MNCs should support more debt in their capital structure than purely domestic companies. They point out that an MNC should have a higher target debt ratio than its domestic counterpart because of its size, access to capital markets, diversification, and tax concessions. The target debt ratio is the optimum capital structure, which is defined as the combination of debt and common equity that yields the lowest cost of capital. Second, MNCs should have lower business risk than purely domestic companies. Business risk, such as the cost of financial distress and expected bankruptcy cost, refers to the variability of operating profits or the possibility that the firm will not be able to cover its fixed costs. An MNC operates in many different countries and thus this diversification should translate into lower earnings volatility.

Some financial analysts argue that there is an inverse relationship between business risk and the optimum debt level. Companies with less business risk are supposed to assume more debt without added risk. Debt has two types of cost: explicit cost and implicit or bankruptcy cost. The explicit cost is the interest rate, whereas the implicit cost refers to added debt, which increases the possibility of liquidating a business. Thus, given the traditional paradigm of a trade-off between the tax shelter of debt and the expected bankruptcy cost, MNCs should have lower expected bankruptcy costs and hence higher leverage ratios. In other words, MNCs should be able to carry higher debt loads because they are able to diversify their business risk across national economies.

Third, an MNC is more sensitive to exchange rate fluctuations than a purely domestic company. A purely domestic company may not face economic exchange rate risk because it

operates in just one country. Finally, an MNC should have higher agency costs than a purely domestic company because the MNC faces higher auditing costs, language differences, sovereign uncertainty, divergent political and economic systems, and varying accounting systems.

To ascertain these four concepts, Burgman (1996) has conducted an extensive empirical study of 251 domestic firms and 236 MNCs. His findings are as follows. First, the mean leverage ratio for the multinational sample is significantly less than that for the domestic sample at the 1 percent level. Second, the operating profits of the multinational sample are more volatile than the domestic sample, although the statistical significance of the difference is weak. Third, domestic companies are significantly more sensitive to exchange rate risk than MNCs at the 5 percent level. Finally, MNCs have significantly higher agency costs than their domestic counterparts at the 1 percent level. Thus, Burgman's study confirmed only the fourth concept and rejected the other three concepts.

Case Questions

1 What is the agency problem? What are agency costs? Why do multinational companies incur higher agency costs than domestic companies?
2 Contrary to common expectations, the 1996 study by Burgman has found that multinational companies have lower debt ratios and higher business risks than purely domestic companies. What are possible explanations for this finding?
3 What is economic exchange rate risk? Is it easy to hedge this risk? Contrary to common expectations, the 1996 study by Burgman has concluded that multinational companies have lower economic exchange rate risk than domestic companies. What are the possible explanations for this finding?
4 Use the website of Bloomberg, www.bloomberg.com/markets, to compare yield rates of government securities for several countries.

Sources: T. A. Burgman, "An Empirical Examination of Multinational Corporate Capital Structure," *Journal of International Business Studies*, Third Quarter 1996, pp. 553–70; and J. K. Wald, "How Firm Characteristics Affect Capital Structure: An International Comparison," *The Journal of Financial Research*, Summer 1999, pp. 161–87.

CHAPTER 20

Corporate Performance of Foreign Operations

Opening Case 20: Offshore Workers Increase IBM's Profits

Until a few years ago, multinational companies (MNCs) used to export only lowly waged jobs, but relentless pressure to cut costs is now compelling many MNCs to export highly paid positions. In one of the largest moves to "offshore" highly paid software jobs, *The Wall Street Journal* reported on December 14, 2003, that IBM would move 4,730 programmers from the United States to India, China, and elsewhere. Unlike the salaries for low-wage manufacturing jobs, IBM typically paid $75,000 to $100,000 or more a year for the US computer-services work. In contrast, hiring a software engineer with a bachelor's or even a master's degree from a top technology university in India may cost $10,000 to $20,000 annually.

Offshore workers account for more than half of IBM's 315,000 employees. IBM has been a multinational company since the 1920s, with operations in India for 50 years. Until recently, however, most of the software has been designed in the USA and exported to other countries. Apparently, IBM's effort to export highly paid jobs has recently enabled IBM to be profitable and to gain market share, despite the technology slump in the past few years. No wonder IBM intends to increase the number of its employees in India from 9,000 at the present time to 20,000 by the end of 2005.

The trend looms as one of the most serious long-term threats to US employment and labor. Countries with lower-salaried occupations are no longer siphoning only unskilled or blue-collar jobs from US workers; they now are scooping up skilled work from US companies on a large scale. By the end of 2004, one out of every 10 jobs within US-based computer companies will move to emerging markets, as will one of every 20 technology jobs in other corporations, according to tech-industry researcher

Gartner Inc. The International Data Corporation recently estimated that by 2007, 23 percent of all information technology jobs would be offshore, up from 5 percent in 2003.

Source: "IBM to Export Highly Paid Jobs to India, China," *The Wall Street Journal*, Dec. 15, 2003, pp. B1, B3.

Chapter 1 presented hard evidence that companies earn more money as they boost their presence in foreign markets. Furthermore, the first chapter discussed eight principles of global finance that help MNCs perform better than domestic companies. In fact, the entire text of this sixth edition has attempted to cover those financial concepts and techniques that would boost the corporate performance of foreign operations. We conclude this book by discussing how MNCs can use international accounting, taxation, and transfer pricing to improve their overall performance even further.

This chapter consists of three major sections. The first section examines global control systems and performance evaluation of foreign operations. Accurate financial data and an effective control system are especially important in international business, where operations are typically supervised from a distance. The second section considers the significance of national tax systems on international business operations. Perhaps multinational taxation has the most pervasive effect on all aspects of multinational operations. Where to invest, how to finance, and where to remit liquid funds are just a few examples of management actions affected by multinational taxation. The third section covers international transfer pricing. Because transfers between business entities account for approximately one-third of total world trade, the multinational company must try to satisfy a number of objectives. This chapter examines some of these objectives, such as taxes, tariffs, competition, inflation rates, exchange rates, and restrictions on fund transfers.

20.1 The Global Control System and Performance Evaluation

In order to achieve the firm's primary goal of maximizing stockholder wealth, the financial manager performs three major functions: (1) financial planning and control, (2) investment decision-making, and (3) financing decision-making. These financial functions cannot be performed effectively without adequate, timely accounting information. The two fundamental financial statements of any company are the balance sheet and the income statement. The **balance sheet** measures the assets, liabilities, and owners' equity of a business at a particular time. The **income statement** matches expenses to revenues in order to determine the net income or net loss for a period of time. In addition to these two financial statements, a control system is used to relate actual performance to some predetermined goal.

The actual and potential flows of assets across national boundaries complicate the accounting functions of an MNC. The MNC must learn to deal with environmental differences, such as different rates of inflation and changes in exchange rates. If an MNC is to function in a coordinated manner, it must also measure the performance of its foreign affiliates. Equally important, managers of the affiliates must run operations with clearly defined objectives in mind.

An MNC consists of the parent and its subsidiaries in foreign countries. To operate the MNC as a system, the parent and its subsidiaries need continuing flows of data. Hence, the key element in the control system is the company's system for collection and dissemination of data on a worldwide basis. The company's information system between the parent and its subsidiaries generally consists of: (1) impersonal communications such as budgets, plans, programs, electronic messages, and regular reports; and (2) personal communications such as meetings, visits, and telephone conversations.

Communications essential to evaluating the performance of an enterprise usually follow established organizational channels. An effective communication system requires an efficient reporting system for collecting information on the results of actual operations and for disclosing deviations from predetermined standards. The more efficient the system, the more quickly managers may take corrective action.

Financial results of profitability have traditionally provided a standard to evaluate the performance of business operations. However, as MNCs expand their operations across national boundaries, the standard itself is affected by the environment in which they operate. Inflation and foreign-exchange fluctuations affect all the financial measures of performance for MNCs. To compare the results of various affiliates of an MNC, multinational financial managers must understand the various ways in which inflation and exchange fluctuations affect operations as measured by traditional financial statements.

20.1.1 Inflation and exchange rate fluctuations

Every control system establishes a standard of performance and compares actual performance with the standard. The most widely used standards are budgeted financial statements. The preparation of the statements is a planning function, but their administration is a controlling function. We will compare budgeted financial statements with actual financial statements to determine the impact of inflation and exchange rate fluctuations on financial statements. Budgeted statements are prepared without anticipated inflation or exchange rate fluctuations, but the actual statements are prepared after these phenomena have occurred.

THE IMPACT OF INFLATION ON FINANCIAL STATEMENTS Table 20.1 presents the effects of a 10 percent and a 20 percent rate of inflation on the major accounts of the balance sheet and the income statement. If we assume that one unit is sold every month and that prices increase at an even rate throughout the year, the annual inflation rates reflected on sales would be 5 percent and 10 percent instead of 10 percent and 20 percent.

If we follow the results of a case having a total annual inflation rate of 10 percent, or 0.83 percent per month, annual sales increase to 2,100 – a 5 percent increase over the budgeted price. The cost of goods sold increases by only 4 percent from the budgeted cost of 1,500 to the actual cost of 1,560, because the cost of goods sold is based on historical costs. We assumed that interest expenses remain constant. The budgeted depreciation charges are based on historical costs. The combination of higher prices in sales and the use of historical costs in the two major accounts will increase the profits after taxes by 20 percent from 100 to 120.

The effects of inflation on the balance-sheet accounts depend on the date when assets were acquired or liabilities incurred. Fixed assets and inventory are carried at cost, but accounts receiv-

Table 20.1 The impact of inflation on financial statements

		Actual, with annual inflation rate of:	
	Budget	*10%*	*20%*
Income statement (in foreign currency)			
Sales	2,000	2,100	2,200
Cost of goods sold	1,500	1,560	1,620
Gross margin	500	540	580
Depreciation	200	200	200
Operating income	300	340	380
Interest expense	100	100	100
Profit before taxes	200	240	280
Taxes (50%)	100	120	140
Profit after taxes	100	120	140

			Actual, with annual inflation rate of:	
	Initial	*Budget*	*10%*	*20%*
Balance sheet (in foreign currency)				
Cash	0	400	440	480
Accounts receivable	200	200	220	240
Inventory	100	100	110	120
Total current assets	300	700	770	840
Plant and equipment	350	350	350	350
Less: Depreciation	–	(200)	(200)	(200)
Total assets	650	850	920	990
Accounts payable	300	300	330	360
Notes payable	300	300	300	300
Taxes payable	–	100	120	140
Total current liabilities	600	700	750	800
Equity	50	50	50	50
Retained earnings	–	100	120	140
Total liabilities & equity	650	850	920	990

able and accounts payable are carried at the prices prevailing at the time of the transactions. The budgeted cash of 400 consists of profits after taxes (100), taxes payable (100), and depreciation (200).

THE IMPACT OF EXCHANGE RATE FLUCTUATION ON FINANCIAL STATEMENTS Let us assume that a subsidiary purchases its raw materials from country A and sells its finished products to country B. Thus, both exports and imports are denominated in foreign currencies. In this case, exchange rate fluctuations affect the level of both revenues and costs measured in terms of the domestic currency. Table 20.2 shows that an appreciation in the revenue currency (country B's

Table 20.2 The impact of currency fluctuations on profits

	Budget	*B's currency appreciates 10%*	*A's currency appreciates 10%*	*Both currencies appreciate 10%*
Sales	2,000	2,100	2,000	2,100
Cost of goods sold	1,500	1,500	1,560	1,560
Gross margin	500	600	440	540
Depreciation	200	200	200	200
Operating income	300	400	240	340
Interest expense	100	100	100	100
Profit before tax	200	300	140	240
Taxes (50%)	100	150	70	120
Profit after tax	100	150	70	120

currency) raises profits, assuming that costs remain constant. In contrast, an appreciation in the cost currency (country A's currency) reduces profits after taxes unless selling prices are adjusted to reflect the increase in costs.

There are similarities between the effect of inflation and the effect of exchange rate fluctuations on reported profits. If prices in the local currencies are increased by the same percentage as the increase in the cost of imports, the effect of exchange rate fluctuations on profits is identical with the effect of a comparable local inflation rate. A 10 percent increase in export prices, accompanied by a proportional increase in import prices, produces profits of 120; this is identical to the profit obtained when the local inflation rate was 10 percent in the example from table 20.1.

We cannot determine the true impact of exchange rate fluctuations on foreign operations unless a parent's accounts and those of its subsidiaries are expressed in terms of a homogeneous currency unit. Any changes in the value of the local currency relative to the parent currency will affect the reported profits when financial statements expressed in the local currency are translated into the currency of the parent company. The translation procedure, already discussed in chapter 10, is regulated by the accounting profession.

20.1.2 Performance evaluation

Performance evaluation is a central feature of an effective management information system. A management information system is a comprehensive system to provide all levels of management in a firm with information so that production, marketing, and financial functions can be effectively performed to achieve the objectives of the firm. Management must plan its economic activities in advance, carry out its plans, and make sure that deviations are properly evaluated and handled. Thus, performance evaluation based on the concept of the management information system relates to the fundamentals of the management process: planning, execution, and control.

Because every subsidiary is unique in many respects, each subsidiary should be evaluated on the basis of specific targets and individual objectives set for each. A survey of 125 MNCs by Person and Lessig (1979) identified four purposes of an internal evaluation system: (1) to ensure adequate profitability; (2) to have an early warning system if something goes wrong; (3) to have a basis for the allocation of resources; and (4) to evaluate individual managers. The study also

revealed that MNCs always use more than one criterion to evaluate the results of their foreign subsidiaries. Of course, the performance evaluation system is designed to measure actual performance against budgeted objectives as well as the prior year's results. In the best of situations, the evaluation system should monitor and control performance on a year-to-date and regular basis.

PERFORMANCE CRITERIA MNCs use multiple performance evaluation criteria because no single criterion can capture all facets of performance that interest management at the main headquarters. Moreover, no single basis of measurement is equally appropriate for all units of an MNC. For example, companies can appropriately evaluate their production unit on the basis of such measures as cost reduction, quality control, and meeting shipment targets. For a sales unit, however, cost reduction and quality control may be less appropriate than such measures as market share and number of new customers. Thus, it is highly desirable for companies to use multiple bases for performance measurement; that is, different ones for different kinds of operations in different countries.

Two broad groups of performance evaluation criteria – financial criteria and nonfinancial criteria – are used most widely by companies for evaluating their overseas operations. The **return on investment** relates enterprise income to some specified investment base such as total assets. Many companies compare their actual operating performance with their budgeted performance; budgets are pre-established standards against which operations are evaluated, compared, and adjusted by the exercise of control. Abdallah and Keller (1985) surveyed 64 MNCs to identify the financial criteria that they used to evaluate the performance of foreign subsidiaries. According to Abdallah and Keller, the four most important criteria were: (1) return on investment (ROI), (2) profits, (3) budgeted ROI compared to actual ROI, and (4) budgeted profit compared to actual profit.

Many MNCs do not confine their performance criteria to mere financial considerations. Nonfinancial criteria complement financial measures because they account for actions that may not contribute directly to profits in the short run but may contribute significantly to profits in the long run. The market share is measured by sales or orders received as a percentage of total sales in a market. The sales growth is measured by unit volume gains, selling price increases, and exchange variations. Other important nonfinancial criteria include quality control, productivity improvement, the relationship with the host-country government, cooperation with the parent company, employment development, employee safety, and community service.

Once questions of performance criteria have been resolved, companies should ascertain whether their criteria could be useful in comparing a foreign unit's performance against its competitors' performance, either in the same country or across different borders. However, there are many pitfalls in such comparisons. For example, it is almost impossible to determine the transfer pricing of competitors as well as their accounting principles. Certainly, cross-border comparisons would compound the problem even further. Companies with many affiliates – at home or abroad – must also take caution whenever questions of comparability arise. Differences in subsidiaries would automatically distort performance comparisons unless they are directly accounted for. Even if subsidiary objectives are the same, differences in country risk profiles, such as exchange controls and export subsidies, could distort performance comparisons.

PERFORMANCE MEASUREMENT ISSUES There are many crucial, yet perplexing, elements in the performance evaluation process. As described earlier, two measurement problems unique to MNCs are exchange rates and inflation.

Perhaps the most critical element in the evaluation process is how to deal with results that are denominated in currencies other than that of the parent company. The financial performance of overseas operations can be measured in terms of local currency, home-country currency, or both. If major changes occur in the exchange rates, the choice of currency can have a significant effect on the assessment of a foreign subsidiary's performance. For example, a subsidiary could make a profit in local currency but could incur a loss in the parent company's currency. Most US companies analyze the operating results of their foreign operations in dollar terms. However, several of these companies also use different rates for budgeting and performance tracking, because they recognize variations between actual and expected results, which arise purely from exchange rate changes.

Fluctuating exchange rates may pose the most significant obstacle to proper evaluation, but this is certainly not the only environmental factor. Wide variations and rapid changes in inflation rates from country to country also complicate the evaluation process. Generally, accepted accounting principles in the United States are based on the assumption of price stability. However, other countries have runaway inflation, thus making it essential to adjust local asset values for changing prices. Such restatements directly affect the measurement of various ROI components and performance statistics for budgeting purposes. Because failure to account for inflation may result in an overstatement of return on investment, company resources may not be channeled to their most promising use. Unfortunately, solutions to these problems are not readily formulated. Furthermore, MNCs must consider two sets of laws, two competitive markets, and two governments. As a result, pricing considerations in international business are more numerous, more complex, and more risky than those in purely domestic business.

20.1.3 Organizational structure

As strictly domestic companies evolve into MNCs, many internal and external pressures strain a firm's existing organizational structure. Some responsibilities are changed, new ones are created, and some existing ones are eliminated. Furthermore, control and finance functions change over time as changes occur in countries' socioeconomic environments. Companies must constantly adjust their organizational structure to deal with new opportunities and challenges as they grow, diversify, and internationalize.

How should the financial staff of a company with foreign operations organize itself to carry out tasks that require the specialized expertise of multinational finance? There are three basic forms of organizational structure: centralization, decentralization, and hybrid structure.

A centralized financial function has a strong staff at the parent company level, which controls virtually all treasury decisions. The subsidiary financial staff only implements the decisions of its parent company. In a decentralized financial function, parent-company executives issue a few guidelines, but most financial decisions are made at the subsidiary level. Many companies split responsibilities for international financial management between the corporate level and the regional level. The corporate level typically determines policy and grants ultimate approval on major financial decisions. However, day-to-day decisions to implement policy are made at regional headquarters.

Both centralization and decentralization carry advantages. The advantages of a centralized financial function include close control of financial issues at headquarters, attention of top management to key issues, and an emphasis on parent-company goals. A decentralized company may argue that these advantages could be disadvantages. Data collection costs may be enormous,

centralized decision-making may stifle flexibility, and many opportunities may be lost because of slow actions.

DECISION VARIABLES The ultimate choice of a particular organizational structure depends largely upon the types of decisions one must make: (1) transfer pricing and performance evaluation, (2) tax planning, (3) exchange exposure management, (4) acquisition of funds, and (5) positioning of funds.

First, transfer pricing decisions made to minimize taxes may ruin the performance evaluation system for foreign subsidiaries. This problem sometimes forces a company to keep a second set of books for evaluation purposes. Many MNCs may, in fact, keep three or more sets of books: one for taxes, one for financial reporting, and one for evaluation purposes. There may be a need for two transfer prices: one for tax purposes made at headquarters and one for evaluation purposes decided by direct negotiations between affiliates.

Second, the centralized organization usually works well to minimize worldwide taxes. When tax planning is centralized, it is easier to use tax-haven countries, tax-saving holding companies, and transfer pricing. Thus, it is more efficient for MNCs to centralize their tax planning function rather than allow each region to create its own layer of tax havens and holding companies.

Third, most companies centralize their foreign-exchange exposure management, because it is difficult for regional or country managers to know how their foreign-exchange exposure relates to other affiliates.

Fourth, many MNCs borrow money from local sources for their working capital. On the other hand, cheap sources of funds depend upon alternatives in all capital markets and the cost of exchange gains or losses. Regional managers can hardly know all alternative sources of funds outside a local market.

Fifth, positioning funds involves paying dividends and making intracompany loans, thereby reducing consideration of total corporate tax liabilities, foreign-exchange exposure, and the availability of capital. Consequently, most companies tend to control positioning of funds from a centralized vantage point rather than from a regional viewpoint.

20.1.4 The Foreign Corrupt Practices Act

The US Securities and Exchange Commission (SEC) first investigated illegal foreign payments in 1974, with its probe of questionable contributions by US companies to the reelection campaign of former President Nixon. Subsequent inquiries by the SEC, the Department of Justice, and the Senate Foreign Relations Committee disclosed questionable payments of $300 million by 450 companies. Revelations of such dubious payments by US firms to foreign officials rocked governments in Japan and the Netherlands.

Congress felt that the US corporate bribery (1) tarnished the credibility of American business operations, (2) caused embarrassment with allies and foes alike, (3) created foreign-policy difficulties, and (4) generally tarnished the world's image of the USA. Consequently, they passed and signed the **Foreign Corrupt Practices Act (FCPA)** on December 19, 1977, as an amendment to the Securities Exchange Act of 1934. In 1988, the FCPA was modified in an effort to address its perceived deficiencies. In December 1997, members of the Organization for Economic Development and Cooperation (OECD) with five other nations signed a binding convention to outlaw bribery in international business dealings.

THE CONTENT OF THE FCPA The FCPA consists of two separate sections, antibribery and accounting. The antibribery section was the first piece of legislation in US history to make it a criminal offense for US companies to corruptly influence foreign officials or to make payments to any person when they have "reason to know" that part of these payments will go to a foreign official. In other words, the FCPA applies only to US companies and not to their agents or subsidiaries. US companies or citizens could, however, be held in violation of the law if they had "reason to know" that their subsidiaries or agents would pay bribes on their behalf.

The accounting section establishes two interrelated accounting requirements. First, public companies must "keep books, records and accounts, which, in reasonable detail, accurately and fairly reflect the transactions and dispositions" of their assets. Second, corporations are also required to "devise and maintain a system of internal accounting controls sufficient to provide reasonable assurance" that transactions have been executed in accordance with management's authorized procedures or policies.

Congress concluded that the antibribery and accounting sections would effectively prevent payments of foreign bribes and off-the-book slush funds. Penalties for violations include fines and jail time. Thus, both the antibribery section and the accounting section are enforced through civil and criminal liabilities.

MODIFYING THE FCPA President Reagan signed the FCPA amendment of 1988 into law as part of an omnibus trade bill. Most proponents of its changes affirmed the original purposes of the FCPA. They found that the FCPA had been effective in curtailing bribes, kickbacks, and other unethical activities by US companies. Still, the 1988 amendment removed one of the statute's strongest export disincentives: the threat of statutory criminal liability based on accidental or unknowing negligence in the retention of certain accounting records. So, only corporate employees who "knowingly" circumvent corporate accounting controls or falsify records of corporate payments are now subject to criminal liability. In fact, the old law and the new law differ in notable ways:

1 The old law assessed both civil and criminal sanctions against both deliberate and negligent violators of the accounting section. The new law assesses only civil (no criminal) penalties against negligent or unintentional violators of the accounting section. Violators convicted of an intent to deceive still face criminal penalties.
2 The old law did not define "reasonable detail" in the accounting section and "reason to know" in the antibribery section. The new law defines them as those that would satisfy a "prudent individual" under similar circumstances.
3 The old law did not define "grease payments" and virtually precluded all forms of grease payments to foreign officials. In fact, grease payments were enforced via both civil and criminal sanctions. The new law specifically permits such grease payments if: (1) they help expedite routine governmental action; (2) they are legal in that foreign country; or (3) they demonstrate gratitude or reimbursement for expenses incurred in connection with a contract.
4 The old law had been severely criticized from its inception on the ground that it was vague and difficult to interpret. Still, no government agency issued interpretive guidelines. The new law specifies that the government will issue a set of clear guidelines if the business community wants further clarification.
5 The old law did not require any government agency to give its opinion on the legality of a contemplated transaction. The new law requires the Department of Justice to give its

opinion on the legality of a planned transaction within 30 days after receiving the necessary information.

6 Penalties for violations increased from $1 million to $2 million for corporations and from $10,000 to $100,000 and/or 5 years in jail for individuals. The Internal Revenue Service will not allow a firm to treat a foreign bribe as a business expense for tax purposes: such bribes are treated as profits currently subject to US taxation. A company is not allowed to reimburse individuals for fines paid as a consequence of violating the FCPA.

7 Enforcement of the antibribery provisions for all jurisdictions has been consolidated within the Justice Department. The SEC retains the responsibility to enforce the provisions of the accounting section.

20.2 International Taxation

Usually, one of the most important variables in multinational operations is taxation. Perhaps no environmental variable, with the possible exception of foreign exchange, has such a pervasive influence on all aspects of multinational operations as taxation: (1) the choice of location in the investment decision, (2) the form of the new enterprise, (3) the method of finance, and (4) the method of transfer pricing.

International taxation is complicated because tax laws differ among countries and are constantly changing. Hence, it is not accidental that international taxation still remains somewhat of a mystery for many international executives. For example, multinational financial managers need to understand the following:

1 Shareholders of foreign and domestic corporations are subject to different rules.
2 Accounting for foreign taxes on foreign operations is not identical to that on domestic operations.
3 Bilateral tax treaties and foreign tax credits exist to avoid double taxation of income.
4 Many countries offer a number of tax incentives to attract foreign capital and know-how.
5 Tax savings realized in low-tax countries may be offset by taxes on undistributed earnings.

There are many such added complexities because governments have failed to come to any general agreement on tax policies. Each country has its own tax philosophies, tax incentives, transfer pricing policies, and the like. Multinational financial managers must sort them out in order to maximize profitability and cash flow. To attain this end, they must acquaint themselves with the overall tax environment.

20.2.1 Types of taxes

MNCs face a variety of direct and indirect taxes. **Direct taxes** include corporate income taxes and capital gains taxes. **Indirect taxes** include value-added taxes, tariffs, and withholding taxes. In addition to these direct and indirect taxes, MNCs may have to pay property taxes, payroll taxes, stamp and registration taxes, taxes on registrations of agreements of various types, sales and excise taxes (excluding value-added taxes), and taxes on undistributed earnings.

INCOME AND CAPITAL GAINS As with individual income taxes, corporate income taxes are an important source of revenue for many countries. Because most developing countries have low per capita income, individual income taxes or sales taxes are not very appropriate. Thus, developing countries obtain a larger share of government revenues from corporate income taxes than industrial countries.

Gains and losses on sales of capital assets are called **capital gains and losses**. Capital assets are those assets that are not primarily for resale and not acquired in the ordinary course of business. These assets include stocks and bonds. If capital assets are held longer than a specified period of time, gains on sales of these assets may be subject to preferential tax treatment:

- **Value-added taxes** are a special type of sales tax. Sales taxes are those taxes assessed at one or more stages in the production process. In Canada, sales taxes are levied when production is complete; in England, when products are wholesaled; in the USA, when products are retailed; and in some European countries, at all stages in the production cycle. Many European countries have adopted the value-added tax as the major source of revenue to avoid the compounding effect of sales taxes. For example, if a car dealer purchased a car for $10,000 from a car manufacturing company and then sold it for $15,000, the value added would be $5,000 and the tax would be levied on this $5,000 increment.
- **Tariffs** are simply taxes assessed on imported goods, which parallel excise and other indirect taxes paid by domestic producers of similar goods. They may be imposed for purposes of revenue or protection. When tariffs are employed to increase revenues, they are usually modest. However, when tariffs are used to protect domestic companies from foreign competition, they are typically high. Although protective tariffs do not eliminate the importation of foreign products completely, they clearly put foreign sellers at a comparative disadvantage. In this instance, consumers must pay more for foreign goods, which in turn would reduce their consumption of imported commodities.
- **Withholding taxes** are those taxes imposed by host governments on dividend and interest payments to foreign investors and debt holders. These taxes are collected before receipt of the income. In other words, they are usually withheld at the source by the paying corporation. For example, a 20 percent withholding tax on $10,000 interest payments to foreigners means that the tax proceeds of $2,000 are deducted from the interest payment made to the lender and collected by the borrower on behalf of the government. Hence, the purchaser of the bonds would receive only $8,000, or 80 percent of the $10,000 interest payment. Withholding taxes are generally modified by bilateral tax treaties, because they frequently restrict the international movement of long-term investment capital.

20.2.2 Tax morality

The issue at stake is the conflict between economics (profits) and ethics (corporate morality). Some business executives think that profits are one thing and corporate morality is another; thus, they conclude that they have to make a choice. It is well known that in many countries both corporate and individual taxpayers are not completely honest with their tax authorities. MNCs must decide whether to comply with the tax laws voluntarily. Although most MNCs comply fully with the tax laws, some companies feel that they should evade taxes to the same extent as their competitors in order to protect their competitive position. Ethical standards vary greatly

among people, companies, and societies because business ethics are partly a function of cultural patterns and historical development. Therefore, there is obviously no universally accepted answer to the problem.

Host governments also have a similar moral problem. Two basic tax principles are that taxes should be equitable and neutral. In other words, taxes should be fair to everyone, and they should not affect decisions in the economic system. Nevertheless, many countries have imposed some arbitrary tax penalties on MNCs for presumed violations of local tax laws. Many developing countries have various tax incentive programs for private foreign investments. These tax incentive programs abandon the principle of an economically neutral system. Under a neutral tax system, if we want the most efficient economic system, supply and demand should be left alone to determine prices and economic activity.

20.2.3 Tax burdens

Because different countries have varying statutory rates of income tax, differences in overall tax burdens are another natural feature of international business operations. The corporate tax rate ranges from zero in such tax-haven countries as the Bahamas to 60 percent in such countries as Libya.

Differences in definitions of taxable corporate income create greater disparities than differences in nominal corporate tax rates. Thus, differential tax rates tell us only part of the story. In one country, taxable income may be computed on a cash basis, while in another country it may be determined on an accrual basis. Investment allowances and credits, reserves, the timing of depreciation deductions, and asset valuations vary greatly from country to country. Some countries provide companies with full credit for taxes on the income paid in other countries.

Tax systems also affect relative tax burdens internationally. In general, there are three classes of systems: single tax, double tax, and partial double tax. Under the single tax system, income is taxed only once. If corporations pay no taxes, their stockholders pay taxes on dividends. Under the double tax system, corporations pay taxes on profits at a given rate and dividends are then taxed as income to stockholders at their personal income tax rates. Under the partial double tax system, taxes are levied on corporate income, but dividends are taxed at a lower rate than other forms of personal income, or distributed corporate earnings are taxed at a lower rate than undistributed earnings (retained earnings).

CARRYBACKS AND CARRYFORWARDS An operating loss is the excess of deductible expenses over gross income. Operating losses can often be carried back or forward to offset earnings in other years. Tax provisions for carrybacks and carryforwards vary among countries. Most countries do not permit operating losses to be carried back. However, virtually all countries allow companies to carry their losses forward for a limited number of years.

US companies may carry their excess foreign tax credit back 3 years and carry it forward 15 years to offset US tax on foreign-source income. The choice depends largely upon whether a company has had foreign-source income in the 2 years immediately prior to the excess foreign tax credit. If this is the case, the company must carry the excess foreign tax credit back in order to expedite the refund of tax payment.

The purpose of this provision is to allow corporations to average their operating results, which fluctuate widely from year to year. However, some profitable MNCs have used the carryback and carryforward feature as a means of reducing their taxable income by merging with other firms that have considerable operating losses or excess foreign tax credits.

20.2.4 Parent-country taxation of multinational operations

Countries differ with respect to their tax treatment of foreign-source income earned by their MNCs. Major differences include varying interpretations of tax neutrality, the method of granting credit for foreign-income taxes already paid, and concessions gained in bilateral tax treaties.

TAX NEUTRALITY A **neutral tax** is one that would not affect the location of the investment or the nationality of the investor. Tax neutrality is justified on the ground that world welfare would be increased if capital were free to move from countries whose rate of return is low to those whose rate of return is high.

Tax neutrality consists of domestic neutrality and foreign neutrality. Domestic neutrality means the equal treatment of Americans who invest at home and Americans who invest abroad. This neutrality involves equalization of all taxes on profits.

Foreign neutrality indicates that the tax burden imposed on each foreign subsidiary of a US company should equal the tax burden placed on its competitors in the same country. The firm owned by residents of the host country and the foreign subsidiary of a non-US company are the two basic types of competitors faced by the foreign subsidiary of a US firm.

Tax neutrality is designed to achieve a status of equality within the tax system. In practice, however, it is difficult to define and measure tax neutrality. The issue of tax equality is also difficult to define and measure. Many governments claim that they tax foreign income at the same rate as domestic income. However, most countries in the world have many important departures from the theoretical norm of tax neutrality.

TAX TREATIES Countries enter into bilateral tax treaties to avoid double taxation and thus to encourage the free flow of investments internationally. Treaty countries agree on how taxes will be imposed, shared, or otherwise eliminated on business income earned in one taxing jurisdiction by nationals of another.

Tax treaties are designed to serve the following four purposes:

1 To prevent double taxation on the same income.
2 To prevent national tax discrimination against foreign nationals of the other treaty country.
3 To increase predictability for the nationals of the treaty nations by specifying taxable obligations. Predictability also tends to reduce opportunities for tax evasion or tax fraud.
4 To specify the type of tax subsidies that will be mutually acceptable to both treaty nations.

The provisions of most tax treaties override the provisions of national income tax laws. For example, Section 8894 of the US Internal Revenue Code states that "income of any kind, to the extent required by any treaty obligation of the United States, shall not be included in gross income and shall be exempt from taxation under this subtitle." Thus, US tax treaties provide that profits earned by US companies in a foreign country are exempt from taxation unless they have

permanent establishment in the foreign country. Tax treaties also reduce withholding taxes on dividends, interest, and royalties.

FOREIGN TAX CREDITS The purpose of the foreign tax credit is to avoid international double taxation when profits earned abroad become subject to the full tax levies of two or more countries. Under the **foreign tax credit** system, the USA relinquishes tax on profits earned abroad up to the amount of the foreign tax. Thus, the foreign government takes the first bite of profits earned in its jurisdiction. In addition, taxes subject to these credit provisions include withholding taxes on dividends, interest, and other income.

Example 20.1

Assume that a US corporation has $1,000 of foreign income earned in the United Kingdom. The US tax rate is 35 percent and the UK tax rate is 30 percent. The net US tax of $50 is computed as follows:

Foreign income	$1,000
Foreign tax (30%)	300
Net income after tax	$ 700
US taxable income	$1,000
US tax (35%)	$ 350
Foreign tax credit	300
US tax payable	$ 50
Total foreign and US taxes	$ 350
Effective tax rate	35%

As this example illustrates, the purpose of the foreign tax credit is to limit the total tax on foreign income to the higher tax rate of the two countries. If the foreign tax on income earned abroad and remitted to the USA is less than or equal to the US tax rate, that income will be subject to a total tax of 35 percent. Thus, if the foreign tax rate is lower than the US rate, the US government receives some tax revenues on the foreign income. If the foreign tax rate is higher than the US rate, the US government receives no tax revenues on the foreign income.

As an alternative to the foreign tax credit, US companies can treat any foreign tax paid directly as a deductible expense. Because both a credit and deduction cannot be claimed in the same year, the US company must decide whether to claim the credit or deduction for foreign income taxes. In general, it is advantageous to claim a credit against federal income tax rather than a deduction.

Example 20.2

Assume that a US corporation has $1,000 of foreign income earned in Spain. Spain and the USA have an identical tax rate of 35 percent. The following computation shows that the credit is better than the deduction:

	Foreign tax credit	Foreign tax deduction
Foreign income	$1,000	$1,000
Foreign tax (35%)	350	350
Net income after tax	650	650
US taxable income	$1,000	$ 650
US tax (35%)	$ 350	$ 227
Foreign tax credit	350	0
US tax payable	$ 0	$ 227
Total foreign and US taxes	$ 350	$ 577
Effective tax rate	35%	57.7%

20.2.5 Tax incentives for foreign investment

The location of foreign investment is influenced by three major tax factors: tax incentives, tax rates, and tax treaties. The existence of tax incentives can significantly reduce the cash outflow required for an investment project, which will increase the net present value of the project. It is important to be familiar with local tax laws, because the determination of revenues and expenses for tax purposes is a function of tax laws in most countries. Tax treaties are essential in terms of how they affect the cash flows related to withholding taxes on dividends, interest, and royalties. Paying close attention to tax treaties can help investors to wisely choose the location of their legal operations.

Many countries, especially developing countries, offer tax incentives to attract foreign capital and know-how to their countries. The four basic forms of tax incentive programs are government concessions, tax havens, foreign trade zones, and other tax incentives.

GOVERNMENT CONCESSIONS Developing countries offer many concessions to attract MNCs. Most concessions are in the form of a complete tax exemption for the first few years, known as "tax holidays." Some other forms of temporary tax concessions include reduced income tax rates, tax credits on new investments, tax deferrals, and reduction or elimination of various indirect taxes. These concessions, along with lower labor costs in relation to developed countries, have made many developing countries attractive for assembly and manufacturing operations.

TAX HAVENS Those countries that offer strict bank-secrecy laws and zero or low taxation in order to attract foreign investors and depositors are known as **tax havens**. These nations have few natural resources. In addition to low tax rates, tax havens must have (1) a stable government, (2) good communication facilities, (3) freedom of currency movements, and (4) the availability of financial services. Tax havens may be classified into four broad categories:

1 Countries with no income taxes, such as the Bahamas, Bermuda, and the Cayman Islands.
2 Countries with very low taxes, such as Switzerland, Liechtenstein, and the Channel Islands.
3 Countries that tax income from domestic sources but exempt income from foreign sources, such as Liberia and Panama.
4 Countries that allow special privileges to make them suitable as tax havens for very limited purposes.

A large number of MNCs have foreign affiliates that act as tax havens for corporate funds. These corporate funds are held in the tax havens until they are reinvested or repatriated elsewhere. Tax-haven affiliates are the outgrowth of tax-deferral features on foreign earnings allowed by some parent countries to their MNCs. Normally, parent companies could defer taxes on their foreign earnings until these earnings are received as dividends.

Increasing capital flows across countries have many benefits, but they pose policy challenges, such as tax avoidance and tax evasion. The vast increase in global capital flows has made it tougher for countries to monitor their taxpayers for compliance: "Nobody really knows how much tax revenue is lost to offshore schemes, but everybody agrees it is huge – by one estimate about $70 billion a year in the US alone" (Allen 2000). Thus, industrialized countries have recently pressured tax havens to adopt international standards for banking regulation and safeguards against money laundering activities.

THE FOREIGN TRADE ZONE (FTZ) A foreign trade zone is an enclosed area where domestic and imported merchandise can be stored, inspected, and manufactured without being subject to formal customs procedures until the goods leave the zone. There are thousands of these areas in most countries around the world.

FTZs have operated in the USA since the passage of the Foreign Trade Zone Act of 1934. This law also created the Foreign Trade Zone Board, which authorizes and regulates activities within the FTZs. Over the years, the law and administration have been liberalized to permit more activities within the FTZs and more flexibility in the location of FTZs. The number of FTZs has increased from less than a dozen before 1970 to well over 600 today.

Goods in FTZs have not entered the country so far as import documentation, collection of customs duties, and the allocation of quotas or other import restrictions are concerned. Federal and local excise taxes are not levied on goods while they are located in FTZs. Except for customs and excise taxes, products and firms in FTZs are subject to the same local and federal laws and regulations, such as immigration laws, safety laws, and regulation of carriers.

FTZs must be located adjacent to US customs "ports of entry," but these are no longer located adjacent to "inland ports of entry." Within FTZs, companies may store and assemble imported goods. They may also use imported parts and raw materials to conduct manufacturing operations in FTZs.

Although the advantages of the FTZ to importers are well known, its benefits to exporters appear to have been overlooked. FTZs can provide accelerated export status for purposes of excise

tax rebates and customs drawbacks. Manufacturers of such items as tires, trucks, and tobacco products are required to pay federal excise taxes when these items are produced, but the taxes are rebated if the items are exported. Companies must pay duty on the imports, but this duty is returned when the product is exported (custom drawback). Because the recovery of this money takes time, the exporter can have considerable capital tied up in excise taxes and import duties. The use of FTZs resolves this problem. A product is considered exported as soon as it enters an FTZ and thus the exporter can immediately apply for a rebate or a drawback while waiting to make an export sale.

20.3 Transfer Pricing and Tax Planning

Transfer prices are prices of goods and services bought and sold between parent companies and subsidiaries. Internal transfers include raw materials, semifinished goods, finished goods, allocation of fixed costs, loans, fees, royalties for use of trademarks, and copyrights. International transfer pricing policies become increasingly complex as companies increase their involvement in international transactions through foreign subsidiaries, joint ventures, and parent-owned distribution systems. Discrepancies between transfer pricing methods used by companies and those allowed by taxing agencies take place because taxing agencies and companies have different objectives. For example, MNCs try to maximize profits and improve performance evaluation by manipulating internal transfer prices. Taxing authorities, on the other hand, try – through fair market prices – to allocate the profit of a sale between their country and other countries. Thus, multinational financial managers must understand transfer pricing objectives and their impact on transfer prices.

20.3.1 Transfer pricing objectives

Transfer pricing strategies are sensitive internal corporate issues, because successful pricing is a key element in achieving profits. Transfer pricing also helps MNCs determine how company profits are allocated across divisions. Governments show interest in transfer pricing because these prices will decide tax revenues and other benefits. So, many host governments have policing mechanisms to review the transfer pricing policies of MNCs.

Transfer pricing has the following objectives:

1 Income tax minimization.
2 Import duty minimization.
3 Avoidance of financial problems.
4 Adjustment for currency fluctuations.

INCOME TAX MINIMIZATION Many researchers have singled out tax minimization as an important variable influencing international transfer pricing decisions. Their finding is not surprising, because transfers between related business entities account for approximately 35 percent of total world trade. Economic benefits are immediate if transfer prices can shift profits from a country with a higher tax rate to a country with a lower tax rate. Yet a company using transfer pricing for maximizing profits must balance this approach by having prices that are consistent with the regulations of taxing authorities.

Example 20.3

To illustrate the tax effects of a change in transfer prices on corporate earnings, assume the following. (1) Affiliate A is in a low-tax country (20 percent tax rate) and affiliate B is in a high-tax country (50 percent tax rate). (2) Affiliate A produces 100 radios for $5 per unit and sells them to affiliate B. (3) Affiliate B sells these radios for $20 per unit to an unrelated customer. Table 20.3 shows the tax effects of low ($10 per unit) versus high ($15 per unit) transfer price on company earnings.

Table 20.3 The tax effects of low versus high transfer prices

	Low tax, A	*High tax, B*	*Combined, A + B*
Low transfer price			
Sales price	$1,000	$2,000	$2,000
Cost of goods sold	500	1,000	500
Gross profit	$ 500	$1,000	$1,500
Operating expenses	200	400	600
Earnings before taxes	$ 300	$ 600	$ 900
Taxes (20%/50%)	60	300	360
Net income	$ 240	$ 300	$ 540
High transfer price			
Sales price	$1,500	$2,000	$2,000
Cost of goods sold	500	1,500	500
Gross profit	$1,000	$ 500	$1,500
Operating expense	200	400	600
Earnings before taxes	$ 800	$ 100	$ 900
Taxes (20%/50%)	160	50	210
Net income	$ 640	$ 50	$ 690

Under the low transfer price, A pays taxes of $60 and B pays taxes of $300 for a total tax bill of $360 and a consolidated net income of $540. Under the high transfer price, A pays taxes of $160 and B pays taxes of $50 for a total tax bill of $210 and a consolidated net income of $690. Earnings before taxes are the same at $900, despite the different prices at which the radios transfer from A to B. Still, the higher transfer price reduces total taxes by $150 ($360 – $210) and increases consolidated net income by the same amount ($690 – $540).

IMPORT DUTY MINIMIZATION Affiliate A sells goods to affiliate B. The rule of thumb for income tax minimization is: (1) set the transfer price as high as possible if A's tax rate is lower than B's tax rate; and (2) set the transfer price as low as possible if A's tax rate is higher than B's tax rate. The introduction of import duties complicates this rule, because multiple objectives could conflict. For example, a lower transfer price reduces import duties, but it increases income taxes. A higher transfer price reduces income taxes, but it increases import duties. Suppose that B must pay import duties at the rate of 10 percent. Import duties are normally levied on the invoice (transfer) price. The higher transfer price raises tariffs by \$50 ($\$1{,}500 \times 0.10 - \$1{,}000 \times 0.10$), thus offsetting tax effects of \$50 in terms of increased tariffs.

Import duty minimization is easy, but tax reductions, which have offsetting effects, may complicate it. Also, a country with low import duties may have high income taxes, while a country with high import duties may have low income taxes. If MNCs use low or high transfer prices in certain countries, they have to balance import duties and income taxes to maximize a combined benefit from tariff and income tax reductions.

AVOIDANCE OF FINANCIAL PROBLEMS Transfer prices can be used to avoid financial problems or to improve financial conditions. Transfer pricing often avoids economic restrictions and exchange controls that host countries place on MNCs. For example, some developing countries restrict the amount of profits that can leave the country. An obvious way around this restriction is to charge high prices for imports. Therefore, countries with such restrictions watch import and export prices closely.

Some countries do not allow MNCs to charge certain expenses against taxable income. For instance, they do not permit expenses for research and development done elsewhere. Royalty fees a parent company charges against its subsidiary income are often not allowed. Because the host country does not allow them, they can be recaptured by increasing the transfer price of goods shipped into the country.

Transfer prices can also channel profits into an affiliate to bolster its financial condition, thus presenting a favorable profit picture to satisfy earnings criteria set by foreign lenders. Therefore, the parent company does not need to commit much capital to its foreign subsidiary, even though the subsidiary may be required to secure the loan. Besides, low transfer prices give the subsidiary a competitive edge that it might need when starting a new venture or when reacting to an economic downturn.

ADJUSTMENT FOR CURRENCY FLUCTUATIONS A wide range of currency fluctuations may influence the performance reports of foreign subsidiaries. Many US MNCs evaluate the performance of foreign subsidiaries with reports stated in US dollars. If currency exchange rates fluctuate, it may be difficult to evaluate the performance of the subsidiary. The management of the subsidiary often prefers to evaluate its performance with reports stated in local currency rather than in US dollars. Adjusting transfer prices for currency fluctuations can solve this performance evaluation problem. Performance evaluation, however, is difficult when the objective is tax minimization or when currency fluctuates. One subsidiary's profit in one country may be greater than another subsidiary's profit in another country, not because of better management but because of the transfer price. One way to solve this problem is to maintain two sets of books: one for foreign authorities and another set for performance evaluation purposes.

SUMMARY

Multinational accounting has become increasingly important in recent years because of a great increase in foreign investment, capital flows, and trade. Accurate financial reports on operations must be prepared for stockholders and creditors to make decisions about the value of existing operations. They are especially important in international business where operations are typically supervised from a distance. This chapter has discussed major issues in multinational accounting, control system and performance evaluation, and the Foreign Corrupt Practices Act of 1977. Financial control systems must fit international circumstances to check performance against standards on a worldwide basis. The Foreign Corrupt Practices Act of 1977 intended to stop the erosion of international confidence in US business and institutions. The FCPA made it unlawful for US companies to influence foreign officials through payments and required these firms to maintain strict accounting controls over their assets. For many years, a large number of US business executives had regarded the FCPA as one of the statute's strongest export disincentives. Thus, Congress amended the FCPA in 1988 to make US companies more competitive in the world market. In addition, by the end of 1998, countries around the world had adopted tough laws of their own to crack down on companies that bribe to win foreign contracts.

For multinational operations, taxation has a significant impact on the choice of location in the initial investment decision, the form of the new enterprise, the method of finance, and many other international financial decisions. Tax planning for multinational operations involves complex problems such as national tax environments, double taxation, and various tax incentive programs. Thus, it is highly desirable that MNCs seek the inputs of experienced tax and legal counsel in both parent and host countries. Nevertheless, to preserve profit opportunities abroad and to receive special tax incentives, it is important for the financial manager of an MNC to be acquainted with the national tax environments and other tax problems in the host countries in which the company operates.

Transfer prices are prices of goods and services bought and sold between parent companies and subsidiaries. Internal transfers include raw materials, semifinished goods, finished goods, allocation of fixed costs, loans, fees, royalties for use of trademarks, and copyrights. International transfer pricing policies become increasingly complex as companies increase their involvement in international transactions through foreign subsidiaries, joint ventures, and parent-owned distribution systems. Discrepancies between transfer pricing methods used by companies and those allowed by taxing agencies take place because taxing agencies and companies have different objectives. For example, multinational companies try to maximize profits and improve performance evaluation by manipulating internal transfer prices. Taxing authorities, on the other hand, try – through fair market prices – to allocate the profit of a sale between their country and other countries. Thus, multinational financial managers must understand transfer pricing objectives and their impact on transfer prices.

Questions

1 Explain two major problems that make multinational accounting complicated.
2 Why are budgets and the return on investment in performance evaluation systems more frequently used than any other indicators?
3 Discuss centralization versus decentralization as it impinges on decisions relating to transfer pricing and performance evaluation, exchange exposure management, acquisitions of funds, positioning of funds, and tax planning.
4 What is the Foreign Corrupt Practices Act? What are the two sections of this law?
5 Why is taxation one of the most important variables in multinational operations?
6 In what general ways do countries differ with regard to their tax systems?
7 Explain tax morality from the viewpoints of both multinational companies and host governments.
8 What is double taxation? How can its effect be lessened?
9 List some key objectives of transfer pricing policies.
10 Is it possible for a multinational company to minimize both income taxes and import duties simultaneously?
11 How do multinational companies use transfer prices to avoid financial problems faced by their subsidiary?

Problems

1 AT&T purchases its raw materials from Germany and sells its finished products to Japan. Both exports and imports with terms "net 60 days" are denominated in foreign currencies (the yen and the euro), but the levels of both revenues and costs are measured in the US dollar. AT&T has: sales = $4,000; cost of goods sold = $3,000; depreciation = $400; interest expenses = $200, and tax rate = 50 percent. Assume that the euro and the Japanese yen appreciate by 10 percent before these credit transactions are settled.
   (a) Use the above information to prepare an income statement such as table 20.2.
   (b) Under what condition will a 10 percent appreciation in the yen raise AT&T's profits?
   (c) Under what condition will a 10 percent appreciation in the euro reduce AT&T's profits?
   (d) What will happen to AT&T's profits if selling prices and costs are adjusted to reflect the 10 percent appreciation in both the yen and the euro?
2 The following selected amounts are from the separate financial statements of a US parent company and its foreign subsidiary:

	Parent	Subsidiary
Cash	$ 180	$ 80
Accounts receivable	380	200
Accounts payable	245	110
Retained earnings	790	680
Revenues	4,980	3,520
Rent income	0	200
Dividend income	250	0
Expenses	4,160	2,960

Additional assumptions are as follows: (1) the parent owes the subsidiary $70; (2) the parent owns 100 percent of the subsidiary; (3) during the year, the subsidiary paid the parent a dividend of $250; (4) the subsidiary owns the building that the parent rents for $200; and (5) during the year, the parent sold some inventory to the subsidiary for $2,200, whose cost was $1,500 to the parent, and in turn, the subsidiary sold the inventory to an unrelated party for $3,200.

(a) What is the parent's unconsolidated net income?
(b) What is the subsidiary's net income?
(c) What is the consolidated profit on the inventory that the parent originally sold to the subsidiary?
(d) What are the amounts of the following items, on a consolidated basis?
- cash
- accounts receivables
- accounts payable
- revenues
- expenses
- dividend income
- rent income
- retained earnings.

3 Assume that: (a) a multinational corporation has $1,000 of foreign income; (b) the foreign country's tax rate is 40 percent; and (c) the domestic tax rate is 50 percent. What is the domestic tax liability?

4 Assume that: (a) a multinational corporation has $1,000 of foreign income; (b) the foreign country's tax rate is 50 percent; and (c) the domestic tax rate is 50 percent. The multinational company can treat any foreign tax paid directly as a deductible expense or as a tax credit. What are the effective tax rates of the multinational corporation under the credit and the deduction?

5 A US company has $100 of foreign income earned in Belgium. Assume that the US tax rate is 35 percent and the Belgium tax rate is 33 percent. Demonstrate the difference in US tax liability that arises from double taxation, a tax deduction, and a tax credit.

6 Assume a value-added tax of 10 percent. What would be the selling price and taxes at each stage if the following were the values added?

Seller	Value added by seller
Extractor	$300
Processor	500
Wholesaler	75
Retailer	75

7 Eurowide Corporation has two foreign affiliates: A is in a low-tax country (30 percent tax rate) and B is in a high-tax country (50 percent tax rate). Affiliate A produces partially finished products and sells them to affiliate B, where the production process is completed. The *pro forma* income statements of these two affiliates are shown in the following table. Assume that the company increases its transfer price from $3,000 to $3,600. Determine the tax effect of this high transfer price on the company's consolidated net income.

Pro forma income statements for two affiliates

	Low tax A	High tax B	Combined A + B
Low transfer prices			
Sales price	$3,000	$4,400	$4,400
Cost of goods sold	2,000	3,000	2,000
Gross profit	$1,000	$1,400	$2,400
Operating expenses	200	200	400
Earnings before taxes	$ 800	$1,200	$2,000
Taxes (30%/50%)	240	600	840
Net income	$ 560	$ 600	$1,160

8 Eurowide Corporation has two foreign affiliates: A is in a low-tax country (30 percent tax rate) and B is in a high-tax country (50 percent tax rate). Affiliate A produces partially finished products and sells them to affiliate B, where the production process is completed. Affiliate B must pay import duties at the rate of 10 percent – 10 percent of the value of the imported goods. These tariffs are tax deductible. The *pro forma* income statements of these two affiliates are shown in the following table. Assume that the company increases its transfer price from $3,000 to $3,600. Determine the tax-plus-tariff effect of this high transfer price on the company's consolidated net income.

Pro forma income statements for two affiliates

	Low tax A	High tax B	Combined A + B
Low transfer prices			
Sales price	$3,000	$4,400	$4,400
Cost of goods sold	2,000	3,000	2,000
Import duty (10%)	–	300	300
Gross profit	$1,000	$1,100	$2,100
Operating expenses	200	200	400
Earnings before taxes	$ 800	$ 900	$1,700
Taxes (30%/50%)	240	450	690
Net income	$ 560	$ 450	$1,010

9 Assume that IBM's Canadian subsidiary sells 1,500 personal computers per month to the German affiliate at a transfer price of $2,700 per unit. The tax rates are 45 percent for Canada and 50 percent for Germany. The transfer price can be set at any level between $2,500 and $3,000.
   (a) At what transfer price will IBM taxes be minimized? Explain.
   (b) If the German government imposes an import duty of 15 percent on imported personal computers, at what transfer price will IBM tariffs be minimized? Explain.

10 Suppose that Ford Motor sells 100 trucks per month to its Mexican subsidiary at a transfer price of $27,000 per unit. Ford Motor is allowed to set its transfer price at any level between $25,000 and $30,000.
   (a) At what transfer price will Ford Motor move the maximum amount of funds from Mexico? Explain.
   (b) At what transfer price will Ford Motor bolster the subsidiary's financial condition most? Explain.

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Case Problem 20: Advanced Technology's Ethical Dilemma

The Executive Committee of Advanced Technology (AT) – Robert Smith, President; Linda Humphrey, Vice President of Finance; Sam Miller, Vice President of Marketing; and Susan Crum, Vice President of Production – scheduled a luncheon meeting on September 1, 1996, to discuss two major problems for the welfare of the company: (1) how to finance the rapid expansion of its production facilities and (2) how to cope with a growing competition in its major overseas markets. In addition, the Department of Justice requested AT to answer several questions about bribes, gifts, slush funds, and grease payments in relation to its foreign sales. This inquiry began in response to a 100-page complaint by its overseas competitor, which alleged that AT had violated the Foreign Corrupt Practices Act of 1977.

AT has recently enjoyed a rapid growth in business. The company is anticipating substantial increases in sales for the next few years. However, it must solve two major problems – capacity and strong competition in foreign operations – if it is to maintain fast sales growth for years to come.

AT produces office automation systems and equipment. In addition to introducing a newly designed mainframe computer, the company has aggressively increased research in minicomputers and word processors. These products are in high growth markets, and the firm's expenditures for these projects have more than proved their worth. In fact, the company's major problem has been to increase production fast enough to meet demand of its Asian customers. The company's capacity has expanded steadily since 1980, but it has often lost sales because of insufficient production.

The industry recognizes AT as one of the fastest growing companies in the market. Experts in the high-tech industry have projected for the next 10 years a potential bonanza for minicomputers and word processors. Thus, the company plans to invest heavily in research and development for the next 5 years. It also plans to increase production quickly by acquiring existing computer manufacturing firms and by establishing new production facilities.

AT is a multinational company with headquarters in Los Angeles, California. The company has five manufacturing locations in the USA and three abroad, with offices in 13 countries. In 1995, approximately 40 percent of its sales came from foreign operations – primarily South America and Asia, where the company has recently faced stiff competition from its larger rivals, such as IBM, Digital Equipment, and Olivetti. The company has depended on distributors for most of its overseas sales.

Conflict of Interest in Financial Affairs

Thomas Nickerson is a Special Assistant to the Vice President of Finance, Linda Humphrey. He graduated from a major university in St. Louis, Missouri, with an MBA in Finance. After 2 years of experience with Ernst & Young, a major CPA firm in St. Louis, he joined the accounting staff and served in a variety of accounting and finance positions for 5 years. Two years ago, he was appointed Special Assistant to Ms Humphrey at an unusually high salary, mainly because of his outstanding financial and communication talents. Thomas Nickerson has a large family and a home with a $450,000 mortgage. His deep debt and huge financial needs hardly matter to him, because he has a promising future at the company.

Ms Humphrey approached Thomas with a special task on August 1, 1996. She informed him that she had met with other vice presidents and decided to purchase Computer Engineering to alleviate the capacity problem. She further stated that the acquisition would be highly advantageous for AT, but she needed to convince two members of the board of directors. Then she instructed him to prepare a report justifying the acquisition of the company. Under the terms, AT would offer Computer Engineering two million shares of its stock. The market price of the stock was $20 per share.

Normally, Thomas would have welcomed the assignment, but this one made him uneasy. Computer Engineering's financial statements indicated poor performance as compared with comparable companies in the field. He knew that Ms Humphrey and other vice presidents had helped the current top executives of Computer Engineering set up their company. He suspected that vice presidents of AT owned sizable blocks of Computer Engineering stock, which was not publicly traded. To establish a fair market price for Computer Engineering, he compiled the statistics presented in table 20.4. High Tech is more similar to Computer Engineering than any other company whose stock is traded in the public market.

Ethics Versus Profits in Global Business

The Foreign Corrupt Practices Act of 1977 (FCPA) has encouraged US companies to introduce policies against corrupt foreign payments and to improve internal controls. The FCPA bans illegal payments to foreign officials, monitors accounting procedures, and levies heavy penalties for violations. The FCPA forced AT to think about its way of doing business overseas. The company had expanded its foreign operations very quickly. In the 1960s, less than 2 percent of its sales came from foreign operations, but by the late 1970s its foreign operations accounted for 30 percent of total sales.

Just like many other companies, AT had undertaken positive steps to prevent illegal payments to foreign officials and to improve internal control. In 1980, the company published its

Table 20.4 Key statistics for Computer Engineering and High Tech

Variables	*Computer Engineering*	*High Tech*
Earnings per share	$1.00	$ 2.00
Dividend per share in year 1	$0.75	$ 1.00
Annual dividend growth rate	0.04	0.09
Price per share	?	$20.00
Book value per share	$8.00	$10.00
Cost of equity	?	0.14
Number of shares outstanding	1 million	1.2 million

first corporate code, along with two separate area codes: one for the USA and another one for the foreign area. The code of business conduct for overseas employees reflected most provisions of the FCPA, so that the company would not have any trouble with the law.

Marketing Vice President Miller had been under heavy pressure from President Smith to increase the company's foreign sales by 30 percent per year for the next 5 years. Mr Miller thought that when in Rome, some do as the Romans do. In other words, he did not hesitate to call the FCPA "bad business" and "unnecessary." Miller felt that the FCPA should be repealed for several reasons. First, it forced US companies to increase audit costs substantially. Second, the Department of Justice and the SEC failed to establish clear guidelines. Third, it put US companies at a competitive disadvantage. Fourth, in many countries, foreign payments are not outlawed, but they are encouraged. Fifth, the FCPA was unnecessary because US law enforcement agencies already had many statutes to prevent illegal foreign payments by US companies.

Mr Miller reflected on the report he would present to the Executive Committee. The purpose of this report was to make certain that AT was complying with its corporate code of conduct. There was, however, one situation that required a tough decision. This particular situation was considered an acceptable practice in the countries where they occurred, but he did not know how he would handle specific questions if they should come up.

Kevin Hart was the exclusive distributor for Advanced Technology products in South American countries. He had a reputation for reliability and efficiency. However, the most recent audit suggested that he had corruptly influenced customs officials to obtain lower duty rates for AT's products. In doing so, he had violated both the FCPA and the company's code of conduct.

AT had asked Kevin to agree in writing to abide by the code, but he had refused to do so. He had argued that these "grease payments" were customary in these countries. He had insisted that he could not compete effectively without them. Kevin had represented AT for many years and generated approximately $10 million worth of business per year for the company. His exclusive dealership contract would be up for renewal in a few months. AT had suggested that it might refuse to renew its contract unless he agreed to abide by the code. Mr Miller knew that it would be difficult to resolve this problem while he was under heavy pressure to increase the company's overseas sales by 30 percent per year.

Case Questions

1 Use the data in table 20.4 to estimate the market value of Computer Engineering in the following three ways: (1) price–earnings ratio, (2) market value/book value, and (3) the dividend growth model.
2 List and discuss the options available to Thomas Nickerson.
3 Discuss the two major sections of the FCPA – antibribery and accounting.
4 List and discuss the pros and cons concerning corporate codes of conduct.
5 If you were Sam Miller, what would you do about the situation in these South American countries?
6 The Internet Center for Corruption Research provides the transparency international perceptions index and a comprehensive assessment of countries' integrity performance. Use the website of this organization, www.gwdg.de/~uwvw/icr.htm, to identify the five most corrupt countries and the five least corrupt countries.

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Web Resources and Internet Exercises

Chapter 1: Introduction

Internet resources

www.wto.org
The website of the World Trade Organization (WTO) provides news and statistics on international trade as well as links to international organizations.

www.corpgov.net
The website of Corporate Governance Net contains news, research findings, recommendations, and other information related to the relationship between a business and its stakeholders.

www.ecgi.org
The website of the European Corporate Governance Institute (ECGI) contains news and research on corporate governance in Europe, comparative studies on international issues and codes, and principles of corporate governance by country and/or region.

www.bea.doc.gov
The website of the Bureau of Economic Analysis (BEA) contains economic data and articles on US international trade and capital flows as well as international surveys.

www.worldbank.org
The website of the World Bank contains data on the economic prospects of 208 countries and links to other sources of international data.

www.wsj.com
The website of *The Wall Street Journal*, the leading business newspaper in the USA.

www.ft.com
The website of *The Financial Times*, the leading international business newspaper.

www.economist.com
The website of *The Economist* contains news items and financial data on international economic and political situations.

www.intracen.org
The website of the International Trade Center (ITC) contains trade information, news items, and references on trade in developing countries.

Internet exercises

1 Visit the website of Corporate Governance, www.corpgov.net, to view recent developments on the relationship between a corporation's management and its stakeholders. In the light of recent accounting scandals in corporate America, list three proposed solutions to fix corporate governance practices. Visit the website of the European Corporate Governance Institute, www.ecgi.org, to view codes and principles of corporate governance for European countries. Choose a country or region and list five principles and/or recommendations on corporate governance. Explain how these European practices are similar to or different from existing practices in the USA.
2 Select one country of your choice from the "County-at-a-Glance" table of the World Bank (www.worldbank.org) to answer the following questions: What is the population? What is the currency? What is the GNI per capita? How has the GDP changed in the past 3 years? Is this country a net importer or exporter? How much is the trade in goods as a share of GDP? What is the amount of foreign direct investment?

Chapter 2: Motives for World Trade and Foreign Investment

Internet resources

www.nafta-sec-alena.org
This is the official site of the NAFTA Secretariat and contains documents (including the full text of NAFTA), notes on past rulings, rules, and other background information.

www.citizen.org/pctrade/nafta/naftapg.html
This website contains a critical review of NAFTA.

www.dismal.com
This website covers over 65 economic findings from over 15 countries and contains news items dealing with international finance and economics.

www.census.gov/ipc/www
This website contains the International Data Base (IDB), a computerized data bank with statistical tables of demographics and socioeconomic data for 227 countries.

www.oecd.org
The website of the Organization for Economic Cooperation and Development (OECD), which provides access to news, data, and analysis on international finance and economics.

www.inc.com
Inc. Online's website for International business professionals, a useful resource for beginners in international business.

www.cnnfn.com
CNN's financial section, containing extensive coverage of global business and financial information news.

Internet exercises

1 Government subsidies in lumber production have created an unfair economic advantage in the trade of lumber between Canada and the United States. Access the websites of the BEA, www.bea.doc.gov, the OECD, www.oecd.org, and the NAFTA text, www.nafta-sec-alena.org, to answer the following questions: How do these subsidies affect the lumber trade between Canada and the USA? How big an industry is this? Which country had the comparative advantage before government intervention? Which one held the comparative advantage after the government intervention? Is the lumber trade part of the NAFTA agreement? There are numerous news articles on this subject. What is the position of US consumers on lumber duties? Refer to the following website for your answer: www.newswire.ca/releases/January2003/08/c827.html.
2 The intent of the NAFTA is to eliminate all tariffs on goods and services produced in one member country and exported to another. However, that does not mean that all cars made in one member country can cross the border to another member country tariff free. What are the "Rules of Origin" as outlined in chapter 4 of NAFTA? You may view the full text of NAFTA at www.nafta-sec-alena.org. Volkswagen, Hyundai, and Honda are some of the foreign-owned multinational automakers operating in NAFTA countries. How can these companies maintain tariff-free status when exporting within NAFTA countries? What happens when "nonoriginating" materials are used in the product exported, and how does this affect the "Regional Value Content" of the product?

Chapter 3: The Balance of Payments

Internet resources

www.bea.doc.gov
The website of the Bureau of Economic Analysis (BEA) contains economic data and articles on US international trade and capital flow.

www.stls.frb.org/fred/
The website of the Federal Reserve Bank of St Louis takes you directly to US trade and balance-of-payments data that you can download into a spreadsheet.

www.imf.org/external/about.htm
The website of the International Monetary Fund (IMF) discusses the IMF and its role and covers news topics, the balance of payments, and a variety of other information.

www.jin.jcic.or.jp/access/trade/balance.html
The website of Japan Information Network explains the balance-of-payments performance in terms of balance on goods, which is the difference between a nation's exports and its imports.

www.bangladesh-bank.org/econdata/bop.html
This website puts forward the payment strategies used by Bangladesh Bank.

Internet exercises

1 The website of the US Census Bureau, www.census.gov, provides statistics on foreign trade and other economic data. Utilize this site to identify the trade balance trends of the USA and Japan over the past 3 years. You may find the most recent balance-of-payments statistics for both countries by consulting the US Bureau of Economic Analysis at www.bea.doc.gov and Japan's Ministry of Finance at www.mof.go.jp. Historical data are also available at these sites for trend analysis.
2 Construct the balance-of-payments table for any two countries, such as Germany and Canada, for any particular year and interpret the numerical data. You can access this information by visiting the IMF website at www.imf.org/external/about.htm.

Chapter 4: The International Monetary System

Internet resources

www.imf.org/external.htm
The website of the International Monetary Fund (IMF) provides information on the IMF, SDRs, exchange rates, and miscellaneous information such as debt relief programs for poor countries and strategies for dealing with financial crisis.

www.ecb.int
The website of the European Central Bank (ECB) contains ECB publications, exchange rates, and other euro-related economic and financial data.

www.europa.eu.int
The website of the European Union (EU) contains news, information, and statistics on the EU and its member nations.

www.wallstreet.com/bankfrm.htm
This website provides links to the central banks of more than 100 countries.

www.ex.ac.uk/~Rdavis/arian/llyfr.html
This website provides a comprehensive history of money.

www.cnnfn.com/market/currencies
This CNN financial subsite provides a currency converter for converting one currency into another at current exchange rates.

www.ny.frb.org
The website of the Federal Reserve Bank of New York. The online book of this website, entitled *All About Foreign Exchange Market in the United States*, can be downloaded for study. It provides a summary of many statistics from the BIS triennial report.

Internet exercises

1 The IMF (www.imf.org), the World Bank (www.worldbank.org), and the United Nations (www.unsystem.org) are only a few of the major world organizations that track, report, and aid international economic and financial development. Use these websites and other sites linked to them to summarize the economic outlook for Cuba, Afghanistan, the United Kingdom, and Canada. For example, the full text of chapter 1 of the *World Economic Outlook*, published by the World Bank, is available through the IMF website. The Europa (EU) home page, www.europa.eu.int, and the website for the Bank for International Settlements, www.bis.org, are other useful resources for finding this information.
2 The website of Pacific Policy Analysis, an extremely valuable exchange rate service (www.pacific.commerce.ubc.ca/xr), can be used to determine the value of the euro before its introduction on January 1, 1999. The calculation of the euro's value before its introduction, assuming the fixed parities established by the European Union on December 31, 1998, gives some insight as to how its value had theoretically fluctuated even prior to its official launch. Plot the value of the euro since its inception and comment on its movement in the past year.

Chapter 5: The Foreign-Exchange Market and Parity Conditions

Internet resources

www.imf.org/external/fin.htm
The website of the International Monetary Fund (IMF) takes you directly to information on the IMF, SDRs, exchange rates, the position of each country in the IMF, and lending arrangements with member nations.

www.ny.frb.org/pihome/statistics/forex12.shtml
The website of the Federal Reserve Bank of New York takes you directly to daily noon foreign-exchange rates. You may also try other menu options on this site to obtain detailed information about the foreign exchange market in the USA.

www.onanda.com
This website contains a wide variety of current and historical exchange rate data, along with stories relating to foreign exchange and links to the world's central banks.

www.bis.org/publ/index.htm
This website contains the BIS annual report, together with statistics on derivatives, external debt, foreign-exchange market activity, and so on.

www.bloomberg.com
The Bloomberg website contains a wide variety of data on financial markets worldwide, including foreign-exchange and interest rate data.

www.ft.com/cgi-bin/pft/monrates.pl/report
This web page of *The Financial Times* contains data on short-term Eurocurrency interest rates for the US dollar, the euro, the Swiss franc, the Japanese yen, the British pound, and several other currencies. This web page also links to worldwide exchange rate data.

www.ex.ac.uk/~Rdavies/arain/llyfr.html
This web page contains a detailed history of money from ancient times to the present.

www.ecb.int
The website of the European Central Bank (ECB) contains press releases and publications put out by the ECB, along with exchange rate data and other economic and financial statistics related to the eurozone.

www.europa.eu.int
The webste of the European Union (EU) contains news, information, and statistics on the EU and its member nations, and on the euro.

www.sysmod.com/eurofaq.htm
This website contains answers to frequently asked questions about the euro and EMU, as well as links to related websites

www.bis.org
This is the home page of the Bank for International Settlements. Many interesting reports and statistics can be obtained here. The triennial report entitled *Central Bank Survey of Foreign Exchange and Derivatives Market Activity* can be downloaded for study.

www.wto.org
The website of the World Trade Organization (WTO) contains news, information, and statistics on international trade.

www.worldbank.org
The website of the World Bank contains economic and demographic date on 206 countries (organized into "Country-at-a-Glance" tables) and various economic forecasts, and links to a number of other data sources.

Internet exercises

1 Use one of the above-listed Internet resources to find the latest quotes for the US dollar, the euro, the British pound, and the Japanese yen. By how much did these currencies rise or fall against the dollar in the last day?
2 Find the currency cross rates provided by Bloomberg (www.bloomberg.com) for the euro/dollar and euro/yen. Use the above cross rates to calculate the dollar/yen rate and then compare your calculated dollar/yen cross rate to the one reported by Bloomberg. Are the two cross rates the same?
3 What is the euro worth? The European Union (www.europa.eu.int) provides a daily tracking of the euro's value in terms of its constituent currencies. Use their website to find out how many Spanish pesetas the euro is worth today. What explanations have been given for the decline of the euro in the first 2 years of its existence?

4 Using the websites of *The Wall Street Journal*, www.wsj.com, *The Financial Times*, www.ft.com, and *The Economist*, www.economist.com, identify two countries that are having currency problems. Can you explain the causes of these currency problems?

Chapter 6: Currency Futures and Options

Internet resources

www.ny.frb.org/pihome/statistics/vrate.shtml
This web page of the Federal Reserve Bank of New York takes you directly to data on implied volatilities for foreign-exchange options.

www.bis.org/public/index.htm
This web page contains the BIS annual report, together with statistics on derivatives, external debt, and foreign-exchange market activity.

www.cme.com
The website of the Chicago Mercantile Exchange (CME) contains information and quotes on currency futures and options contracts.

www.phlx.com
The website of the Philadelphia Stock Exchange (PHLX) contains information and quotes on currency options contracts.

www.numa.com/ref/exchange.htm
This web page of the Numa Directory contains the web addresses of most of the stock and derivative exchanges in the world.

www.belfox.be
The website of the Belgian Futures and Options Exchange contains detailed information about the derivative products traded on it.

www.liffe.com
The website of the London International Financial Futures Exchange contains detailed information about the derivative products traded on it.

www.simex.com
The website of the Singapore International Monetary Exchange contains detailed information about the derivative products traded on it.

Internet exercises

1 What currency futures contracts are currently being traded on the CME (www.cme.com)? Have currency future prices generally risen or fallen in the past day? Is there any news today that might explain the change in the futures prices?
2 Use the New York Federal Reserve website, www.ny.frb.org/pihome/statistics/vrate.shtml, to obtain the currency volatilities over the past week and month for the Canadian dollar and

the yen. Keep in mind that currency volatilities are the expected standard deviation of the daily spot rate for the coming period of the option's maturity. Are these implied volatilities generally higher or lower for longer maturity contracts?

Chapter 7: Financial Swaps

Internet resources

www.isda.org
The website of the International Swaps and Derivatives Association, Inc., contains details of the activities of the ISDA and provides educational information about interest rates and currency swaps, as well as market survey data about the size of the swaps market.

www.bis.org
The website of the Bank for International Settlements contains many publications about foreign exchange and over-the-counter (OTC) derivatives.

www.finpipe.com/derivatives.htm
The Financial Pipelines website contains detailed reviews of options, futures, swaps, swaptions, structured notes, and other derivatives.

www.pgsenergy.com/c1.html
This web page of PGS Energy gives explanations on financial swaps, OTC markets, and commodity options.

www.moodys.com
The website of Moody's contains country risk ratings and analyses.

www.standardpoors.com
The website of Standard & Poor's contains country risk ratings and analyses.

www.siliconvalley.com/mld/siliconvalley/business/companies/
A web page for the study of various monetary swaps with major IT companies.

Internet exercises

1 The ISDA, www.isda.org, is the primary global organization that attempts to both standardize the use of interest rate and cross-currency swaps and track the market's size. Use ISDA's website to find out which type of interest rate derivative is growing the fastest, the plain vanilla interest rate swap, the cross currency swap, or the various types of interest rate options.
2 What country risk factors do Moody's (www.moodys.com) and Standard & Poor's (www.standardpoors.com) emphasize? How can one company use risk factors when it decides whether to engage in a swap agreement with a foreign company?

Chapter 8: Exchange Rate Forecasting

Internet resources

www.oecd.org/std/nadata.htm
This web page contains data on PPP exchange rates for the OECD countries, going back to 1970. The PPP exchange rate data is in a spreadsheet format that can be downloaded.

www.oanda.com
This website contains current exchange rates along with currency forecasts and news.

www.pei-intl.com/Quotes/watch.htm
This web page contains daily, weekly, and monthly outlooks of foreign-exchange markets, world stocks, and bond markets.

www.anglefire.com/me/ozanpage/index.html
This web page contains data and explanation on foreign-exchange arbitrage.

Internet exercises

1 Using OECD data from www.oecd.org/std/nadata.htm, plot the PPP exchange rates for the Australian dollar, the Mexican peso, and the Saudi rial. Have these PPP exchange rates gone up or down over time? What accounts for the changes in these PPP exchange rates over time?
2 Examine forecasts from www.onada.com for the British pound, the Japanese yen, and the euro.
   (a) Which of these currencies are forecast to appreciate and which to depreciate?
   (b) Compare these forecasts to the forward rates for the same maturity. Are the predicted exchange rates greater or less than the corresponding forward rates?
   (c) Compare these forecasts to the actual exchange rates. How accurate were these forecasts?
   (d) If you had followed these forecasts (by buying forward when the forecasted exchange rate exceeded the forward rate and selling forward when it was below the forward rate), would you have made or lost money?

Chapter 9: Managing Transaction Exposure and Economic Exposure

Internet resources

www.sec.gov/edgar.shtml
The website of the Securities and Exchange Commission. The primary purpose of EDGAR – the Electronic Data Gathering, Analysis, and Retrieval system – is to increase the efficiency and fairness of the securities market for the benefit of investors, corporations, and the economy by accelerating the receipt, acceptance, dissemination, and analysis of time-sensitive corporate information filed with the agency.

www.florin.com/v4/valore4d.html
The website of Valore International discusses issues related to currency risk management.

www.kshitij.com/risk/fxmgmain.shtml
The website of Kshitij consultancy services. Kshitij manages currency risk for corporate customers.

www.lehman.com/equities/pb/risk_management.htm
The website of Lehman Brothers. The firm's risk management system extends comprehensive risk analysis and portfolio revaluation tools to portfolio managers, risk managers, and traders within a flexible reporting platform.

www.reportgallery.com
The website of the Report Gallery is the most complete and up-to-date listing of annual reports and related financial reports of 2,200 companies and covers the majority of the Fortune 500 companies.

www.pages.stern.nyu.edu/~igiddy/fxrisk.htm
This web page provides an overview of exchange risk management

Internet exercises

1 Obtain an annual report of a major company, such as Sony Corp., from www.reportgallery.com, to answer the following questions. Are there any comments that relate to the company's transaction exposure? Does it seem that the company hedges its transaction exposure? If so, what are the methods that it has used to hedge its exposure?
2 Visit the websites of General Electric (GE), www.ge.com, and Disney, www.disney.com, to obtain their annual reports. Do these annual reports feature the goals and objectives of their currency risk management activities?

Chapter 10: Translation Exposure Management

Internet resources

www.accounting.rutgers.edu/raw/fasb/
The website of the Financial Accounting Standards Board provides information on FASB 8, FASB 52, and other FASB pronouncements on currency translation and hedge accounting.

www.iasc.org.uk
The home page of the International Accounting Standards Board. The IASB is an independent, privately funded accounting standards-setter, based in London, developing a single set of high-quality, understandable, and enforceable global accounting standards.

www.reportgallery.com
A website that contains links to annual reports of over 2,200 companies, many of which are multinationals.

www.futuresmag.com
The website of Futures magazine. This magazine helps readers to understand the factors that affect futures prices, provides them with a perspective on trends affecting the global marketplace, and gives them information on how to maximize trading profits while minimizing risk.

www.ozforex.com.au/thebasics.htm
The aim of foreign-exchange risk management is to stabilize the cash flows and reduce uncertainty from financial forecasts, which is the focus of this website.

Internet exercises

1 Visit www.nokia.com to find the latest Nokia annual report. What is Nokia's accumulated translation adjustment? What functional currencies does Nokia use? What was Nokia's reported currency translation gain or loss during the year?
2 Use www.futuresmag.com to answer the following question. Based on the translation exposure of the MNC that you assessed in the previous exercise, determine whether the exchange rate(s) of whatever currency (or currencies) it is exposed to moved in a favorable or unfavorable direction over the past few months.

Chapter 11: International Financial Markets

Internet resources

www.bis.org
This is the website of the Bank for International Settlements. Many interesting reports and statistics can be obtained here. The triennial report entitled *Central Bank Survey of Foreign Exchange and Derivatives Market Activity* can be downloaded for study.

cnnfn.com/market/currencies
This CNN financial subsite provides a currency converter for converting one currency into another at current exchange rates.

www.ny.frb.org
This is the site of the Federal Reserve Bank of New York. The online book titled *All About the Foreign Exchange Market in the United States* can be downloaded for study. It provides a summary of many of the statistics from the BIS triennial report from the perspective of the USA.

www.fitchibca.com
This is the website of Fitch IBCA, an international bond rating service. Information about Fitch and its philosophy can be found here.

www.moodys.com
This is the site of Moody's Investor Service. Information about the investment services that Moody's provide and their bond ratings can be found here.

www.standardandpoors.com
This is the home site of Standard & Poor's, a provider of investment information such as bond ratings. Information about Standard & Poor's can be found here.

www.jpmorgan.com
This is the site of J. P. Morgan and Company, an international investment banking firm. Detailed information about J. P. Morgan's bond indexes can be found here.

Internet exercises

1 Plot the US dollar value of the euro since its inception in January 1, 2002. How has the euro fared in the past year? You can use the website of the European Central Bank, at www.ecb.int.
2 What explanations have been given for the decline of the euro in the first two years of its existence? Search The *Wall Street Journal* (www.wsj.com) and *The Economist* (www.economist.com) to formulate your answer.

Chapter 12: International Banking Issues and Country Risk Analysis

Internet resources

www.ny.frb.org/pihome/statistics/vrate.shtml
The web page of the Federal Reserve Bank of New York that takes you directly to data on implied volatilities for foreign-exchange options.

www.bis.org/public/index.htm
This website contains the BIS annual report, together with statistics on derivatives, external debt, and foreign-exchange market activity.

www.cme.com
The website of the Chicago Mercantile Exchange (CME) contains information and quotes on currency futures and options contracts.

www.phlx.com
The website of the Philadelphia Stock Exchange (PHLX) contains information and quotes on currency options contracts.

www.bis.org/cbanks.htm
This is the home page of the Bank for International Settlement. It provides links to central banks around the world.

Internet exercises

1 Using Moody's Investor services, www.moodys.com, and Standard & Poor's ratings, www.standardpoors.com, obtain the sovereign debt ratings for two countries of your choice.

2 Visit the website of the Heritage Foundation (www.heritage.org) or that of the Internet Center for Corruption Research (www.icgg.org) to answer the following questions:
   (a) Use the link to the Heritage Foundation to name the five most economically free countries and the five least economically free countries.
   (b) Use the Internet Research for Corruption Research to name the five most corrupt countries and the five least corrupt countries.
   (c) International capital flows: public and private major multinational organizations (some of which are listed below) attempt to track the relative movements and magnitudes of global capital investment. Using these websites and others that you may find, prepare a two-page executive briefing on the question of whether capital generated in the industrialized countries is finding its way to the less developed and emerging markets. Is there some critical distinction between "less developed" and "emerging" countries?

The World Bank	www.worldbank.org/
OECD	www.oecd.org/
European Bank for Reconstruction	www.ebrd.org/

Chapter 13: Financing Foreign Trade

Internet resources

www.exim.gov
The website of the Export–Import Bank of the United States (Ex–Im Bank) contains information about trade financing and the Ex–Im Bank's programs.

www.pefco.com
The website of the Private Export Funding Corporation (PEFCO) offers background information about PEFCO, describes their programs, and gives access to their annual report.

www.fcia.com
The website of the Foreign Credit Insurance Association contains the FCIA Country Update, which gives economic, political, and intelligence information on trade-related development and offers access to trade-related links.

Internet exercises

1 Visit the website of the Private Export Funding Corporation (PEFCO), at www.pefco.com, to answer the following questions:
   (a) What types of programs does PEFCO offer to US exporters?
   (b) What are the three short-term facilities that PEFCO offers to lenders?
   (c) What are the terms of the Short-Term Insured Loan Facility?
   (d) What are under-serviced markets and how can under-serviced market programs benefit from the Lender-Of-Last-Resort Program?
2 Visit the website of the Foreign Credit Insurance Association (FCIA), at www.fcia.com, to answer the following questions:
   (a) What is FCIA's special risk insurance?
   (b) What are two conditions that affect and benefit trade?

(c) Read the latest FCIA newsletter and Country Update. What country or region presents a high risk for exporters and would benefit from the special risk insurance?

Chapter 14: Financing Foreign Investment

Internet resources

www.worldbank.org
The website of the World Bank Group gives access to the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), the International Finance Corporation (IFC), the Multilateral Investment Guarantee Agency (MIGA), and the International Center for Settlement of Investment Dispute (ICSID). You may access news items, agency reports, budgets, and annual reports for all the agencies listed.

www.bloomberg.com
The Bloomberg website contains a wide variety of data on financial markets worldwide, including foreign-exchange and interest rate data.

www.iadb.org
The website of the Inter-American Development Bank (IDB). The IDB is the largest regional multilateral development institution, and includes the USA and 19 Latin American countries. This site contains economic profiles by country and historical IDB lending data, plus news items, links to other organizations, and previews of private-sector projects.

www.ebrd.com
The website of the European Bank for Reconstruction and Development (EBRD) contains application information for project funding.

www.exim.gov
The website of the Export–Import Bank of the United States (Ex–Im Bank) contains information about trade financing and the Ex–Im Bank's programs.

Internet exercises

1 Visit the website of the World Bank Group at www.worldbank.org and read about the International Bank for Reconstruction and Development (IBRD).
   (a) What was the amount of total lending in the last fiscal year? How many new operations were approved globally with this total amount?
   (b) Describe the share of total lending per region as a percentage of the total fiscal lending. Which region received the highest share of total lending?
   (c) What percentage of the total lending was allocated to the theme of Financial and Private Sector Development globally?
   (d) What percentage of the total lending was allocated to the sector of Industry and Trade?
2 Visit the website of the European Bank for Reconstruction and Development (EBRD), at www.ebrd.com. How does EBRD define large, medium, small, and microprojects in euros? Would an oil development in Azerbaijan qualify for a loan? What other services does EBRD provide?

Chapter 15: International Working Capital Management

Internet resources

www.bloomberg.com
The Bloomberg website contains a wide variety of data on financial markets worldwide, including foreign-exchange and interest rate data.

www.office.com/global/tools
This website gives information on the cash budget, such as its purpose, preparation, and the analysis.

Internet exercises

Visit the Bloomberg website at www.bloomberg.com to carry out the following tasks:

1 Review the 3-month interest rates of the countries listed, to determine the country with the lowest rate and the country with the highest interest rate.
2 What is the best country to borrow short-term funds from?
3 Search this site for news items and country analysis on the countries you have chosen in your answer to questions 1 and 2, and explain the possible reasons for the high and low rates.

Chapter 16: International Portfolio Investment

Internet resources

www.adr.com
The website of the American Depository of Receipts (ADR), the central source for information on ADR services and international equities.

www.ishares.com
The website of the world's most extensive family of Exchange Traded Funds (ETFs).

www.jpmorgan.com
The website of J. P. Morgan, whose research consists of three groups: equity, economics, and global markets. The global market group covers fixed income, credit, derivatives, emerging markets, foreign exchange, structured finance, and technical and bond index research.

www.adrbny.com
The website of the Bank of New York, a key source on global investing and personal finance.

www.msci.com
The website of Morgan Stanley Capital International Inc. MSCI is a leading provider of equity (international and US), fixed income, and hedge fund indices.

www.cnnfn.com
The website of CNN Financial contains extensive coverage of global business and financial information news.

www.euronext.com
The website of Euronext NV, which is the world's first cross-border exchange business. It provides services for cash markets in Belgium, France, the Netherlands, and Portugal, and for derivatives in the UK.

www.biz.yahoo.com/ifc
The website of Yahoo Finance gives country economic profiles, news, and exchange rates from all over the world.

Internet exercises

1 Visit www.adr.com and then click on "market overview" to review the stock performance of ADRs of different countries. The website provides a table that shows information about countries that have issued ADRs and returns every 6 months or per year. Click on any particular country of interest to review the performance of individual ADRs from that country.
2 Visit biz.yahoo.com/funds/, click on "top performers" to review the performance of top mutual funds, and then conduct a comparative analysis of performance for international mutual funds and purely domestic portfolios.

Chapter 17: Corporate Strategy and Foreign Direct Investment

Internet resources

www.unctad.org/statistics
The website of the United Nations Conference on Trade and Development (UNCTAD). UNCTAD compiles statistics that are relevant for the analysis of international trade, foreign direct investment, commodities, and development.

www.euromoney.com/index.html
The Euromoney website is the most authoritative source of detailed, yet concise, information on the trends and developments in international banking and the capital markets.

www.globaledge.msu.edu/ibrd/ibrd.asp
The website of Michigan State University's Global Edge is a knowledge web portal that connects international business professionals worldwide to a wealth of information, insights, and learning resources on global business activities.

www.bea.doc.gov/bea/di/home/directinv.htm
The website of the Bureau of Economic Analysis (BEA), an agency of the US Department of Commerce, provides details of US direct investment abroad and foreign direct investment in the USA.

www.worldbank.org
The website of the World Bank. The International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA) provide low-interest loans, interest-free credit, and grants to developing countries.

www.oecd.org
The website of the Organization for Economic Cooperation and Development provides details on foreign direct investment flows (inwards and outwards) for most OECD member countries and the eurozone.

www.ebrd.org
The website of the European Bank for Reconstruction and Development (EBRD). EBRD promotes co-financing and foreign direct investment.

www.opic.gov
The website of the Overseas Private Investment Corporation (OPIC), whose support makes it possible for US businesses – particularly small businesses – to grow through investment in the world's emerging markets.

Internet exercises

1 Visit www.export.gov/comm_svc, click on "market of the month", and then check the investment climate *in this particular country*. List the factors that make the country so favorable for foreign direct investment.
2 Visit www.unctad.org/statistics. Check the top 10 developing countries whose economies the FDI hosts. What factors do you think account for these countries being large recipients of US FDI?

Chapter 18: International Capital Budgeting Decisions

Internet resources

www.biz.yahoo.com/ifc
The Yahoo Finance website gives country economic profiles, news, and exchange rates from all over the world.

www.tax.kpmg.net
The website of KPMG Consulting, global provider of assurance, tax and legal, and financial advisory services.

www.export.gov/cs
The website of the US Commercial Service offers valuable assistance to help businesses export goods and services to markets worldwide.

www.odci.gov/cia/publications/factbook/index.html
The web page of the Central Intelligence Agency and the Director of Central Intelligence.

www.globaledge.msu.edu/ibrd/ibrd.asp
The website of Michigan State University's Global Edge is a knowledge web portal that connects international business professionals worldwide to a wealth of information, insights, and learning resources on global business activities.

www.bloomberg.com
The website of Bloomberg, provider of breaking financial, business, and economic news worldwide.

www.economist.com/countries
This web page of *The Economist* provides articles, background profiles, forecasts and statistics, market and currency updates, newswires, and links on 60 countries.

www.ebrd.org
The home page of the European Bank for Reconstruction and Development (EBRD), which is the largest single investor in central and eastern Europe and the CIS, and mobilizes significant foreign direct investment beyond its own financing.

www.worldbank.org/guarantees
The home page of the World Bank. The Bank's fundamental objective in offering guarantees is to mobilize private capital for financial investment in infrastructure sectors of developing countries.

www.cofacerating.com
This website provides the first worldwide company rating system.

www.political-risk.net
This site contains information on political risk assessment by both country and industry sector.

Internet exercises

1 Go to www.cofacerating.com and choose one country from each of the following areas: Africa, South America, Asia, Europe, and the Middle East. Study the risk assessments of these five countries and list the types of operating strategies you will adopt to cope with these political risks.
2 Visit www.globaledge.msu.edu/ibrd/ibrd.asp, click on "country insights," and then select five countries and compare five statistical indicators. What do the comparisons indicate?

Chapter 19: The Cost of Capital for Foreign Projects

Internet resources

www.moodys.com
The website of Moody's Investor Service is among the world's most respected, widely utilized sources for credit ratings, research, and risk analysis.

www.bradynet.com
The website of Brady Network is the pioneer and leading provider of emerging markets' fixed income information through the Internet.

www.emgmkts.com
The website of Emerging Markets is the financial source for global investors.

www.standardandpoors.com
The website of Standard & Poor's is the global provider of independent highly valued investment data, valuation, independent analysis, and information on stocks, bonds, mutual funds, and many other complex investment vehicles.

www.londonstockexchange.com
The website of the London Stock Exchange is at the heart of global financial markets and is home to some of the best companies in the world.

www.newyorkstockexchange.com
The website of the New York Stock Exchange (NYSE), the largest equities marketplace in the world.

www.bloomberg.com
The Bloomberg website is a major provider of breaking financial, business, and economic news worldwide.

www.biz.yahoo.com/ifc
The Yahoo Business website provides information about stock market conditions of many countries.

Internet exercises

1 The two major stock exchanges in the world are the London Stock Exchange, www.londonstockexchange.com, and the New York Stock Exchange, www.newyorkstockexchange.com. Use these websites to find the current stock price of a major multinational company, such as Siemens. In addition, find out and compare the exchanges' listing and disclosure agreements for foreign companies.
2 Visit Standard & Poor's site, www.standardpoors.com, and Moody's, www.moodys.com, to answer the following questions: What factors do Standard & Poor's and Moody's take into account in rating a country's debt? What are Standard & Poor's latest sovereign risk ratings for Belgium, Mexico, Canada, Indonesia, and South Korea?

Chapter 20: Corporate Performance of Foreign Operations

Internet resources

www.ey.com
The website of Ernst & Young. Ernst & Young helps businesses worldwide with a broad array of solutions in audit, tax, corporate finance, transactions, online security, and enterprise risk management.

www.kpmg.com
The website of KPMG, a provider of assurance, tax, legal, consulting, and financial advisory services to clients around the world.

www.pwcglobal.com
The website of Pricewaterhouse Coopers Global. Pricewaterhouse Coopers provides industry-focused assurance, tax, and advisory services for public and private clients.

www.sec.gov/rules/concept/34-42430.htm
This website provides details of international accounting standards released by the US Securities and Exchange Commission.

www.iasc.org.uk
The website of the International Accounting Standards Board (IASC). The IASC is an independent, privately funded accounting standards-setter, based in London.

www.tpmba.com
The website of the Transfer Pricing Management Benchmarking Association (TPMBA). TPMBA is an association that conducts benchmarking studies to identify the best transfer pricing processes that will improve the overall operations of the members.

www.taxup.com
The Taxup website provides a global web directory of tax and accounting information.

www.taxsites.com
The website of Tax and Accounting Sites. Taxsites is a comprehensive index of web-based tax and accounting resources.

www.ifac.org
The website of the International Federation of Accountants (IFAC). IFAC is the global organization for the accounting profession.

Internet exercises

1 Use www.prctaxman.com.cn/asian.htm to study and compare the tax systems of two Asian countries of your choice.
2 Visit www.tpmba.com to list the objectives of the Transfer Pricing Management Benchmarking Association (TPMBA).

Answers to Selected End-of-Chapter Problems

Chapter 2

1 1 food = 3 clothing.
2 1 food = 4 clothing.
3 The USA in food, and Taiwan in clothing.

Chapter 3

1b A balance-of-payments deficit of $10,000.
2a A balance-of-payments surplus of $2,000.
3 Service trade balance = −$19,000.
4 Reserve account balance = $500.

Chapter 5

1 Swiss franc–yen cross rate = 0.0137 yen per franc.
Yen–Swiss franc cross rate = 72.9610 francs per yen.
2a Percentage change (peso) = −9%.
2b Percentage change (peso) = 11%.
3 3.03%.
4 Canadian dollar: −1.0%. Swiss franc: 5.7%.
6 Pound future spot rate = $2.095.
7a ¥129.63 per dollar.
7b Undervalued.
8a Premium = 16%.

8b A profit of $400; requires $4,000 of capital.
8c A profit of $231; requires no investment.
9a A premium of 40%; interest differential of 5% in favor of the USA; yes, there is an incentive for arbitrage transaction.
9b Profit on this interest arbitrage = $360.
9c Yes, because the net profit of $360 is greater than the transaction cost of $100.
9e The forward market approach: $4,400.
The money market approach: $4,048.74.
10a Investment in the USA: $102,000.
Investment in the UK: $101,360.
10b Equilibrium forward rate = $1.7910.
10c Equilibrium interest rate = 12.44%.
11b ¥0.001.

Chapter 6

1a $15,000.
1c $6,000.
2a 151.51%.
2b –$5,156.25.
2c 98.48%.
3c A windfall gain of $2,625.
4a Net profit = $5,000.
4b Net loss = $5,000.
5 $2,500.
6 No hedge: $103,750.
Hedge: $102,500.
8 $5,000.
9 $1,250.
10a Out of the money.
10b Intrinsic value = 0.
10c Return on investment = 50%.
11a In the money.
11b $0.05.
11c Return on investment = 100%.

Chapter 7

1 $10,000.
2 $100,000.
3 An annual net cash flow of 2%.

Chapter 8

1a 0.10.
1b –0.09.
2a –0.10.
2b 0.11.
3a 11.89%.
3b $0.67134.
4 BP = 5.4%.
5 $0.6000.
6 $0.0728.
7 0.4472.

Chapter 9

1 The cost of forward market hedging = $140,000.
The cost of unhedging = $144,000.
The real cost of hedging = –$4,000.
2a Potential exchange gain = $200,000.
2b Potential exchange loss = $360,000.
3a Potential exchange gain = $5 million.
3b Total gain = $15 million.
5 Potential exchange loss = –$800,000.
6 No hedging position: maximum expected cost = $520.
Lowest expected cost = $460.
Forward market hedge = $510.
Money market hedge = $509.66.
8a Exchange rate = 2.20.
8b Either direct loan or credit swap.
8c Credit swap.
8d Exchange rate = 2.095238.

Chapter 10

1a Net exposure = ¥300 million.
1b Potential exchange loss = +$1 million.
1c Potential exchange gain = $0.5 million.
2a Net exposed assets = £2 million.
2b Potential exchange loss = –$0.4 million.
3b Dollar net income = $100.
3c Translation gain under FASB 8 = $75.
Translation gain under FASB 52 = $175.
4b $878 million.

4c $615 million.
5a Exchange rate = 2.20.
5b Either direct loan or credit swap.
5c Credit swap.
5d Exchange rate = 2.095238.

Chapter 11

2a $400.
2b $400.
2d $2,000.
2f $38,000.
3 $108.
4a $386.
4b $463.
4c $322.
5 $30.

Chapter 12

1 Total external debt to GNP = 0.42.
Total external debt to exports = 1.14.
Debt service ratio = 0.21.
Interest service ratio = 0.09.
2 Total external debt = $50 billion; exports = $45 billion; debt service = $5 billion; interest service = $2.73 billion.
3a A compound growth rate of 7.5% per year.
3b A simple growth rate of 16.8% per year.
4a A compound growth rate of 25.5% per year.
4b A simple growth rate of 55.6% per year.

Chapter 13

1a (i) 36.73%; (ii) 37.50%; (iii) 111.34%; (iv) 12.24%.
1b (i) March 20, $490; (ii) March 30, $3,360; (iii) April 10, $1,455; (iv) March 20, $4,312.
2a $19,600.
2b $18,600.
2c Hold the bankers' acceptance until maturity.
3a $7,623.
3b 16.06%.

Chapter 14

1a 24.5%.
1b 8.8%.
1c 8.9%.
2a 11.1%.
2b 14.3%.
2c 13.3%.
3a 20%.
3b 26%.
4 7.5%.
5a Dollar loan: 6.00%.
Euro loan: 5.06%.
Mark loan: 7.12%.

Chapter 15

1b $3,200.
1c 73%.
2 The total tax payment falls from $900 to $660.
3 The unbundled situation reduces taxes by $48 and increases net income by $48.
4 US investment: $10,100.
Swiss investment: $8,120.

Chapter 16

1 15%.
2 A, undervalued; B, undervalued; C, overvalued; D, undervalued; E, overvalued.
3 Average stock price = $50.
Standard deviation = $10.
4 Portfolio return = 12.75%.
Portfolio standard deviation = 7.93%.
5a 4.0%.
5b 3.1%.
5c 0.0%.

Chapter 17

2a The cost of capital for the domestic firm: 13%.
The cost of capital for the multinational company: 10%.
2b Market value, domestic firm: $76,923.
Market value, multinational company: $100,000.

3a EPS of GM = $5.65.
EPS of Toyota = $7.45.
4a $20.
4b $32.
4c $15.

Chapter 18

1a Year 1 = 1,500; year 2 = 2,000; year 3 = 2,000; year 4 = 2,500; year 5 = 2,500.
1b 5,866.
1c Net present value = $127.
Profitability index = 1.0635.
Internal rate of return = 17%.
2a Net present value = –$45,200.
2b Net present value = $182,200.
4a $13,433.
4b $9,002.
5 $138.
6a F = $636; G = –$364.
6b F = $4,000; G = $4,000.
6c Portfolio return = $272.
Portfolio standard deviation = $0.

Chapter 19

1 11.5%.
2 9.4%.
3 Cost of capital for A: 15%.
Cost of capital for B: 10%.
4 40%.
5 14.55%.

Chapter 20

2a $760.
2b $1,070.
2c $1,700.
2d Cash = $260; accounts receivable = $510; accounts payable = $285; retained earnings $1,720; revenues = $6,300; rent income = $0; dividend income = $0; expenses = $4,720.
3 $100.
4 Tax rate under the credit: 50%.
Tax rate under the deduction = 75%.

5 Total taxes under the double taxation = $75.
Total taxes under the deduction = $61.
Total taxes under the credit = $40.

6

	Selling price	*Seller tax*
Extractor	$ 330	$30
Processor	880	50
Wholesaler	962.5	7.5
Retailer	1,045	7.5

7 Higher transfer price reduces total taxes by $120 and increases net income by $120.
9a $3,000.
9b $2,500.
10a $35,000.
10b $25,000.

Glossary

accommodating (compensating) transactions Those transactions necessary to account or compensate for differences between international payments and receipts. These transactions are used to eliminate international disequilibrium.

accounting (translation) exposure This measures the impact of exchange rate changes on a firm's published financial statement items.

acquisition The purchase of one company by another company.

advising bank A bank that notifies the beneficiary of a letter of credit without adding its own commitment to that of the issuing bank.

affiliate A foreign operation formed as either a branch or a subsidiary.

African Development Bank (AfDB) A regional development bank for Africa, established in 1964 and located in Abidjan, Ivory Coast.

agency An office established by a foreign bank to offer a limited range of banking services, such as loans in that area.

Agency for International Development (AID) An office within the US State Department, established in 1961 to carry out nonmilitary US foreign assistance programs.

agency theory A theory that deals with a conflict of interest between managers and stockholders.

agreement corporation A bank chartered by a state to operate in international banking under an agreement with the Board of Governors of the Federal Reserve System.

American Depository Receipt (ADR) A negotiable certificate that represents underlying shares of a foreign company from a country other than the United States.

American option An option that can be exercised at any time before its maturity date.

American terms Foreign-exchange quotations for the US dollar, expressed as the number of US dollars per unit of non-US currency.

antidumping duty A customs duty imposed on an imported product whose price is lower than that of the same product in the home market.

Arab League A political organization of 22 North African and Middle Eastern Arab countries.

arm's-length price The price that would take place between unrelated parties.

appreciation A rise in the value of a currency against other currencies.

arbitrage The purchase of something in one market and its sale in another market to take advantage of price differential.

Asian Development Bank (ADB) A regional development bank for Asia, formed in 1966 by several Asian countries in partnership with the USA, Canada, and a number of European countries.

Asian dollar market The market in Asia in which banks accept deposits and make loans denominated in US dollars.

ask price The price at which a trader of foreign exchange is willing to sell a particular currency.

Association of South East Asian Nations (ASEAN) An economic integration agreement among a group of Asian countries.

at the money A descriptive term implying that the strike price of any currency call or put option equals the current spot rate.

autonomous transaction A transaction that occurs due to self-interest. This includes exports, imports, unilateral transfers, and investments.

average rate of return The ratio of the average annual profit after taxes to the average net investment.

back-to-back loan A loan that involves an exchange of currencies between two parties, with a promise to reexchange the currencies at a specified exchange rate on a specified future date.

balance of payments A financial statement that records all transactions between a given country and the rest of the world during a specified period of time.

balance-sheet hedge A method designed to protect the value of a company's exposed assets. It involves the selection of the currency in which monetary assets and liabilities are denominated, so that an exchange rate change would make exposed assets equal to exposed liabilities.

Bank for International Settlements (BIS) A bank in Switzerland that facilitates transactions among central banks.

bankers' acceptance A draft accepted by a bank. When a bank accepts a draft, it promises to honor the draft at maturity.

barter An exchange of goods and services between two countries without the involvement of finance.

basis point One-hundredth of 1 percent, or 0.0001 percent.

bearer The person who holds an instrument.

Benelux countries The countries of Belgium, the Netherlands, and Luxembourg.

best method rule The method that provides the most accurate measure of an arm's-length result under the facts and circumstances of the transaction under review.

beta The second letter of Greek alphabet, used as a statistical measure of systematic risk in the capital asset pricing model.

bid price The price at which a trader is willing to buy a given item such as foreign exchange.

big bang A package of major reforms designed to free a country's financial markets from regulations, such as the 1986 liberalization of British capital markets and the 2001 liberalization of Japanese capital markets.

bilateral netting A netting method used for transactions between two related units.

bill of exchange (draft) An order written by an exporter that requires an importer to pay a specified amount of money at a specified time.

bill of lading A shipping document issued to the exporting firm or its bank by a common carrier that transports the goods.

black market An illegal foreign-exchange market.

bloc A group of countries tied by treaty or agreement for mutual support or interest.

blocked funds Financial assets that cannot be repatriated because the local monetary authorities forbid their conversion into foreign exchange.

book value The asset value recorded at historical cost.

Brady bond A loan converted into collateralized bonds with a reduced interest rate, devised to resolve the international debt crisis in the late 1980s. It is named after the US Treasury Secretary Charles Brady.

branch A foreign bank that provides a full range of banking services under the name and guarantee of the parent bank.

Bretton Woods Agreement An agreement signed by the representatives of 44 countries at Bretton Woods, New Hampshire, in 1944 to establish a system of fixed exchange rates.

broker An intermediary in the foreign-exchange market.

buy-American policy A policy that requires the recipients of American aid to buy goods and services from American companies.

call An option to buy a foreign currency or other financial assets.

call swaption The right to receive fixed-interest payments.

capital account In the balance of payments, the section that records the net changes in capital transfers and the acquisition or disposal of nonproduced, nonfinancial assets.

capital asset pricing model (CAPM) A theoretical model implying that the total risk of a security consists of systematic (undiversifiable) risk and unsystematic (diversifiable) risk.

capital budgeting The entire process of planning expenditures whose benefits are expected to extend beyond 1 year.

capital gains and losses Gains and losses on sales of capital assets such as stocks and property.

capital market The market for long-term funds such as bonds, common stock, and preferred stock.

capital structure The combination of long-term debt, preferred stock, common stock, paid-in surplus, and retained earnings.

cartel A formal written or oral agreement among firms or countries to set the price of the product and the outputs of individual cartel members, or to divide the market for the product geographically.

cash center A geographical location where all idle funds from the subsidiaries of a multinational company are maintained until they are needed.

cashier's check A bill of exchange (draft) issued by the cashier of a bank, for the bank, upon the bank.

CBD Cash before delivery.

central bank The official bank of a government, such as the Federal Reserve Bank in the USA or the Bank of Japan.

CEO The chief executive officer of a company.

certainty equivalent approach A method used to adjust for project risk. It adjusts for risk in the numerator of the net-present-value formula.

certificate of deposits (CDs) A time deposit with a specific future maturity date.

CHIPS The Clearing House Interbank Payments System. A computerized clearing system used by banks in New York to settle interbank foreign-exchange obligations.

CHPAS The Clearing House Payments Assistance System. It is used to move funds between London offices of most financial institutions.

clearinghouse An institution through which financial obligations are cleared by the process of netting obligations of various members.

COD Cash on delivery.

coefficient of variation The standard deviation divided by the average return.

collecting bank Any bank that handles an item for collection.

common market A form of regional economic integration in which countries abolish internal tariffs among themselves, levy common external tariffs, and eliminate restrictions on the flow of factors of production.

comparable profits method The method allowed by the US Internal Revenue Service to determine the arm's-length price of intracompany transactions. Under this method, comparable companies' performance results are used to compute *pro forma* or benchmark operating income results for the taxpayer.

comparable uncontrolled price method The method allowed by the US Internal Revenue Service to determine the arm's-length price of intracompany transactions. Under this method, uncontrolled sales are comparable to controlled sales if their physical property and circumstances are identical with the physical property and circumstances of controlled sales.

comparative advantage The relative advantage of a country in producing goods or services.

compensation (buy-back) agreement A form of countertrade under which the initial seller receives compensation in products that arise out of the original sale.

competitive trade A practice whereby two countries buy from each other similar goods that both can produce.

confirmed letter of credit The letter of credit confirmed by a bank other than the opening bank. Thus, the confirmed letter of credit is a firm obligation between two banks.

confirming bank A bank that confirms a letter of credit issued by another bank.

consignment The delivery of goods into the possession of another for the purpose of sale.

consolidation An accounting process in which financial statements of related entities are added together to produce a unified set of financial statements.

consortium bank A bank formed by a group of banks from different countries to handle larger international loans.

contract manufacturing This occurs when multinational companies contract with a foreign manufacturer to produce products for them according to their specifications.

controlled corporation A foreign corporation in which more than 50 percent of the voting shares are owned by US shareholders.

convertibility The ability to exchange one currency for another currency.

convertible currency The currency which may be converted into other currencies without government restrictions.

corporate governance The way in which major stakeholders exert control over operations of a company. However, it is often narrowly defined as the prudent exercise of ownership rights.

correlation coefficient This measures the degree of correlation between two securities.

correspondent bank A bank located in any other city, state, or country that provides a service for another bank.

cost and freight (C&F) The FOB (free on board) value and the cost of transportation to the named point of destination.

cost, insurance, and freight (CIF) The FOB (free on board) value, the cost of transportation, insurance premium, and other costs incurred in connection with the shipment from the time of loading in the export country to its arrival at the named port of destination.

cost method The method used in consolidating the financial statements of affiliates into those of a US parent when the parent owns less than 20 percent of the affiliate. Under this method, the parent carries its affiliates at the initial investment plus its dividends received.

cost of capital The required rate of return that the company must earn on its projects for the market value of its common stock to remain unchanged.

cost plus method The method allowed by the Internal Revenue Service to determine the arm's-length price of intracompany transactions. Under this method, an arm's-length price is obtained by adding an appropriate markup to the seller's cost.

counterpurchase A form of countertrade that involves a standard hard-currency export, but the seller agrees to a return purchase with a minimum quantity of specified goods from the buyer.

countertrade International trade arrangements that are variations on the idea of barter.

countervailing duty An import charge used to offset an export subsidy by another country.

covered-interest arbitrage Portfolio investment in a foreign country that is "covered" by forward sale of the foreign currency to eliminate foreign-exchange risk.

covering The purchase or sale of foreign exchange forward to protect a foreign-exchange loss in the conversion from one currency to another.

crawling band A combination of a crawling peg and a trading band.

crawling peg A proposal for regular change in the par value according to an agreed-upon formula.

credit swap A hedging device that involves a simultaneous spot and forward loan transaction between a private company and a bank of a foreign country.

credit tranche The amount that a member country of the International Monetary Fund can borrow from the IMF above the gold tranche.

cross hedging A technique designed to hedge exposure in one currency by the use of futures or other contracts on another currency that is correlated with the first currency.

cross rate The exchange rate between two currencies when it is obtained from the rates of these two currencies in terms of a third currency.

crosslisting The listing of shares of common stock on two or more stock exchanges.

culture shock A generalized trauma that one experiences in a new or different culture.

currency board A monetary institution that only issues currency to the extent that it is fully backed by foreign reserves.

currency cocktail bond A bond denominated in a basket of currencies.

currency futures An obligation to buy and sell a specified amount of a foreign currency for delivery at a specified date.

currency futures option The right, but not the obligation, to buy or sell a futures contract of a foreign currency at any time through a specified period.

currency option The right, but not the obligation, to buy or sell a specified amount of a foreign currency at a specified price through a specified date.

currency swap An agreement made between parties to exchange one currency with another for a specified period of time and then exchange the latter currency with the former currency.

current account In the balance of payments, the section that includes merchandise exports and imports, earnings and expenditures for invisible trade items (services), income on investments, and current transfers.

current/noncurrent method A method that translates the financial statements of a foreign affiliate into the parent reporting currency. All current items are translated at the current exchange rate, and all noncurrent items are translated at their historical exchange rates.

current-rate method A method that translates the financial statements of a foreign affiliate into the parent reporting currency. All assets and liabilities are translated at the currency exchange rate.

customs union A form of regional economic integration that eliminates tariffs among member countries and establishes common external tariffs.

customs valuation The value on which customs authorities charge tariffs. If values are set arbitrarily high, tariffs will also be higher.

debit In the balance of payments, the part of an international transaction that increases assets of a country and reduces liabilities or net worth of the country.

debt–equity swap An exchange of foreign debt for equity in local companies.

delphi technique A technique that combines the views of independent experts in order to obtain the degree of political risk on a given foreign project or a particular foreign country.

depreciation A decrease in the foreign exchange market value of a currency.

devaluation An official reduction in the par value of a currency by the government of that currency.

development bank A bank established to support the economic development of underdeveloped areas through long-term loans.

direct investment Equity investment such as the purchase of stock, the acquisition of an entire firm, or the establishment of a new subsidiary. The US Department of Commerce defines direct investment as investment in either real capital assets or financial assets with a minimum of 10 percent equity ownership in a foreign firm.

direct quote A home-currency price per unit of a foreign currency, such as $1.65 per British pound for a US resident.

dirty (managed) floating system A system in which exchange rates are allowed to change according to market forces but governments intervene to prevent undesired fluctuations. The monetary system since 1973 is sometimes called a dirty floating system, because most industrial countries have permitted their currencies to fluctuate with frequent government intervention in the foreign-exchange market.

discounted cash flow approaches Net-present-value and internal-rate-of-return methods that take into account the time value of money.

diversification strategy A term used in international business to mean that a company produces or sells in many countries.

divestment Reduction in the amount of investment.

division of labor An economic theory that allows each person or nation to utilize any peculiar differences in skills and resources in the most economic manner. Division of labor is frequently called specialization of function.

documentary draft A draft that accompanies such documents as bills of lading, commercial invoices, and other documents.

double-entry accounting An accounting principle that requires each transaction to be recorded as debits and credits of an equal amount.

draft (bill of exchange) An order written by a seller that requires a buyer to pay a specified amount of money at a specified time.

drawee bank A bank upon which a draft is drawn and which thus must pay. Such a bank is often called a paying bank.

drawer bank A bank that draws (writes) a draft offering payment.

dumping A practice of selling a product in a foreign market at a price lower than that of the same product in the home market.

duty A government tax (tariff) levied on goods shipped internationally.

eclectic theory A theory that tries to combine both trade and investment theories.

economic exposure Expected future cash flows whose real values may be changed because of exchange rate changes.

economic integration Cooperation among different countries: the elimination of trade barriers among member countries and bringing separate economies together to form one large market.

economic union A form of regional economic integration that combines common market characteristics with harmonization of economic policy.

economies of scale A reduction in average cost per unit as sales volume or output increases.

Edge Act corporation A subsidiary of a US commercial bank created under the Edge Act of 1916.

efficient exchange market The exchange market in which exchange rates reflect available information and market prices adjust quickly to new information. In the efficient exchange market, market participants buy and sell foreign currencies in a way that eliminates all profits in excess of the minimum required to sustain their continued participation.

efficient frontier The locus of all efficient portfolios.

efficient portfolio A portfolio that provides the highest return for a given level of risk or the smallest amount of risk for a given level of return.

elasticity The degree of responsiveness in one variable to changes in another. For example, in international trade the price elasticity measures the degree of responsiveness in exports or imports to changes in prices.

embargo A practice that prohibits all trade.

equilibrium exchange rate The exchange rate at the intersection of the demand curve for and the supply curve of foreign exchange.

equity alliance An alliance whereby one company takes an equity position in another company.

equity method The method used in consolidating the financial statements of affiliates into those of a US parent when the parent owns between 20 and 50 percent of the affiliate. Under this method, the parent carries its affiliates at the initial cost of the investment plus its proportionate share of profits or losses.

euro A new currency unit designed to replace the individual currencies of European Union countries.

Eurobond A bond that is sold in a currency other than that of the country of issue.

Eurocommercial paper Unsecured short-term promissory notes sold in the Eurocurrency market by multinational companies.

Eurocurrency A currency deposited in a bank located in a country other than the country issuing the currency.

Eurodollar Dollar-denominated deposits in banks outside the USA. These banks may be foreign banks or foreign branches of a US bank.

Euro-medium-term note A medium-term note guaranteed by financial institutions with the short-term commitment by investors. These notes are issued outside the country in whose currency they are denominated.

Euronote A short- to medium-term debt instrument sold in the Eurocurrency market.

European Bank for Reconstruction and Development (EBRD) A regional development bank established in 1990 by 42 countries for emerging democracies in Eastern Europe.

European Community (EC), or European Economic Community (EEC) An organization formed in 1957 by France, Germany, Italy, Belgium, the Netherlands, and Luxembourg to

remove trade barriers among the member countries. The United Kingdom, Ireland, Denmark, Greece, and Portugal, and Spain joined later.

European Currency Unit (ECU) A weighted average value of a basket of 12 EC currencies.

European Free Trade Association (EFTA) A form of regional economic integration involving a group of central European countries which are not members of the EC.

European Investment Bank (EIB) A regional development bank established in 1958 by members of the EC.

European Monetary System (EMS) A complex exchange rate and intervention system adopted in 1978 by EC countries to replace the snake.

European option An option that can be exercised only on the day on which it expires.

European terms Foreign-exchange quotations for the US dollar, expressed at the number of non-US currency units per US dollar.

European Union (EU) The official name of the former European Economic Community (EEC) as of January 1, 1994.

excise tax A tax on various commodities within a country, such as tobacco and alcoholic beverages.

exchange rate The price of one currency expressed in terms of another currency.

exchange rate risk The variability in a company's earnings that may occur due to uncertain exchange rate changes.

exercise (strike) price The price at which the owner of a currency call option is allowed to buy a foreign currency or the price at which the owner of a currency put option is allowed to sell a foreign currency.

expatriates Noncitizens of the country in which they are working.

Export–Import Bank (Ex–Im Bank) A US government agency established to promote US exports.

export trading company A trading company sanctioned by law to become involved in international trade as an agent or a direct outlet. The US Trading Company Act of 1982 relaxed the antitrust law and the bank holding company act.

external debt Public debt owed to foreign citizens, firms, and institutions.

factor A financial institution that buys a company's accounts receivable on a nonrecourse basis.

factors of production Those things necessary for producing finished goods. Factors of production consist of land, capital, labor, and technology.

FASB 133 Under this rule, issued in 1998, companies are required to report the fair market value of their derivatives in their balance sheets and to include derivative gains and losses in their income statements.

FASB 52 Under this rule, the current exchange rate is used in translating foreign-currency financial statements into US dollars.

FASB 8 Under this rule, monetary items of a foreign affiliate are translated at the current exchange rate, and nonmonetary items are translated at the historical exchange rate.

filter rule One form of technical analysis suggesting that investors buy a currency when it rises more than a given percentage above its recent lowest value and sell the currency when it falls more than a given percentage below its highest recent value.

financial account In the balance of payments, the section that records the net change in foreign direct investments, foreign portfolio investments, and other investments.

Financial Accounting Standards Board (FASB) The private-sector organization in the USA that sets financial accounting standards.

financial assets Claims on such wealth as stocks, bonds, and other securities.

financial market The market that deals in financial assets.

financial risks In international finance, those risks which may occur because of varying exchange rates, divergent tax laws, different interest and inflation rates, and balance-of-payments problems.

Fisher effect This theory assumes that the nominal interest rate consists of a real interest rate and an expected rate of inflation.

fixed exchange rate An exchange rate that does not fluctuate or that changes within a predetermined band.

flexible (floating or fluctuating) exchange rate An exchange rate that fluctuates according to market forces.

foreign base company A corporation whose base or registration is in a country in which it does not conduct active operations.

foreign bond A bond sold outside the borrowing country but in the country of the currency in which the bond is denominated.

Foreign Corrupt Practices Act The US law that makes it illegal for American companies and managers to make payments to foreign government officials for the purpose of obtaining business.

Foreign Credit Insurance Association (FCIA) An association of insurance companies in the USA which provide credit insurance to export sales.

foreign-currency swap An agreement between two parties to exchange local currency for hard currency at a specified future date.

foreign-currency translation The expression of balance-sheet items denominated in a foreign currency into a local currency.

foreign direct investment (FDI) The acquisition of physical assets in a foreign country to be managed by the parent company.

foreign exchange Any currency other than the currency used internally in a given country.

foreign-exchange exposure The possibility that a firm will gain or lose due to changes in exchange rates.

foreign tax credit The amount by which a domestic company may reduce domestic income taxes for income tax payments to a foreign government. This credit is used to avoid international double taxation.

forfaiting The purchase of financial obligations such as promissory notes with no recourse to the exporters. This technique is used to finance medium-term export financing.

forward discount or premium An annualized percentage by which the forward exchange rate is less or more than the spot rate.

forward exchange rate An exchange rate for a currency to be delivered at a future date.

franchising agreement An agreement whereby a multinational company (franchiser) allows a foreign company (franchisee) to sell products or services under a highly published brand name and a well-proven set of procedures.

free alongside (FAS) A price that includes the delivery of the goods alongside overseas vessel within reach of its loading tackle.

free float An exchange rate system characterized by the absence of government intervention.

free on board (FOB) The price of the goods to the foreign buyer, which includes all costs, charges, profits, and expenses accruing up to the point at which the goods are deposited on board the exporting vessel or aircraft.

free trade The absence of artificial barriers to trade among individuals and firms in different countries.

free trade area A form of regional economic integration that eliminates tariffs among member countries and establishes common external tariffs.

free trade zone An area within a country into which foreign goods may be brought duty free for purposes of additional manufacture, inventory storage, or packaging.

freely floating exchange rate system A system that allows exchange rates to move on the basis of market forces, without government intervention.

functional currency The currency of the primary economic environment in which the entity operates.

fundamental analysis A forecast based on fundamental relationships between economic variables and exchange rates.

futures contract A contract that specifies an exchange rate in advance of the future exchange of the currency.

futures option The right to buy or sell the futures contract of a specified currency at a specified price by a specified expiration date.

gap analysis A tool used to estimate why a market potential for a given product is less than a company's sales in a country.

General Agreement on Tariffs and Trade (GATT) An agreement signed in 1947 by 23 countries, to liberalize world trade.

generalized system of preferences Arrangements through which industrialized countries grant preferential import duty rates to products from developing countries.

geographical arbitrage A practice in which a currency is bought in a market where its price is lower and then sold in another market where its price is higher.

global bond A bond sold inside as well as outside the country in whose currency it is denominated.

global company A generic term used to describe an organization that attempts to standardize and integrate operations worldwide in all functional areas.

global fund A mutual fund that can invest anywhere in the world, including the country of issue.

gold standard A system whereby a country uses gold as a medium of exchange and a store of value.

gold tranche The amount that each IMF member country contributes in gold or dollars as a part of its membership quota in the IMF. The gold tranche is usually 25 percent of a country's quota.

grand tour A political risk-forecasting technique that relies on the opinions of company executives visiting the country where investment is considered.

grandchild subsidiary A so-called second-tier subsidiary, which is under a tax-haven subsidiary.

gross national product (GNP) The total market value of all final goods and services produced in the economy during a year.

Group of Five (G-5) Five industrial countries: France, Germany, Japan, the UK, and the USA.

Group of Seven The G-5 countries plus Canada and Italy.

Group of Ten Ten major industrial countries that pledged in 1962 to lend their currencies to the IMF under the so-called General Agreement to Borrow. These ten countries are the Group of Seven countries plus Belgium, the Netherlands, and Sweden.

hard currency A currency that may be used in international trade.

hedge funds Private partnerships with a general manager and a number of limited partners. Unlike other investment pools, such as stocks and mutual funds, these hedge funds are largely unregulated investment pools, open only to wealthy investors.

hedging device An approach designed to reduce or offset a possible loss. For example, a multinational company may sell forward exchange or use other means such as a credit swap to offset or reduce possible losses from exchange rate fluctuations that affect values of assets and liabilities.

horizontal expansion A combination of firms engaged in the same line of business.

host country The nonheadquartered country in which an international firm operates.

import quota The maximum amount of a given product to be imported during a specified period of time.

import substitution An industrialization policy whereby new industrial developments emphasize products that would otherwise be imported.

in the money A descriptive term implying that the current spot rate exceeds (is less than) the strike price on a currency call (put) option.

indexing The practice of adjusting assets, liabilities, or payments by some measure of inflation to preserve the purchasing power of the original amounts.

indirect quote A foreign-currency price per unit of a home currency, such as SFr1.35 per US dollar for a US resident.

inflation The overall rate of increase in prices for a group of goods and services in a given country.

initial margin The amount that futures market participants must deposit at the time they enter into a futures contract.

Inter-American Development Bank (IDB) A regional development bank founded in 1959 by the USA and 19 Latin American countries, to further the economic development of its member countries.

interbank market The foreign-exchange market among banks.

interbank transactions Foreign-exchange transactions that take place between banks, as opposed to those between banks and nonbank clients.

interest arbitrage A practice of lending or investing in another currency to take advantage of higher interest rates.

interest parity line A line that describes the equilibrium position for the relationship between interest differentials and forward premium or discount. Every point on the line represents a situation in which the interest differential equals the forward premium or discount.

interest parity theory A theory stating that the difference between the spot rate and the forward rate equals the difference between the domestic interest rate and the foreign interest rate.

interest rate cap A maximum rate on floating rate interest payments.

interest rate collar A combination of an interest rate cap and an interest rate floor.

interest rate floor A minimum rate on floating rate interest payments.

interest rate swap Under this swap, companies exchange cash flows of a floating rate for cash flows of a fixed rate, or exchange cash flows of a fixed rate for cash flows of a flexible rate.

internal rate of return The discount rate that equates the present value of expected net cash flows to the present value of the net investment.

International Accounting Standards Committee The international private-sector organization established to set financial accounting standards that can be used worldwide.

International Bank for Reconstruction and Development (IBRD) The World Bank, which is a companion institution to the IMF.

international banking facilities (IBFs) Vehicles that enable bank offices in the USA to accept time deposits in either dollars or foreign currency from foreign customers, free of reserve requirements and of other limitations.

international bonds Those bonds that are initially sold outside the country of the borrower.

International Development Association (IDA) An affiliate of the IBRD, established to make long-term "soft" loans for development.

International Finance Corporation (IFC) An affiliate of the IBRD, established to make development loans in forms that could be sold to other investors and converted into equity.

international Fisher effect A theory that the spot exchange rate should change by an amount equal to the difference in interest rates between two countries.

International Monetary Fund (IMF) An international monetary organization created at the Bretton Woods Conference in 1947, to make the new monetary system feasible and workable.

international monetary reserves Assets held by central banks or governments, which can be used to settle international payments.

international monetary system A system of such elements as laws, rules, institutions, instruments, and procedures that include international money.

international mutual fund A mutual fund that contains securities of foreign companies.

intervention The buying and selling of currencies by central banks to influence the exchange rate.

intrinsic value The difference between the exchange rate of the underlying currency and the strike price of a currency option.

irrevocable letter of credit A letter of credit that cannot be changed without the consent of all parties involved in the letter.

issuing bank The bank that issues a letter of credit, usually the importer's bank.

J-curve Following a currency devaluation, an initial decrease in the trade balance followed by an increase.

joint venture A business venture in which two or more parties – for example, a foreign firm and a local firm – have equity interest.

just-in-time (JIT) inventory system A manufacturing system that reduces inventories by having components and parts delivered as they need to be used in production.

keiretsu A Japanese word that stands for the large, financially linked groups of companies that play a significant role in the country's economy.

Kennedy Round The trade negotiations concluded in 1967, as part of the GATT, to reduce trade barriers between the USA and the EEC countries.

law of one price A law stating that all goods sell for the same price worldwide when converted to a common currency.

leads and lags Payment of financial obligations earlier (leads) or later (lags) than is expected or required.

less developed country (LDC) A country characterized by relatively low levels of economic output and income per capita, limited industrial activity, and a lack of adequate health, educational, and other social services.

letter of credit A document issued by a bank at the request of the importer. In the document, the bank agrees to honor a draft drawn on the importer if the draft accompanies specified documents.

leveraged buy-out (LBO) A large amount of loan to buy a controlling interest in a company.

licensing agreement An agreement whereby one firm gives rights to another for the use of such assets as trademarks, patents, or copyrights.

lifetime employment A customary Japanese situation in which workers are effectively guaranteed employment with the company for their working lifetime.

link financing An arrangement that commercial banks in strong-currency countries help subsidiaries in weak-currency countries to obtain loans by guaranteeing repayment of the loans.

local currency The currency of the country to which reference is made.

London Interbank Offered Rate (LIBOR) The arithmetic average of the interest rates offered by 16 major banks in London on 6-month Eurodollar time deposits at a certain time during the morning. This is the reference rate in London for interbank Eurocurrency deposits.

long position An agreement to buy a futures contract.

mail float The mailing time involved in payments sent by mail.

maintenance margin A set minimum margin that futures market participants must always maintain in their accounts.

managed float Also known as a dirty float, a system that floats exchange rates with central bank intervention to reduce currency fluctuations.

margin Money deposited with a broker to finance futures trading.

margin call A broker's request for an additional deposit when the funds in his client's account fall below the minimum amount.

marginal cost of capital The cost of the last dollar of funds raised. It is assumed that each dollar is financed in proportion to the firm's optimum capital structure.

market-based forecast A forecast based on market indicators, such as forward rates or spot rates.

market economy An economic philosophy in which resources are allocated and controlled by consumers who "vote" by buying goods.

market portfolio A well-diversified group of risky securities with little or no unsystematic risk.

Marshall Plan The European Economic Recovery Program established by the USA in 1948, to restore the productive capacity of European industry and agriculture destroyed during World War II.

merchandise trade balance The net of merchandise imports and exports within a country's balance of payments.

merger A situation whereby two companies combine their operations to form a new company.

monetary/nonmonetary method Under this method of translation, all monetary accounts are translated at the current exchange rate, and all nonmonetary accounts are translated at the historical exchange rate.

money market The financial market where short-term securities such as commercial paper and bankers' acceptances are sold and bought.

money market hedge A hedging device that involves a contract and a source of funds to carry out that contract. If an American firm has a British pound import payable in 60 days, it may borrow in dollars, convert the proceeds into pounds, buy a 60-day British Treasury bill, and pay the import bill with the funds derived from the sale of the Treasury bill.

most-favored nation (MFN) A nation that receives the most favored treatment in application of duties from another country. The MFN clause requires that if a member country of the World Trade Organization grants a tariff reduction to one country, it must grant the same concession to all other WTO member countries.

multicurrency clause A clause that gives a Eurocurrency borrower the right to switch from one currency to another when the loan is rolled over.

multinational (transnational) corporation A company that conducts business operations in several countries. It usually consists of a parent firm and a number of affiliates.

multiple exchange rate system Under this system, a government sets different exchange rates for different transactions.

mutual funds Corporations that accept money from savers and then use these funds to buy a variety of securities issued by businesses or government units

negotiating bank A bank that negotiates such things as discounts or purchases of drafts drawn by exporters.

net exposure The difference between exposed assets and liabilities.

net present value The present value of future net cash flows minus the present value of the net investment for a project.

netting A method designed to reduce the foreign-exchange transaction cost through the consolidation of accounts payable and accounts receivable. For example, if subsidiary A buys $1 million worth of goods from subsidiary B and B in turns buys $3 million worth of parts from A, the combined flows are $4 million. But on a net basis, subsidiary A would pay subsidiary B only $2 million.

newly industrialized country (NIC) A Third World country in which the cultural and economic climate has led to a rapid rate of industrialization and growth since the 1960s.

Nikkei Index A measure of the level of stock prices on the Tokyo Stock Exchange, based on the prices of a group of Japanese securities.

nominal interest rate The rate of interest that consists of a real interest rate and an expected rate of inflation.

nonmarket, or centrally planned, economy An economy in which resources are allocated and controlled by government decision.

nontariff barriers Restrictive practices in trade other than custom duties used by governments or by private firms. Nontariff barriers used by governments include import quotas, voluntary restrictions, exceptional customs valuation procedures, and health regulations. Nontariff barriers used by private firms include price control, division of markets, restriction of supplies, patent agreements, or control of technology.

North American Free Trade Agreement (NAFTA) A trade agreement that allows free trade and investment between Canada, Mexico, and the USA.

notifying (advising) bank A bank that notifies the beneficiary of the opening of a letter of credit.

offer price The price at which a trader is willing to sell a given item.

official reserves Government-owned assets that consist of gold, SDRs, and convertible foreign exchange.

offset agreement Trade demanded by a foreign buyer to produce parts, source parts, or assemble the product in the importing country.

offshore banking Banking activities that accept deposits and make loans in foreign currency – the Eurocurrency market.

offshore funds Funds that use the currency of a country but are located outside that country for tax and other purposes.

oligopoly model This model assumes that business firms make foreign investments to exploit their quasi-monopoly advantages.

opening bank A bank that opens a letter of credit.

opportunity cost The rate of return that funds could earn if they were invested in the best available alternative project.

optimal portfolio A portfolio found at the tangency point between the efficient frontier and the security market line. This is the portfolio that has, among all possible portfolios, the largest ratio of expected return to risk.

optimum capital budget The amount of investment that will maximize a company's total profits.

optimum capital structure The combination of debt and equity that yields the lowest cost of capital or maximizes the overall value of the company.

option The right to buy or sell a given amount of foreign exchange or other financial asset at a fixed price for a specified time period.

option premium (price) The price that the option buyer must pay the option seller.

Organization for Economic Cooperation and Development (OECD) An organization of 29 countries, most of which are industrialized countries.

Organization of Petroleum Exporting Countries (OPEC) An organization established by a number of oil-exporting countries to formulate uniform policies such as selling prices on their oil-export sales. Full members with vote and veto include Algeria, Ecuador, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.

out of the money A descriptive term implying that the current exchange rate is less than (exceeds) the strike price on a currency call (put) option.

outright forward rate A forward-exchange rate expressed in terms of the amount of one currency required to buy a unit of another currency.

outsourcing A situation in which a domestic company uses foreign suppliers for components or finished products.

over-the-counter (OTC) market A market in which participants privately trade securities, options, foreign exchange, or other financial contracts with each other, often using a bank as an intermediary. The OTC market has no physical location and thus is differentiated from organized exchanges with a physical location where trading takes place.

overdraft A line of credit that permits the customer to write checks beyond deposits.

Overseas Private Investment Corporation (OPIC) A US government agency established in 1969 to insure American overseas investors against political risks.

par (mint) value The value of a currency specified by the government of the currency.

parallel loan A loan that involves an exchange of currencies between four parties, with a promise to reexchange the currencies at a specified exchange rate and future date.

parent A company that controls another (its subsidiary).

payback period The number of years required for the net cash flows of a project to return its cost.

payee The party to whom payment is made. The drawer may also be a payee of a draft.

paying bank The drawee bank on which a draft is drawn.

peg To fix the value of a currency to some benchmark such as the US dollar.

petrodollars OPEC deposits of dollars in the Eurocurrency market.

piracy The unauthorized use of property rights protected by patents, trademarks, or copyrights.

plain vanilla swap The basic form of a swap – the simplest kind.

political risk Potential changes in political conditions that may cause company operating positions to deteriorate.

pooling-of-interest method A method in the case of a merger under which the items on the balance sheets of the two companies are added together so that the merger will not create goodwill.

portfolio effect The extent to which the variations or risks of individual assets tend to offset each other.

portfolio investment Investment in foreign financial assets without significant management control of the real assets.

portfolio theory A theory that indicates that a company is often able to improve its risk–return performance by holding an internationally diversified portfolio of assets as opposed to a domestically diversified portfolio.

possessions corporation A US firm engaged in business within US possessions such as Guam and American Samoa. The possessions corporation obtains tax advantages if it meets certain requirements.

premium The excess of the forward exchange rate over the spot exchange rate.

Private Export Funding Corporation (PEFCO) A corporation established in 1970 at the initiation of the Bankers' Association for Foreign Trade, to mobilize private capital in order to finance US exports of big-ticket items.

privatization A situation in which government-owned assets are sold to private individuals or groups.

product differentiation The development of a product that is different from those produced by competitors to maintain or improve market share.

product life cycle theory A theory that attempts to explain both world trade and foreign investment patterns on the basis of stages in a product's life. The product life cycle is the time that it takes to bring new and improved products to markets.

production efficiency The production of goods in the least costly way.

profit split method A new transfer pricing method adopted by the US Internal Revenue Service in 1994. This method consists of two steps in estimating an arm's-length return: (1) by comparing the relative economic contributions that the parties make to the success of a venture; and (2) by dividing the returns from that venture between them on the basis of the relative value of such contributions.

project finance A way for a project sponsor to raise nonrecourse financing for a specific project. Most often, a separate legal entity is formed to operate the project.

protectionism A political attitude or policy intended to prohibit the import of foreign goods and services.

proxy The assignment of the voting right to management or a group of outsiders.

Public Law 480 The US law that permits less developed countries to purchase surplus American agricultural products and to pay for them with their own currencies rather than with dollars.

purchase-of-assets method A method in the case of a merger under which the acquired assets or companies are usually recorded in the accounts of the acquiring company at the market value of assets given in exchange.

purchasing power parity theory An economic theory that, in the long run, exchange rates reflect the relative purchasing power of currencies.

put An option to sell foreign exchange or financial contracts.

put swaption The right to make fixed interest payments.

quality control circle A production system in which small groups of workers meet regularly to detect and solve problems in their area.

quota A limit set on the import of a product.

real interest rate The nominal (quoted) interest rate minus the inflation rate.

recourse The right of an intermediary to claim reimbursement from a drawer of a draft if the drawee fails to pay.

regional development bank A development bank that makes loans only to countries in particular regions.

reinvoicing center A subsidiary that takes title to all goods sold by one corporate unit to other affiliates or independent customers. The center pays the seller and in turn is paid by the buyer.

reporting currency The currency in which the parent firm prepares its own financial statements.

required rate of return The minimum rate of return required by the investors.

resale price method The method allowed by the US Internal Revenue Service to determine the arm's-length price of intracompany transactions. Under this method, an arm's-length price is obtained by subtracting an appropriate markup from the applicable sale price.

reserve, or official reserve, account In the balance of payments, the section that represents the changes in official reserves such as SDRs and convertible foreign exchange.

reserve country A country whose currency is held as a reserve asset by central banks or governments of other countries.

reserve currency A currency held as a reserve asset by central banks or governments of countries other than the country of the currency.

return on investment (ROI) Profits divided by the amount of investment, usually total assets.

revaluation Either an upvaluation or a devaluation.

revocable letter of credit A letter of credit that can be canceled at any time without prior notification to the beneficiary.

risk The variability of return associated with a project.

risk-adjusted discount rate A rate that consists of the riskless rate of return plus a risk premium.

risk analysis An analysis of the different outcomes under different assumptions that each of these outcomes will occur.

royalties The payment for use of assets abroad.

safe harbor A rule set in legislation that guarantees favorable treatment to the party.

safeguard clause A clause for conditions under which tariffs and nontariff barriers may be reintroduced.

Section 482 A provision of the US Internal Revenue Code regulating transfer pricing practices.

Securities and Exchange Commission (SEC) A US government agency that regulates securities brokers, dealers, and markets.

semistrong-form efficiency When related to foreign-exchange markets, this theory implies that current exchange rates reflect all publicly available information, thereby making such information useless for forecasting exchange rate movements.

short position An agreement to sell a futures contract.

sight draft A draft payable on demand (at sight).

Smithsonian Agreement An agreement reached in December 1971, to widen the band up to 2.25 percent on either side of the par value.

snake within a tunnel A system that EEC countries agreed to allow their currencies to fluctuate a maximum of 2.25 percent against one another and that permitted a 4.5 percent band against other countries. The tunnel disappeared in 1973 and the snake ended in 1978.

Society for Worldwide Interbank Financial Telecommunications (SWIFT) An interbank communication network that carries messages for financial transactions.

sovereign risk The risk of a country that will impose foreign-exchange regulations or the risk of government default on a loan made to it or guaranteed by it.

sovereignty The power of a country to act as it wishes within its own borders.

special drawing rights (SDRs) A reserve asset created in 1967 by the IMF. SDRs are rights to draw on the IMF.

specific duty A duty imposed as a fixed charge per unit, such as $2 per ton.

spot rate A foreign-exchange rate paid for delivery of a currency within 2 days from the date of the trade.

spread The difference between the bid and ask prices in a price quote, or the difference between the spot rate and the forward rate.

strategic alliance A formal relationship between two companies to obtain economies of scale.

strike price The price at which a currency can be sold or bought in an option contract.

strong-form efficiency When related to foreign-exchange markets, this theory suggests that current exchange rates reflect all pertinent information, whether publicly available or privately held.

Subpart F Foreign-source "unearned income" taxed by the Internal Revenue Service whether or not it is remitted to the USA.

subsidiary A foreign-based affiliate that is separately incorporated under the host country's law.

subsidy Direct or indirect governmental assistance to companies, thereby making them more competitive with imports.

swap An agreement between two parties who exchange sets of cash flows over a period of time in the future.

swap loan A loan made by a local bank based on deposit of funds in offices of that bank in another country.

swaption An option to enter into a plain vanilla interest rate swap.

switch trading A practice whereby payments for exports to the Eastern bloc and nonmarket countries are made through clearing units, in which sales are balanced with purchases from other countries.

syndicated loan A credit in which a group of banks makes funds available on common terms and conditions to a particular borrower.

synergistic effect A situation in which the combined company is worth more than the sum of its parts.

systematic risk The risk common to all assets or all countries, which cannot be diversified away.

tariff A duty or tax imposed on imported commodities.

tariff harmonization The process of making tariffs more homogeneous by eliminating disparities in tariff rates on the same commodity.

tax haven A country that promises permanent tax inducements to attract multinational companies.

tax holiday The form of a complete tax exemption for the first few years given by a country when multinational firms invest their money in that country.

technical analysis A currency forecasting technique that uses historical prices or trends.

temporal method A method that translates the financial statements of a foreign affiliate into the parent reporting currency. Monetary assets and liabilities are translated at current exchange rates; nonmonetary assets, nonmonetary liabilities, and owners' equity are translated at historical exchange rates.

tender offer An offer to buy a certain number of shares at a specific price and on a specific date for cash, stock, or a combination of both.

Third World A term used to mean those countries other than the industrial countries and the nonmarket (centrally planned) economies.

time draft A draft payable a specified number of days after presentation to the drawee.

trade acceptance A draft accepted by an importer or a business enterprise.

trademark A name or logo that distinguishes a company or product.

transaction exposure The possibility that gains or losses may result from the settlement of transactions whose terms are stated in foreign currency.

transfer price The price of goods and services sold between related parties such as parent and subsidiary.

translation exposure Exchange gains or losses that will occur when a company translates its foreign-currency operations into its home currency.

triangular arbitrage The process of buying and selling foreign exchange at a profit due to price discrepancies where three different currencies are involved.

unilateral transfer In the balance of payments, the account that covers gifts by domestic residents to foreign residents, or gifts by the domestic government to foreign governments.

unit of account A benchmark on which to base the value of payments.

unitary tax A method of taxing a company on its worldwide profits rather than on its profits in the area where the taxing authorities are located.

unsystematic risk The risk unique to a particular company or country, which can be diversified away.

upvaluation An official increase in the par value of a currency by the government.

US–Canada Free Trade Agreement A 1988 agreement between the USA and Canada to remove their trade barriers.

value-added tax (VAT) A sales tax assessed at one or more stages in the production process, but only on the value added during that production stage.

vertical integration The integration of different stages in which the special drawing rights of a product move from the earliest production to the final distribution.

weak-form efficiency This theory implies that all information contained in past exchange rate movements is fully reflected in current exchange rates.

withholding tax A tax collected from income to employees, stockholders, and others; it is collected before receipt of the income.

World Bank A multinational financial institution established in 1944, to enhance economic development.

World Trade Organization (WTO) The new organization that has replaced the General Agreement on Tariffs and Trade (GATT) since the Uruguay Round accord became effective on January 1, 1995.

Yankee bonds Dollar-denominated bonds issued within the USA by a foreign borrower.

yield The actual rate of return on a financial asset. It depends on the price paid for the security and the stated rate of interest or dividend.

zero-coupon bond A bond that pays no coupon interest and simply returns the face value at maturity.

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