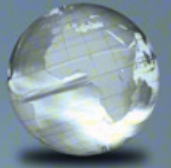


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Fundamentals of Multinational Finance

SIXTH EDITION

Michael H. Moffett • Arthur I. Stonehill • David K. Eiteman



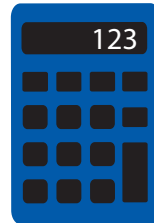
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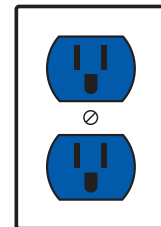
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Fundamentals of

Multinational Finance

Sixth Edition

Global Edition

MICHAEL H. MOFFETT

*Thunderbird School of Global Management
at Arizona State University*

ARTHUR I. STONEHILL

Oregon State University and University of Hawaii at Manoa

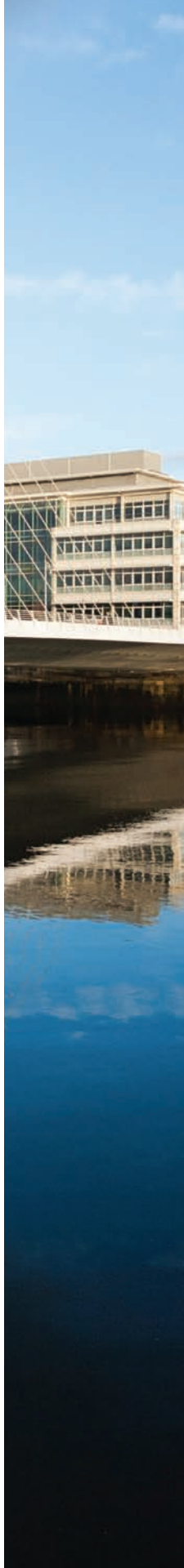
DAVID K. EITEMAN

University of California, Los Angeles



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Preface

The subject of this book is the financial management of multinational enterprises (MNEs)—*multinational financial management*. MNEs are firms—both for-profit companies and not-for-profit organizations—that have operations in more than one country and conduct their business through branches, foreign subsidiaries, or joint ventures with host country firms.

Fundamentals of Multinational Finance, Sixth Edition, reflects the juxtaposed forces of an increasingly digital global marketplace and a resurgence of nationalist culture and identity. Financial forces, markets, and management are in many ways at the crux of this challenge. This edition has been revised to reflect a business world trying to find a new balance between new business startups like the micro-multinational, a maturing China, a separatist Britain (Brexit), and an attempt by governments globally to channel, regulate (and tax) multinational firms that continue to grow in stature and strength. The book focuses on the challenges faced in multinational financial management—with three points of emphasis.

- **Organizations.** Multinational enterprises (MNEs) applies to organizations of all kinds—the publicly traded, the privately held, the state-run, the state-owned organizations—all forms that permeate global business today. Who owns and operates the organization alters its goals and therefore its management.
- **Markets.** Country players in the emerging world are rapidly taking their place as both producers and consumers on an equal basis with the industrial countries and their traditional corporate components. Although they may still be categorized as emerging, they are the economic drivers and primary challenges for global finance and global financial management.
- **Leadership.** Individuals in positions of leadership within these organizations and markets are faced with a changing global landscape in which emerging market finance is no longer on the outer edge of financial management, but moving to its core. These leaders of MNEs face numerous foreign exchange and political risks that are actually more volatile, with global capital moving in and out of countries at an ever-increasing rate.

These risks can be daunting but they also present opportunities for creating value if properly understood and managed. In the end, the primary question is whether business leaders are able to integrate the global strategic and financial challenges that business faces.

New in the Sixth Edition

Our primary challenge with the Sixth Edition is to strike a balance between our growing success with the Fifth Edition and the relevant and exacting recommendations by selected reviewers—the *innovator's dilemma*. Surveys of adopters were extremely useful in this revision, and a number of specific developments included.

- **MyLab Finance.** All chapters are structured around a series of pedagogical Learning Objectives aligned with the MyLab Finance platform for *Fundamentals of Multinational Finance*'s teaching.
- **Interest Rate Risk and Swaps.** A new chapter has been introduced that details the various interest rate risks of the MNE and the practical use of interest rate and cross-currency swaps.

- **The Impossible Trinity.** A core international financial principle, the *Impossible Trinity's* use as a unifying theoretical link across multiple subjects and chapters has been expanded.
- **The Foreign Exchange Market and Digital Trade.** New material in this edition explores in depth how the changing structure of the global foreign exchange market—trading, communication, and settlement—is posing challenges for private players and public regulators and overseers.
- **International Taxation.** Integrally linked to a world of digital commerce, multinational tax management continues to rise in its significance in multinational financial management. We have greatly expanded our coverage of this truly critical financial management topic.
- **Political Risk and Financial Losses.** The chapter on foreign direct investment and political risk has been revised to reflect the growing use of restrictions on convertibility, transferability, and the possibility of repudiation or expropriation.
- **New and Edgier Mini-Cases.** Eleven of the 18 Mini-Cases are completely new to the Sixth Edition, and explore many of the edgier debates rising between global business, social policy, and corporate social responsibility. Topics include Argentine debt and vulture investors, Apple's global profit positioning and tax structure, Brexit and its potential impact on Rolls-Royce, Volkswagen's governance structure and its defeat device “strategy,” political risk in Kazakhstan's oil and gas industry, and crowdfunding startups in Kenya, to name but a few.
- **Expanded Quantitative Applications.** We have worked diligently to increase the quantitative elements across subjects and chapters to push students to explore the depth of analysis and comprehension.
- **End-of-Chapter Assessment.** Questions and Problems are revised throughout and aligned with [MyLab Finance](#).

Fundamentals of Multinational Finance, Sixth Edition, however, retains and revises continuing forces of change as seen in the growing dominance of China's economy and currency, the disruptive financial forces of quantitative easing and near-zero interest rates, and the challenge of the multinational firm to navigate foreign exchange risks.

International finance is a subject of sophistication, constant change, yet rich in history. We have tried to bridge the traditional business practices with digital practices with a mix of currency notations and symbols throughout the book, using both the common three-letter currency codes—USD, CNY, EUR—with the traditional currency symbols—\$, ¥, £, €—which are seeing a resurgence as countries like Russia and Turkey have introduced new “currency identities” of their own.

Audience

Fundamentals of Multinational Finance, Sixth Edition, is aimed at university-level courses in international financial management, international business finance, international finance, and similar titles. It can be used at either the undergraduate or graduate level as well as in executive education and corporate learning courses.

A prerequisite course or experience in corporate finance or financial management would be ideal. However, we review the basic finance concepts before we extend them to the

multinational case. We also review the basic concepts of international economics and international business.

We recognize the fact that a large number of our potential adopters live outside of the United States and Canada. Therefore, we utilize a significant number of non-U.S. examples, Mini-Cases, and *Global Finance in Practice* examples seen in the business and news press (anecdotes and illustrations).

Organization

Fundamentals of Multinational Finance, Sixth Edition, has been redesigned and restructured for tightness—critical elements of the field but in a much shorter delivery framework. This has been accomplished by integrating a number of previous topics along financial management threads. The book is in five parts, the parts unified by the common thread of the globalization process by which a firm moves from a domestic to a multinational business orientation.

- Part 1 introduces the global financial environment
- Part 2 explains foreign exchange theory and markets
- Part 3 explores foreign exchange rate exposure
- Part 4 details the financing of the global firm
- Part 5 analyzes international investment decisions

Pedagogical Tools

To make *Fundamentals of Multinational Finance*, Sixth Edition, as comprehensible as possible, we use a large number of proven pedagogical tools. Again, our efforts have been informed by the detailed reviews and suggestions of a panel of professors who are recognized individually for excellence in the field of international finance, particularly at the undergraduate level. Among these pedagogical tools are the following:

- A student-friendly writing style combined with a structured presentation of material, beginning with *learning objectives* for each chapter, and ending with a summarization of how those learning objectives were realized.
- A wealth of *illustrations and exhibits* to provide a visual parallel to the concepts and content presented. The entire book utilizes a multicolor presentation which we believe provides a visual attractiveness that contributes significantly to reader attention and retention.
- A running case on a hypothetical Irish firm, *Aidan Corporation*, provides a cohesive framework for the multifaceted globalization process, and is reinforced in several end-of-chapter problems.
- A *Mini-Case* at the end of each chapter illustrates the chapter content and extends it to the multinational financial business environment. And as noted, 11 of the 18 are new to the Sixth Edition.
- *Global Finance in Practice* boxes in every chapter to illuminate the theory with accounts of actual business practices. These applications extend the concepts without adding to the length of the text itself.

- Every chapter has a number of end of chapter exercises requiring the use of the Internet, while a variety of Internet references are dispersed throughout the chapters in text and exhibits.
- A multitude of end-of-chapter Questions and Problems, which assess the students' understanding of the course material. All end-of-chapter Problems are solved using spreadsheet solutions. Selected end-of-chapter Problem answers are now included at the back of the book.

A Rich Array of Support Materials

A robust package of materials for both instructor and student accompanies the text to facilitate learning and to support teaching and testing.

- **MyLab Finance.** *Fundamentals of Multinational Finance*, Sixth Edition, is now available with MyLab Finance. MyLab Finance, a fully integrated homework and tutorial system, solves one of the biggest teaching problems in finance courses: providing students with unlimited practice homework problems along with a structured blueprint for studying the material.

MyLab Finance offers:

- Textbook problems online
- Algorithmically generated values for more practice
- Partial credit
- Personalized study plans
- Extra help for students
- Online gradebook

End-of-chapter Questions and Problems that provide assessment and practice opportunities are available in MyLab Finance. Internet exercises, glossary flash cards, and Web links are also available in MyLab Finance.

- **Online Instructor's Manual.** The Online Instructor's Manual, prepared by the authors with assistance from Shannon Donovan at Bridgewater State University, contains complete answers to all end-of-chapter Questions, Problems, and chapter Mini-Cases. All quantitative end-of-chapter Problems are solved using spreadsheets, which are also available online.
- **Online Test Bank.** The Online Test Bank, revised by Brian Nethercutt, contains over 1,200 multiple-choice and short-essay questions. The multiple-choice questions are labeled by topic and by category—recognition, conceptual, and analytical types.
- **Computerized Test Bank.** The Test Bank is also available in Pearson Education's TestGen Software. Fully networkable, it is available for Windows and Macintosh. TestGen-EQ's graphical interface enables instructors to view, edit, and add questions; transfer questions to tests; and print different forms of tests. Search-and-sort features enable the instructor to locate questions quickly and arrange them in a preferred order. The TestGen plug-in automatically grades the exams, stores the results on a disk, and allows the instructor to view and print a variety of reports.
- **Online Mini-Case PowerPoint Presentations.** Each of the 18 Mini-Cases has a stand-alone PowerPoint presentation available online.
- **Online PowerPoint Presentation Slides.** The extensive set of PowerPoint slides provides lecture outlines and selected graphics from the text for each chapter.

- **Web Site.** A dedicated Web site at www.pearsonglobaleditions.com contains selected solutions and spreadsheets for end-of-chapter Problems and other bonus material.

All of the teaching resources are available online for download at the Instructor Resource Center at www.pearsonglobaleditions.com.

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Contributors

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Reviewers

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 Ricky Li, *Cardiff Metropolitan University*
 Chioma Nwafor, *Glasgow Caledonian University*

About the Authors

Michael H. Moffett Michael H. Moffett is Continental Grain Professor in Finance at the Thunderbird School of Global Management, where he has been since 1994. He has also held teaching or research appointments at Oregon State University (1985–1993); the University of Michigan, Ann Arbor (1991–1993); the Brookings Institution, Washington, D.C.; the University of Hawaii at Manoa; the Aarhus School of Business (Denmark); the Helsinki School of Economics and Business Administration (Finland); the International Centre for Public Enterprises (Yugoslavia); and the University of Colorado, Boulder.

Professor Moffett received a B.A. (Economics) from the University of Texas at Austin (1977); an M.S. (Resource Economics) from Colorado State University (1979); an M.A. (Economics) from the University of Colorado, Boulder (1983); and Ph.D. (Economics) from the University of Colorado, Boulder (1985).

He has authored, co-authored, or contributed to a number of books, articles, and other publications. He has co-authored two books with Art Stonehill and David Eiteman, *Multinational Business Finance*, and this book, *Fundamentals of Multinational Finance*. His articles have appeared in the *Journal of Financial and Quantitative Analysis*, *Journal of Applied Corporate Finance*, *Journal of International Money and Finance*, *Journal of International Financial Management and Accounting*, *Contemporary Policy Issues*, *Brookings Discussion Papers in International Economics*, and others. He has contributed to a number of collected works including the *Handbook of Modern Finance*, the *International Accounting and Finance Handbook*, and the *Encyclopedia of International Business*. He is also co-author of a number of books in multinational business with Michael Czinkota and Ilkka Ronkainen, *International Business* (7th edition) and *Global Business* (4th edition). Professor Moffett has also published extensively in the oil and gas industry including *The Global Oil and Gas Industry: Strategy, Finance, and Management*, with Andrew Inkpen, *Managing Human Resources in the Oil & Gas Industry*, with Steve Werner and Andrew Inkpen, and *The Global Oil and Gas Industry: Stories From The Field*, with Andrew Inkpen and Kannan Ramaswamy.

Arthur I. Stonehill Arthur I. Stonehill is a Professor of Finance and International Business, Emeritus, at Oregon State University, where he taught for 24 years (1966–1990). During 1991–1997 he held a split appointment at the University of Hawaii at Manoa and Copenhagen Business School. From 1997 to 2001 he continued as a Visiting Professor at the University of Hawaii at Manoa. He has also held teaching or research appointments at the University of California, Berkeley; Cranfield School of Management (U.K.); and the North European Management Institute (Norway). He was a former president of the Academy of International Business, and was a western director of the Financial Management Association.

Professor Stonehill received a B.A. (History) from Yale University (1953), an M.B.A. from Harvard Business School (1957), and a Ph.D. in Business Administration from the University of California, Berkeley (1965). He was awarded honorary doctorates from the Aarhus School of Business (Denmark, 1989), the Copenhagen Business School (Denmark, 1992), and Lund University (Sweden, 1998).

He has authored or co-authored nine books and twenty-five other publications. His articles have appeared in *Financial Management*, *Journal of International Business Studies*, *California Management Review*, *Journal of Financial and Quantitative Analysis*, *Journal of International Financial Management and Accounting*, *International Business Review*, *European Management Journal*, *The Investment Analyst* (U.K.), *Nationaløkonomisk Tidsskrift* (Denmark), *Sosialøkonomien* (Norway), *Journal of Financial Education*, and others.

David K. Eiteman David K. Eiteman is Professor Emeritus of Finance at the John E. Anderson Graduate School of Management at UCLA. He has also held teaching or research appointments at the Hong Kong University of Science & Technology, Showa Academy of Music (Japan), the National University of Singapore, Dalian University (China), the Helsinki School of Economics and Business Administration (Finland), University of Hawaii at Manoa, University of Bradford (U.K.), Cranfield School of Management (U.K.), and IDEA (Argentina). He is a former president of the International Trade and Finance Association, Society for Economics and Management in China, and Western Finance Association.

Professor Eiteman received a B.B.A. (Business Administration) from the University of Michigan, Ann Arbor (1952); M.A. (Economics) from the University of California, Berkeley (1956); and a Ph.D. (Finance) from Northwestern University (1959).

He has authored or co-authored four books and twenty-nine other publications. His articles have appeared in *The Journal of Finance*, *The International Trade Journal*, *Financial Analysts Journal*, *Journal of World Business*, *Management International*, *Business Horizons*, *MSU Business Topics*, *Public Utilities Fortnightly*, and others.

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PART
1

Global Financial Environment

CHAPTER 1

Multinational Financial Management: Opportunities and Challenges

CHAPTER 2

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Multinational Financial Management: Opportunities and Challenges

The objects of a financier are, then, to secure an ample revenue; to impose it with judgment and equality; to employ it economically; and, when necessity obliges him to make use of credit, to secure its foundations in that instance, and forever, by the clearness and candor of his proceedings, the exactness of his calculations, and the solidity of his funds.

—Edmund Burke, *Reflections on the Revolution in France*, 1790, p. 467.

LEARNING OBJECTIVES

- 1.1 Understand how financial globalization alters the risks of multinational business
- 1.2 Explore the structures of the global financial marketplace
- 1.3 Consider how the theory of comparative advantage applies to multinational business
- 1.4 Examine how international financial management differs from domestic financial management
- 1.5 Discover the steps and stages of the globalization process

The subject of this book is the financial management of multinational enterprises (MNEs)—*multinational financial management*. MNEs are firms—both for-profit companies and not-for-profit organizations—that have operations in more than one country and conduct their business through branches, foreign subsidiaries, or joint ventures with host country firms. That conduct of business comes with challenges as suggested by the following news release from Procter & Gamble Co. (P&G), an American multinational consumer goods company:

“The October–December 2014 quarter was a challenging one with unprecedented currency devaluations,” said Chairman, President and Chief Executive Officer A.G. Lafley. “Virtually every currency in the world devalued versus the U.S. dollar, with the Russian Ruble leading the way. While we continue to make steady progress on the strategic transformation of the company—which focuses P&G on about a dozen core categories and

70 to 80 brands, on leading brand growth, on accelerating meaningful product innovation, and increasing productivity savings—the considerable business portfolio, product innovation, and productivity progress was not enough to overcome foreign exchange.”

—P&G News Release, January 27, 2015.

P&G is not alone. It is a brave new world, a new world in which digital startups may become multinational enterprises in hours—the *micro-multinational*, where the number of publicly traded companies on earth is shrinking, where the most challenging competitors are arising from emerging markets, and where more and more value is being created by ‘idea firms.’ The global marketplace is seeing radical change, with *Brexit*, the United Kingdom’s choice to exit the European Union and with the Chinese economy, the economic engine of the global economy for the past decade, now showing early signs of aging and slowing. Other seismic shifts are changing corporate identities, such as the growing role of the Chinese currency, the renminbi, the increasing number of firms in higher-tax environments, like the United States, reincorporating in lower-tax environments—so-called *corporate inversion*—and acquisitions of old industrial firms by companies from India, Vietnam, South Africa. The global financial crisis of 2008–2009 is far in the past, but central banks in Europe, the United States, and Japan have pushed interest rates to zero or in some cases below zero in an attempt to prevent industrial economies from backsliding into recession, although this may be starting to change. Capital is flowing again at an ever-increasing pace—although the flow is both into and out of economies—and currency volatility is growing, not slowing.

How to identify and navigate these risks and many others is the focus of this book. These risks may all occur on the playing field of the global financial marketplace, but they are still a question of management—of navigating complexity in pursuit of the goals of the firm and all of its varied stakeholders.

This first chapter provides a brief overview of the global financial landscape including foreign currency markets and financial institutions. We then explore the foundations of comparative advantage, those forces differentiating international from domestic finance. We conclude our introductory overview with the alternative paths firms may take in going global. The chapter concludes with a Mini-Case, *Crowdfunding Kenya*, that examines how the Internet and financial innovation is opening the emerging market world to global capital and its potential benefits.

1.1 Financial Globalization and Risk

Back in the halcyon pre-crisis days of the late 20th and early 21st centuries, it was taken as self evident that financial globalization was a good thing. But the subprime crisis and eurozone dramas are shaking that belief. . . what is the bigger risk now—particularly in the eurozone—is that financial globalization has created a system that is interconnected in some dangerous ways.

—“Crisis Fears Fuel Debate on Capital Controls,” Gillian Tett, *Financial Times*, December 15, 2011.

The discussion dominating global financial markets today is centered around the complexity of risks associated with *financial globalization*—the discussion goes far beyond whether such globalization is simply good or bad, and encompasses ways to lead and manage multinational firms in the rapidly moving marketplace. The following is but a sampling of risks that must be considered and managed.

- The international monetary system, an eclectic mix of floating and managed fixed exchange rates, is under constant scrutiny. The rise of the Chinese renminbi is changing much of the world's outlook on currency exchange, reserve currencies, and the roles of the dollar and the euro (see Chapter 2).
- Large fiscal deficits, including the continuing eurozone crisis, plague most of the major trading countries of the world, complicating fiscal and monetary policies, and, ultimately, leading to the use of negative interest rates in an attempt to stimulate economies and protect currencies (see Chapter 3).
- Many countries experience continuing balance of payments imbalances, and in some cases, dangerously large deficits and surpluses—whether it be the twin surpluses enjoyed by China, the current account surplus of Germany, or the continuing current account deficits of the United States and United Kingdom, all will inevitably move exchange rates (see Chapter 3).
- Ownership and governance vary dramatically across the world. The publicly traded company is not the dominant global business organization—the privately held or family-owned business is the prevalent structure—and goals and measures of performance vary across business models (see Chapter 4).
- Global capital markets that normally provide the means to lower a firm's cost of capital, and even more critically, increase the availability of capital, have in many ways shrunk in size and have become less open and accessible to many of the world's organizations (see Chapter 2).
- Today's emerging markets are confronted with a new dilemma: the problem of first being the recipients of capital inflows, and then of experiencing rapid and massive capital outflows. Financial globalization has resulted in the ebb and flow of capital into and out of both industrial and emerging markets, greatly complicating financial management (Chapters 5 and 8).

1.2 The Global Financial Marketplace

Business—domestic, international, global—involves the interaction of individuals and individual organizations for the exchange of products, services, and capital through markets. The global capital markets are critical for the conduct of this exchange. The global financial crisis of 2008–2009 served as an illustration and a warning of how tightly integrated and fragile this marketplace can be.

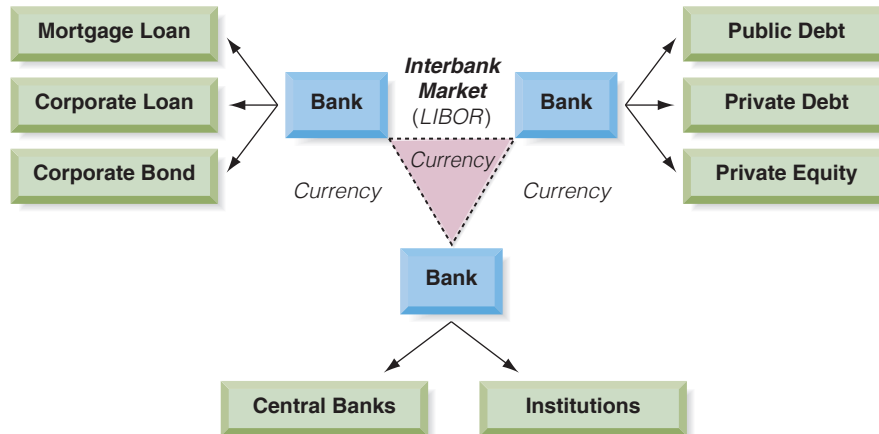
Assets, Institutions, and Linkages

Exhibit 1.1 provides an overview of the global capital markets. One way to characterize the global financial marketplace is through its securities and institutions, all linked through the interbank market.

Securities. The securities—financial assets—at the heart of the global capital markets are the debt securities issued by governments (e.g., U.S. Treasury Bonds). These low-risk or risk-free securities form the foundation for the creation, trading, and pricing of other financial securities like bank loans, corporate bonds, and equities (stock). In recent years, a number of additional securities—derivatives—have been created from existing securities, the value of which is based on market value changes of the underlying securities. The health and security of the global financial system relies on the quality of these securities.

EXHIBIT 1.1 Global Capital Markets

The global capital market is a collection of institutions (central banks, commercial banks, investment banks, not-for-profit financial institutions like the IMF and World Bank) and securities (bonds, mortgages, derivatives, loans, etc.), which are all linked via a global network—the *Interbank Market*. This interbank market, in which securities of all kinds are traded, is the critical pipeline system for the movement of capital.



The exchange of securities—the movement of capital in the global financial system—must all take place through a vehicle—currency. The exchange of currencies is itself the largest of the financial markets. The interbank market, which must *pass-through* and exchange securities using currencies, bases all of its pricing through the single most widely quoted interest rate in the world—LIBOR (the London Interbank Offered Rate).

Institutions. The institutions of global finance are the central banks, which create and control each country’s money supply; the commercial banks, which take deposits and extend loans to businesses, both local and global; and the multitude of other financial institutions created to trade securities and derivatives. These institutions take many shapes and are subject to many different regulatory frameworks. The health and security of the global financial system relies on the stability of these financial institutions.

Interbank Linkages. The links between the financial institutions, the actual fluid or medium for exchange, are the interbank networks using currency. The ready exchange of currencies in the global marketplace is the first and foremost necessary element for the conduct of financial trading, and the global currency markets are the largest markets in the world. The exchange of currencies, and the subsequent exchange of all other securities globally via currency, is the international interbank market. This network, whose primary price is the London Interbank Offered Rate (LIBOR), is the core component of the global financial system.

The movement of capital across currencies and continents for the conduct of business has existed in many different forms for thousands of years. Yet, it is only within the past 50 years that the velocity of these capital movements has increased to the pace of an electron in the digital marketplace. And it is only within the past 20 years that this market has been able to reach the most distant corners of the earth at any moment of the day. The result has been an explosion of innovative products and services—some for better and some for worse.

The Market for Currencies

The price of any one country's currency in terms of another country's currency is called a foreign currency exchange rate. For example, the exchange rate between the U.S. dollar (indicated by the symbols \$ or USD) and the European euro (€ or EUR) may be stated as "1.0922 dollar per euro" or simply abbreviated as \$1.0922/€. This exchange rate can also be stated as "EUR1.00 USD1.0922." Since most international business activities require at least one of the two parties in a business transaction to either pay or receive payment in a currency that is different from their own, an understanding of exchange rates is critical to the conduct of global business.

Currency Symbols. As noted, USD and EUR are often used as the symbols for the U.S. dollar and the European Union's euro. These are the computer symbols (ISO-4217 codes) used today on the world's digital networks. The financial press, however, has a rich history of using a variety of different symbols, and a variety of different abbreviations are commonly used. For example, the British pound sterling may be indicated by £ (the pound symbol), GBP (Great Britain pound), STG (British pound sterling), ST£ (pound sterling), or UKL or UK£ (United Kingdom pound). This book uses both the simpler common symbols—the \$ (dollar), the € (euro), the ¥ (yen), the £ (pound)—and the three letter ISO codes.

Exchange Rate Quotations and Terminology. Exhibit 1.2 lists currency exchange rates for August 12, 2016, as would be quoted in New York or London. Each exchange rate listed is for a specific country's currency against the U.S. dollar, the euro, and the British pound—for example, exchange rates listed for the Argentine peso are $\text{Peso } 14.6325 = 1.00 \text{ U.S. dollar}$, $\text{Peso } 16.578 = 1.00 \text{ Euro}$, and $\text{Peso } 18.9241 = 1.00 \text{ British pound}$. The rate listed is termed a "mid-rate" because it is the middle or average of the rates at which currency traders buy currency (*bid rate*) and sell currency (*offer rate*).

The U.S. dollar has been the focal point of most currency trading since the 1940s. As a result, most of the world's currencies have been quoted against the dollar—Mexican pesos per dollar, Brazilian real per dollar, Hong Kong dollars per dollar, etc. This quotation convention is also followed against the world's major currencies, as listed in Exhibit 1.2. For example, the Japanese yen is commonly quoted against the dollar, euro, and pound, as in $\text{¥}100.95 = \$1.00$, $\text{¥}112.82 = \text{€}1.00$, and $\text{¥}130.50 = \text{£}1.00$.

Quotation Conventions. Several of the world's major currency exchange rates follow a specific quotation convention that is the result of tradition and history. The exchange rate between the U.S. dollar and the euro is always quoted as "dollars per euro" or \$/€. For example, \$1.1179 listed in Exhibit 1.2 for "United States." Similarly, the exchange rate between the U.S. dollar and the British pound is always quoted as "dollars per pound" or \$/£. For example, \$1.2933 listed for "United States" in Exhibit 1.2. In addition, countries that were formerly members of the British Commonwealth will often be quoted against the U.S. dollar, as in U.S. dollars per Australian dollar.

Percentage Change in Spot Rates

Assume that the Mexican peso has recently changed in value from $\text{MXN } 16.00 = \text{USD } 1.00$ to $\text{MXN } 20.00 = \text{USD } 1.00$. If your home currency is the U.S. dollar (USD), what is the percent change in the value of the Mexican peso (MXN)? The calculation depends upon the designated *home currency*.

Foreign Currency Terms. When the foreign currency price (the price, MXN) of the home currency (the unit, USD) is used, Mexican pesos per U.S. dollar in this case, the formula for the percent change ($\% \Delta$) in the foreign currency becomes

EXHIBIT 1.2 Selected Global Currency Exchange Rates

August 12, 2016 Country	Currency	Symbol	Code	Currency to equal 1 Dollar	Currency to equal 1 Euro	Currency to equal 1 Pound
Argentina	peso	Ps	ARS	14.6325	16.3578	18.9241
Australia	dollar	A\$	AUD	1.2996	1.4528	1.6807
Brazil	real	R\$	BRL	3.1573	3.5296	4.0833
Canada	dollar	C\$	CAD	1.2943	1.4469	1.6739
Chile	peso	\$	CLP	648.19	724.6152	838.30
China	yuan	¥	CNY	6.6446	7.4280	8.5934
Czech Republic	koruna	Kc	CZK	24.1708	27.0206	31.2599
Denmark	krone	Dkr	DKK	6.6557	7.4404	8.6077
Egypt	pound	£	EGP	8.8766	9.9231	11.4800
Euro	euro	€	EUR	0.8945	1.0000	1.1569
India	rupee	Rs	INR	66.8550	74.7376	86.4631
Indonesia	rupiah	Rp	IDR	13,121.00	14,668.05	16,969.31
Israel	shekel	Shk	ILS	3.8058	4.2545	4.9219
Japan	yen	¥	JPY	100.905	112.802	130.500
Kenya	shilling	KSh	KES	101.40	113.36	131.14
Malaysia	ringgit	RM	MYR	4.0285	4.5035	5.2100
Mexico	new peso	\$	MXN	18.2317	20.3813	23.5789
New Zealand	dollar	NZ\$	NZD	1.3825	1.5455	1.7879
Nigeria	naira	₦	NGN	320.250	358.009	414.177
Norway	krone	NKr	NOK	8.2090	9.1768	10.6166
Philippines	peso	₱	PHP	46.6050	52.1000	60.2739
Poland	zloty	—	PLN	3.8167	4.2667	4.9361
Russia	ruble	₽	RUB	64.7975	72.4375	83.8022
Singapore	dollar	S\$	SGD	1.3445	1.5030	1.7388
South Africa	rand	R	ZAR	13.4402	15.0248	17.3821
South Korea	won	₩	KRW	1,103.35	1,233.44	1,426.95
Sweden	krona	SKr	SEK	8.4359	9.4305	10.9101
Switzerland	franc	Fr.	CHF	0.9733	1.0881	1.2588
Taiwan	dollar	T\$	TWD	31.3680	35.0665	40.5680
Thailand	baht	฿	THB	34.7675	38.8668	44.9646
Turkey	lira	YTL	TRY	2.9504	3.2982	3.8157
United Kingdom	pound	£	GBP	0.7732	0.8644	1.0000
Ukraine	hrywnja	—	UAH	25.0500	28.0035	32.3970
Uruguay	peso	\$U	UYU	28.7350	32.1230	37.1628
United States	dollar	\$	USD	1.0000	1.1179	1.2933
Venezuela	bolivar fuerte	Bs	VEB	9.9900	11.1679	12.9200
Vietnam	dong	d	VND	22,301.00	24,930.44	28,841.80
Special Drawing Right	—	—	SDR	0.7162	0.8006	0.9262

Note that a number of different currencies use the same symbol (for example, both China and Japan have traditionally used the ¥ symbol, which means “round” or “circle,” for yen and yuan, respectively). All quotes are mid-rates, and are drawn from the *Financial Times*.

$$\% \Delta = \frac{\text{Begin rate} - \text{End rate}}{\text{End rate}} \times 100 = \frac{\text{MXN } 16.00 - \text{MXN } 20.00}{\text{MXN } 20.00} \times 100 = -20.00\%$$

The Mexican peso fell in value 20% against the dollar. Note that it takes more pesos per dollar, and the calculation resulted in a negative value, both characteristics of a fall in value.

Home Currency Terms. When the home currency price (the price, USD) for a foreign currency (the unit, MXN) is used—the reciprocals of the foreign exchange quotes above—the formula for the percent change in the foreign currency is:

$$\% \Delta = \frac{\text{End rate} - \text{Begin rate}}{\text{Begin rate}} \times 100 = \frac{\text{USD } 0.05000 - \text{USD } 0.06250}{\text{USD } 0.06250} \times 100 = -20.00\%$$

The calculation yields the identical percentage change, a fall in the value of the peso by -20% . Many people find the home currency terms calculation to be the more “intuitive,” because it reminds them of a general percentage change calculation (ending less beginning over beginning), however one must be careful to remember that these are exchanges of currency for currency, and the currency that is designated as the home currency is significant.

2015 Fall of the Argentine Peso. The fall in the Argentine peso in 2015 serves as a clear example of percentage change. On December 16, 2015, the government of Argentina announced it would lift *currency controls*—it would no longer restrict the ability of its citizens to move money out of the country. Over the next 24 hours, as Argentinians took advantage of this new freedom, the value of the Argentine peso fell from ARG 9.7908 per U.S. dollar to 13.6160, as pesos poured into the foreign exchange markets.

$$\% \Delta = \frac{\text{Begin rate} - \text{End rate}}{\text{End rate}} \times 100 = \frac{\text{ARG } 9.7908 - \text{ARG } 13.6160}{\text{ARG } 13.6160} \times 100 = -28\%$$

After the 28% drop in the value of the peso against the U.S. dollar, the peso stabilized. But a fall in its value of that magnitude, 28%, was both dramatic and devastating. Change itself is a characteristic of exchange rates as seen in *Global Finance in Practice 1.1*.

GLOBAL FINANCE IN PRACTICE 1.1

The Rocketing Swiss Franc

The Swiss franc has been fighting its appreciation against the European euro for years. Switzerland is not a member of the European Union and its currency has been one of the world's most stable for over a century. However, Switzerland's economy and currency are completely enclosed within the eurozone.

In 2011, in an attempt to stop the Swiss franc from continuing to grow in value against the euro (to stop its appreciation), the Swiss Central Bank announced a “floor” on its value against the euro of 1.20 Swiss francs

to 1 euro. To preserve this value, the Bank would intervene in the market by buying euros with Swiss francs anytime the market exchange rate threatened to hit the floor.

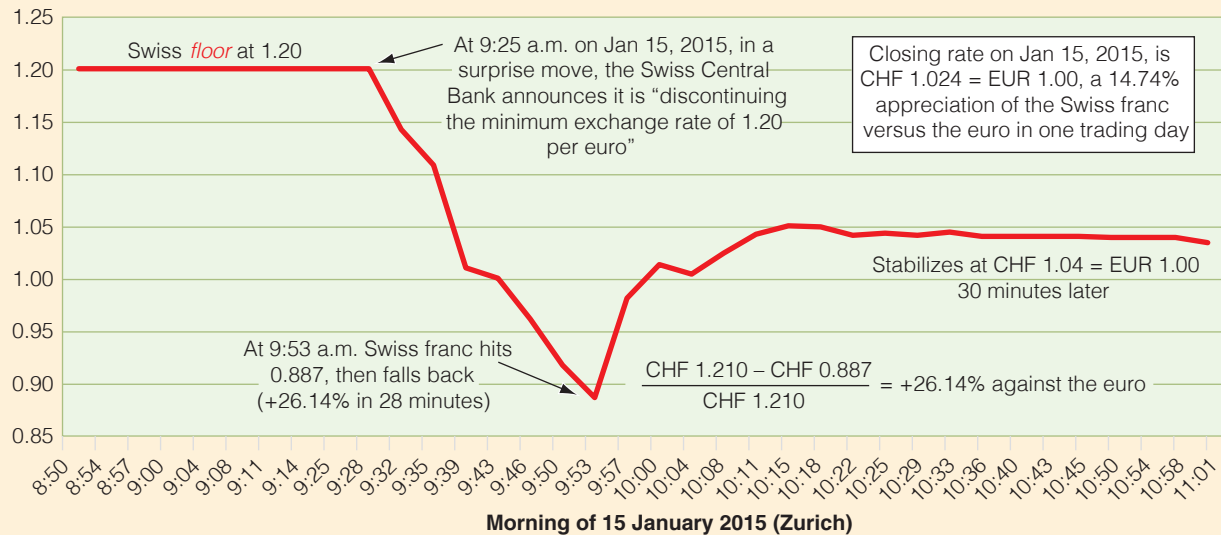
In late 2014, the markets continued to push the Swiss franc's value up against the euro (which means pushing its exchange value to lower than 1.20 Swiss francs per euro). The Swiss Central Bank continued to intervene, buying euros with Swiss francs and accumulating more and more euros in its reserves of foreign currency. The Bank had also set central bank interest rates at negative levels—yes, *negative*. This meant that the Bank charged depositors to hold Swiss

franc deposits, an effort to dissuade investors from exchanging any currency, including the euro, for Swiss francs.

But the European Union's economies continued to struggle, and early reports of economic activity in 2015 were showing further slowing. Investors wished to exit the euro fearing its future fall in value. The European Central Bank added to investor anxiety when it announced that it would be undertaking expansionary government debt purchases—*quantitative easing*—(expansionary monetary policy) to kick-start the sluggish EU economy.

On the morning of January 15, 2015, the Swiss Central Bank shocked the markets by announcing that it was abandoning the 1.20 floor and cutting interest rates further (more negative). It had concluded that with the forthcoming monetary expansion from the ECB, there was no longer any way to keep the floodgates closed. The Swiss franc, as illustrated, appreciated versus the euro in minutes. For two of the world's major currencies, it was a very eventful day.

Swiss francs (CHF) = 1 European euro (EUR)



Eurocurrencies and Eurocurrency Interest Rates

One of the major linkages of global money and capital markets is the eurocurrency market.

Eurocurrencies. *Eurocurrencies* are domestic currencies of one country on deposit in a second country. For example, a U.S. dollar deposit in a British bank, a eurodollar deposit, is one type of eurocurrency. Banks will pay interest on these deposits—eurocurrency interest—depending on the agreed upon maturity—a period ranging from overnight to more than a year or longer. Eurocurrency deposits are digitally transferred between banks.

The eurocurrency market serves two valuable purposes: (1) eurocurrency deposits are an efficient and convenient money market device for holding excess corporate liquidity; and (2) the eurocurrency market is a major source of short-term bank loans to finance corporate working capital needs, including the financing of imports and exports.

Any convertible currency can exist in “euro” form. Note that this use of the “euro” prefix should not be confused with the European currency called the euro. The eurocurrency market includes eurosterling (British pounds deposited outside the United Kingdom); euroeuros (euros on deposit outside the eurozone); euroyen (Japanese yen deposited outside Japan), and eurodollars (U.S. dollars deposited outside the U.S.).

Banks in which eurocurrencies are deposited are called eurobanks. A eurobank is a financial intermediary that simultaneously bids for time deposits and makes loans in a currency other than that of its home currency. Eurobanks are major world banks that conduct a eurocurrency business in addition to all other banking functions. Thus, the eurocurrency operation that qualifies a bank for the name eurobank is, in fact, a department of a large commercial bank, and the name springs from the performance of this function.

The modern eurocurrency market was born shortly after World War II. Eastern European holders of dollars, including the various state trading banks of the Soviet Union, were afraid to deposit their dollar holdings in the United States because those deposits might be attached by U.S. residents with claims against communist governments. Therefore, Eastern Europeans deposited their dollars in Western Europe, particularly with two Soviet banks: the Moscow Narodny Bank in London and the *Banque Commerciale pour l'Europe du Nord* in Paris. These banks redeposited the funds in other Western banks, especially in London. Additional dollar deposits were received from various central banks in Western Europe, which elected to hold part of their dollar reserves in this form to obtain a higher yield. Commercial banks also placed their dollar balances in the market because specific maturities could be negotiated in the eurodollar market. Such companies found it financially advantageous to keep their dollar reserves in the higher-yielding eurodollar market. Various holders of international refugee funds also supplied funds.

Although the basic causes of the growth of the eurocurrency market are economic efficiencies, many unique institutional events during the 1950s and 1960s contributed to its growth.

- In 1957, British monetary authorities responded to a weakening of the pound by imposing tight controls on U.K. bank lending in sterling to nonresidents of the United Kingdom. Encouraged by the Bank of England, U.K. banks turned to dollar lending as the only alternative that would allow them to maintain their leading position in world finance. For this they needed dollar deposits.
- Although New York was “home base” for the dollar and had a large domestic money and capital market, international trading in the dollar centered in London because of that city’s expertise in international monetary matters and its proximity in time and distance to major customers.
- Additional support for a European-based dollar market came from the balance of payments difficulties of the U.S. during the 1960s, which temporarily segmented the U.S. domestic capital market.

Ultimately, however, the eurocurrency market continues to thrive because it is a large international money market relatively free from governmental regulation and interference.

Eurocurrency Interest Rates. The reference rate of interest in the eurocurrency market is the London Interbank Offered Rate, or LIBOR. LIBOR is the most widely accepted rate of interest used in standardized quotations, loan agreements, or financial derivatives valuations. The use of interbank offered rates, however, is not confined to London. Most major domestic financial centers construct their own interbank offered rates for local loan agreements. Examples of such rates include PIBOR (Paris Interbank Offered Rate), MIBOR (Madrid Interbank Offered Rate), SIBOR (Singapore Interbank Offered Rate), and FIBOR (Frankfurt Interbank Offered Rate), to name just a few.

The key factor attracting both depositors and borrowers to the eurocurrency loan market is the narrow interest rate spread within that market. The difference between deposit and loan rates is often less than 1%. Interest spreads in the eurocurrency market are small for many reasons. Low lending rates exist because the eurocurrency market is a wholesale market where deposits and loans are made in amounts of \$500,000 or more on an unsecured basis. Borrowers