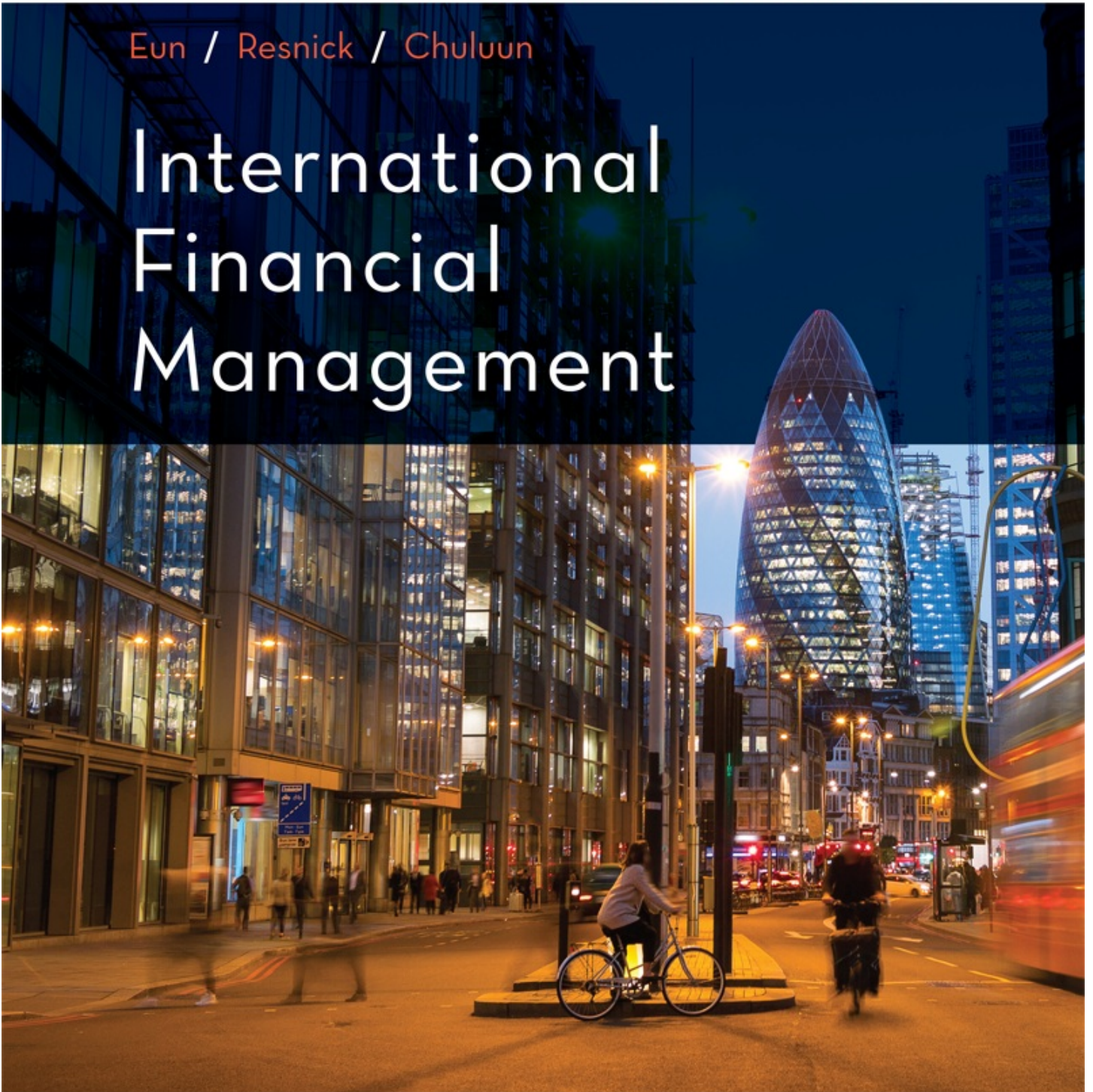


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Eun / Resnick / Chuluun

International Financial Management



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International Financial Management

Ninth Edition

Cheol S. Eun

Georgia Institute of Technology

Bruce G. Resnick

Wake Forest University

Tuugi Chuluun

Loyola University Maryland



INTERNATIONAL FINANCIAL MANAGEMENT

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1 2 3 4 5 6 7 8 9 LWI 24 23 22 21 20

ISBN 978-1-260-57531-6

MHID 1-260-57531-4

Cover Image: *alice-photo/Shutterstock*

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To Elizabeth

C.S.E.

To Donna

B.G.R.

To Arig and Amur

T.C.

About the Authors

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Georgia Institute of Technology

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Dr. Chuluun holds the Chartered Financial Analyst (CFA) designation. She is the former president of the CFA Society Baltimore, Maryland’s largest membership organization for investment professionals, and has served on the board of the society since 2013. She was also the co-chair of the “Alpha and Gender Diversity Baltimore Conference 2018” that was designed to offer collaborative discussion on how gender diversity creates a competitive advantage for investment professionals and the broader finance industry. Dr. Chuluun was a Visiting Scholar at the Brookings Institution and has international consulting experience.

Preface

Our Reason for Writing this Textbook

We (Cheol and Bruce) have been teaching international financial management to undergraduates and M.B.A. students at Georgia Institute of Technology, Wake Forest University, and at other universities we have visited for more than three decades. During this time period, we conducted many research studies, published in major finance and statistics journals, concerning the operation of international financial markets. As one might imagine, in doing this we put together an extensive set of teaching materials that we used successfully in the classroom. As the years went by, we individually relied more on our own teaching materials and notes and less on any one of the major existing textbooks in international finance (most of which we tried at some point). In this Ninth Edition, we introduce Tuugi Chuluun from Loyola University Maryland, who joins us as a co-author and will continue the tradition we have established in offering up-to-date and timely coverage of the subject of international financial management.

As you may be aware, the scope and content of international finance have been fast evolving due to cycles of deregulations and regulations of financial markets, product innovations, and technological advancements. As capital markets of the world are becoming more integrated, a solid understanding of international finance has become essential for astute corporate decision making. Reflecting the growing importance of international finance as a discipline, we have seen a sharp increase in the demand for experts in the area in both the corporate and academic worlds.

In writing *International Financial Management*, Ninth Edition, our goal was to provide well-organized, comprehensive, and up-to-date coverage of the topics that take advantage of our many years of teaching and research in this area. We hope the text is challenging to students. This does not mean that it lacks readability. The text discussion is written so that a self-contained treatment of each subject is presented in a *user-friendly* fashion. The text is intended for use at both the advanced undergraduate and M.B.A. levels.

The Underlying Philosophy

International Financial Management, Ninth Edition, like the first eight editions, is written based on two tenets: emphasis on the basics and emphasis on a managerial perspective.

Emphasis on the Basics

We believe that any subject is better learned if one first is well grounded in the basics. Consequently, we initially devote several chapters to the fundamental concepts of international finance. After these are learned, the remaining material flows easily from them. We always bring the reader back, as the more advanced topics are developed, to their relationship to the fundamentals. By doing this, we believe students will be left with a framework for analysis that will serve them well when they need to apply this material in their careers in the years ahead.

We believe this approach has produced a successful textbook: *International Financial Management* is used in many of the best business schools in the world. Various editions of the text have been translated into Chinese (in both traditional and simplified page x forms), Spanish, and Indonesian. In addition, local co-authors have assisted in preparing Canadian, Malaysian, and Indian adaptations.

Ninth Edition Organization

International Financial Management, Ninth Edition, has been completely updated. All data tables and statistics are the most current available when the text went to press. Additionally, the chapters incorporate several new International Finance in Practice boxes that contain real-world illustrations of chapter topics and concepts. In the margins below, we highlight specific changes in the Ninth Edition.

This part lays the macroeconomic foundation for all the topics to follow.

Recent economic developments such as the global financial crisis, sovereign debt crisis of Europe, and Brexit.

Updated coverage of monetary developments, including the euro zone crisis.

New presentation of balance of payments and updated balance of payments statistics.

Review of corporate governance systems in different countries, the Dodd-Frank Act, and managerial implications.

This part describes the market for foreign exchange and introduces currency derivatives that can be used to manage foreign exchange exposure.

Fully updated market data and two new International Finance in Practice boxes. Presentation of triangular arbitrage is reconstructed and enhanced with new examples.

Integrated coverage of key parity conditions and currency carry trade with fully updated market data and empirical evidence. A new International Finance in Practice box.

Fully updated market data and examples.

This part describes the various types of foreign exchange risk and discusses methods available for risk management.

Content is reorganized and new subsections comparing the hedging strategies are added for enhanced understanding of foreign currency transaction exposure management.

Conceptual and managerial analysis of economic exposure to currency risk.

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A Managerial Perspective

The text presentation never loses sight of the fact that it is teaching students how to make managerial decisions. *International Financial Management*, Ninth Edition, is founded in the belief that the fundamental job of the financial manager is to maximize shareholder wealth. This belief permeates the decision-making process we present from cover to cover. To

reinforce the managerial perspective, we provide numerous real-world examples whenever appropriate.

Part FOUR World Financial Markets and Institutions 279		This part provides a thorough discussion of international financial institutions, assets, and marketplaces.
11	International Banking and Money Market 281	Fully updated market data and statistics. Updated discussion on Basel III capital adequacy standards. Updated discussion on the causes and consequences of the global financial crisis.
12	International Bond Market 321	Fully updated market data and a new International Finance in Practice box.
13	International Equity Markets 339	Fully updated market data, new examples, a new International Finance in Practice box, and updated discussion of empirical findings on cross-listing and ADRs.
14	Interest Rate and Currency Swaps 365	Introductory International Finance in Practice box rewritten to provide clarifying detail. Examples and exhibits reconstructed to enhance understanding of swap characteristics and uses.
15	International Portfolio Investment 385	Reorganized content, updated statistics, and expanded discussions of ETFs and industry, style, and factor portfolios.
Part FIVE Financial Management of the Multinational Firm 419		This part covers topics on financial management practices for the multinational firm.
16	Foreign Direct Investment and Cross-Border Acquisitions 421	Updated trends in cross-border investment and M&A deals. Updated political risk scores for countries.
17	International Capital Structure and the Cost of Capital 449	New analysis of home bias and the cost of capital around the world. Also, comparison of capital structure across countries.
18	International Capital Budgeting 477	APV model modified to recognize U.S. tax law change from a worldwide to a territorial taxation of foreign source income.
19	Multinational Cash Management 497	Updated examples and two new International Finance in Practice boxes.
20	International Trade Finance 509	Fully updated comparative national income tax rate table with updated examples. New discussion concerning the 2017 U.S. Tax Cuts and Jobs Act providing for territorial taxation system on certain foreign source income. Updated discussion and examples of applying foreign tax credits to foreign source income.
21	International Tax Environment and Transfer Pricing 521	

Key Features

Examples—These are integrated throughout the text, providing students with immediate application of the text concepts.

EXAMPLE | 11.1: Rollover Pricing of a Eurocredit

Teltrex International can borrow \$3,000,000 at LIBOR plus a lending margin of 0.75 percent per annum on a three-month rollover basis from Barclays in London. Suppose that three-month LIBOR is currently 5.53 percent. Further suppose that over the second three-month interval LIBOR falls to 5.12 percent. How much will Teltrex pay in interest to Barclays over the six-month period for the Eurodollar loan?

$$\begin{aligned}\text{Solution: } & \$3,000,000 \times (.0553 + .0075)/4 + \$3,000,000 \times \\ & (.0512 + .0075)/4 = \$47,100 + \$44,025 \\ & = \$91,125\end{aligned}$$

International Finance in Practice Boxes—Selected chapters contain International Finance in Practice boxes. These real-world illustrations offer students a practical look at the major concepts presented in the chapter.



Electronification of the Foreign Exchange Market

Technological advances ranging from greater processing power to instantaneous data transfer are transforming financial markets around the world, and the foreign exchange market is no exception. Currency traders dealing currencies on behalf of their clients by holding multiple telephone conversations and yelling into their phones is no longer the norm. The Bank for International Settlements⁴ suggests that more than 70 percent of spot trading since 2013 is executed electronically. According to the North American Foreign Exchange Volume Survey conducted by the Federal Reserve Bank of New York in October 2018, about 58 percent of all foreign exchange transactions and 62 percent of spot transactions in North America are executed

electronically instead of relying on traditional voice trading. For trades in some currency pairs, the share of electronic trade was even higher in October 2018 such as 63 percent and 71 percent for trading in U.S. dollars–British pounds and U.S. dollars–Singaporean dollars, respectively. Similarly, some large financial institutions nowadays almost exclusively rely on electronic trading. Automation is a development that goes hand in hand with electronification, and the Bank for International Settlements reports that an estimated 70 percent of orders on Electronic Broking Services (EBS) are *now* submitted by algorithms, rather than manually. This trend of increasing electronification is depicted in the figure below.

FX Electronic Trading Share (% of total monthly trades executed electronically)

In More Depth—Some topics are by nature more complex than others. The chapter sections that contain such material are indicated by the section heading “In More Depth” and are in *colored text*. These sections may be skipped without loss of continuity, enabling the instructor to easily tailor the reading assignments to the students. End-of-chapter Questions and Problems relating to the In More Depth sections of the text are also indicated by *blue type*.

In More Depth

European Option-Pricing Formula

In the last section, we examined a simple one-step version of binomial option-pricing model. Instead, we could have assumed the stock price followed a multiplicative binomial process by subdividing the option period into many subperiods. In this case, S_T and C_T could be many different values. When the number of subperiods into which the option period is subdivided goes to infinity, the European call and put pricing formulas presented in this section are obtained. Exact European call and put pricing formulas are:⁵

$$C_t = S_t e^{-i^*T} N(d_1) - E e^{-i^*T} N(d_2) \tag{7.12}$$

and

$$P_t = E e^{-i^*T} N(-d_2) - S_t e^{-i^*T} N(-d_1) \tag{7.13}$$

The interest rates i_t and i_s are assumed to be annualized and constant over the term-to-maturity T of the option contract, which is expressed as a fraction of a year.

Invoking IRP, where with continuous IRP compounding $F_T = S_t e^{(i^*-i^*)T}$, C_t and P_t in Equations 7.12 and 7.13 can be, respectively, restated as:

$$C_t = [F_T N(d_1) - EN(d_2)] e^{-i^*T} \tag{7.14}$$

⁵The European option-pricing model was developed by Biger and Hull (1983), Garman and Kohlhagen (1983), and Grabbe (1983). The evolution of the model can be traced back to European option-pricing models developed by Merton (1973) and Black (1976).

Questions and Problems—Each chapter contains a set of Questions and problems. This material can be used by students on their own to test their understanding of the material, or as homework exercises assigned by the instructor. Questions and Problems relating to the in more depth sections of the text are indicated by *blue type*.

QUESTIONS

1. How would you define *transaction exposure*? How is it different from economic exposure?
2. Discuss and compare hedging transaction exposure using the forward contract versus money market instruments. When do alternative hedging approaches produce the same result?
3. Discuss and compare the costs of hedging by forward contracts and options contracts.

PROBLEMS

The spreadsheet TRNSEXP.xls may be used in solving parts of problems 2, 3, 4, and 6.

1. Cray Research sold a supercomputer to the Max Planck Institute in Germany on credit and invoiced €10 million payable in six months. Currently, the six-month forward exchange rate is \$1.10/€ and the foreign exchange adviser for Cray Research predicts that the spot rate is likely to be \$1.05/€ in six months.
 - a. What is the expected gain/loss from a forward hedge?
 - b. If you were the financial manager of Cray Research, would you recommend

Questions with Excel Software—An icon in the margin indicates that the end-of-chapter question is linked to an Excel program created by the authors. See the Ancillary Materials section for more information on the software.



CFA Questions—Many chapters include problems from CFA Program Curriculum study materials. These CFA problems, indicated with the CFA logo, show students the relevancy of what is expected of certified professional analysts.



Case Applications—Case Applications are incorporated within selected chapters throughout the text in order to enhance specific topics and help students apply theories and concepts to real-world situations.

CASE APPLICATION

Richard May's Options

It is Tuesday afternoon, February 14, 2012. Richard May, Assistant Treasurer at American Digital Graphics (ADG), sits in his office on the 34th floor of the building that dominates Rockefeller Plaza's west perimeter. It's Valentine's Day, and Richard and his wife have dinner reservations with another couple at Balthazar at 7:30. I must get this hedging memo done, thinks May, and get out of here. Foreign exchange options? I had better get the story straight before someone in the Finance Committee starts asking questions. Let's see, there are two ways in which I can envision us using options now. One is to hedge a dividend due on September 15th from ADG Germany. The other is to hedge our upcoming payment to Matsumeda for their spring RAM chip statement. With the yen at 78 and increasing I'm glad we haven't covered the payment so far, but now I'm getting nervous and I would like to protect my posterior. An option to buy yen on June 10 might be just the thing.

Mini Cases—Almost every chapter includes a mini case for student analysis of multiple concepts covered throughout the chapter. These Mini Case problems are real world in nature to show students how the theory and concepts in the textbook relate to the everyday world.

MINI CASE

Airbus' Dollar Exposure

Airbus sold an A400 aircraft to Delta Airlines, a U.S. company, and billed \$30 million payable in six months. Airbus is concerned about the euro proceeds from international sales and would like to control exchange risk. The current spot exchange rate is \$1.05/€ and the six-month forward exchange rate is \$1.10/€. Airbus can buy a six-month put option on U.S. dollars with a strike price of €0.95/\$ for a premium of €0.02 per U.S. dollar. Currently, six-month interest rate is 2.5 percent in the euro zone and 3.0 percent in the United States.

1. Compute the guaranteed euro proceeds from the American sale if Airbus decides to hedge using a forward contract.
2. If Airbus decides to hedge using money market instruments, what action does Airbus need to take? What would be the guaranteed euro proceeds from the American sale in this case?
3. If Airbus decides to hedge using put options on U.S. dollars, what would be the "expected" euro proceeds from the American sale? Assume that Airbus regards the current forward exchange rate as an unbiased predictor of the future spot exchange rate.
4. At what future spot exchange do you think Airbus will be indifferent between the option and money market hedge?



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“I really liked this app—it made it easy to study when you don't have your textbook in front of you.”

- Jordan Cunningham,
Eastern Washington University

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The Connect Calendar and Reports tools keep you on track with the work you need to get done and your assignment scores. Life gets busy; Connect tools help you keep learning through it all.



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Ancillary Materials

To assist in course preparation, the following instructor ancillaries are within the Instructor Library in Connect:

- **Solutions Manual**—Includes detailed suggested answers and solutions to the end-of-chapter questions and problems, written by the authors.
- **Test Bank**—True/false and multiple-choice test questions for each chapter prepared by Leslie Rush, University of Hawaii–West Oahu. Available as Word documents and assignable within Connect.
- **PowerPoint Presentations**—PowerPoint slides for each chapter to use in classroom lecture settings, created by Courtney Baggett, Troy University.

The resources also include the International Finance Software that can be used with this book. This Excel software has four main programs:

- A currency options pricing program allows students to price put and call options on foreign exchange.
- A hedging program allows students to compare forward, money market instruments, futures, and options for hedging exchange risk.
- A currency swap program allows students to calculate the cash flows and notional values associated with swapping fixed-rate debt from one currency into another.
- A portfolio optimization program based on the Markowitz model allows for examining the benefits of international portfolio diversification.

The four programs can be used to solve certain end-of-chapter problems (marked with an Excel icon) or assignments the instructor devises. A User's Manual and sample projects are included in the Instructor Resources.

Acknowledgments

We are indebted to the many colleagues who provided insight and guidance throughout the development process. Their careful work enabled us to create a text that is current, accurate, and modern in its approach. Among all who helped in this endeavor for the Ninth Edition:

Richard Ajayi
University of Central Florida

Lawrence A. Beer
Arizona State University

Nishant Dass
Georgia Institute of Technology

John Hund
Rice University

Irina Khindanova
University of Denver

Gew-rae Kim
University of Bridgeport

Jaemin Kim
San Diego State University

Yong-Cheol Kim
University of Wisconsin, Milwaukee

Yen-Sheng Lee
Bellevue University

Charmen Loh
Rider University

Atsuyuki Naka
University of New Orleans

Richard L. Patterson
Indiana University, Bloomington

Adrian Shopp
Metropolitan State University of Denver

John Wald
University of Texas at San Antonio

H. Douglas Witte
Missouri State University

Many people assisted in the production of this textbook. At the risk of overlooking some individuals, we would like to acknowledge Brian Conzachi for the outstanding job he did proofreading the entire manuscript. Additionally, we thank Yusri Zaro for his hard work - checking the accuracy of the solutions manual. Marta Gaia Bras, Ernest Jang, Rohan-Rao Ganduri, Kristen Seaver, Milind Shrikhande, Jin-Gil Jeong, Sanjiv Sabherwal, Sandy Lai, Jinsoo Lee, Hyung Suk Choi, Teng Zhang, Minho Wang, and Victor Huang provided useful inputs into the text. Professor Martin Glaum of the Giessen University (Germany) also provided valuable comments.

We also wish to thank the many professionals at McGraw-Hill Education for their time and patience with us. Charles Synovec, executive brand manager; Allison McCabe-Carroll, senior product developer; and Jill Eccher, content project manager have done a marvelous job guiding us through this edition.

Last, but not least, we would like to thank our families, Christine, James, and Elizabeth Eun; Donna Resnick; and Puje Olkhanud, Maya Chuluun, and Dolgormaa Tsegmed, for their tireless love and support, without which this book would not have become a reality.

We hope that you enjoy using *International Financial Management*, Ninth Edition. In addition, we welcome your comments for improvement. Please let us know either through McGraw-Hill Education, c/o Editorial, or at our e-mail addresses provided below.

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