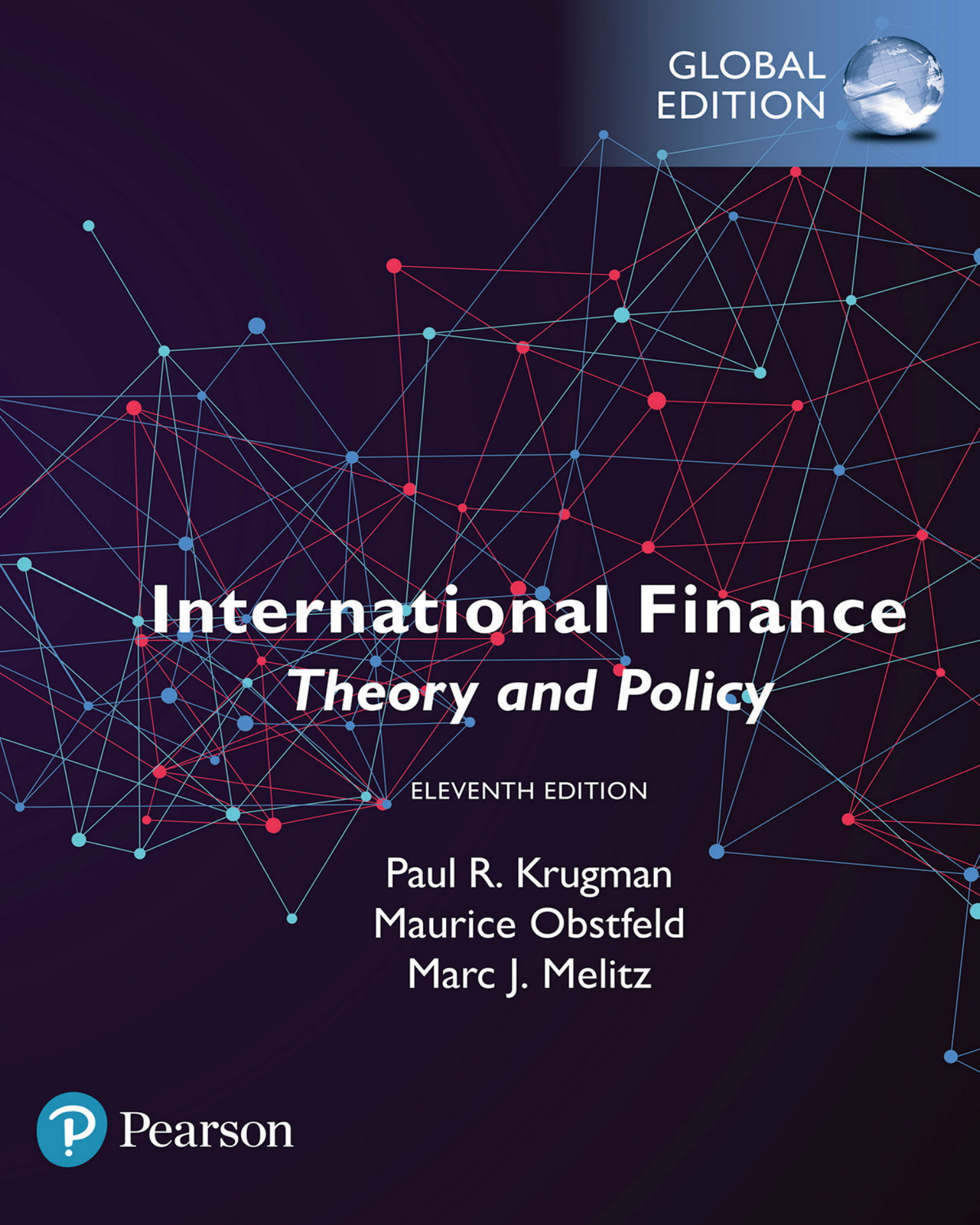


International Finance

Theory and Policy

ELEVENTH EDITION

Paul R. Krugman
Maurice Obstfeld
Marc J. Melitz

Pearson

with Pearson MyLab Economics®

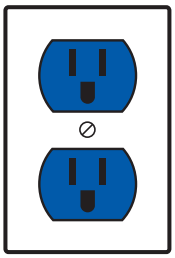
- **Real-Time Data Analysis Exercises**—Using current macro data to help students understand the impact of changes in economic variables, Real-Time Data Analysis Exercises communicate directly with the Federal Reserve Bank of St. Louis's FRED® site and update as new data are available.

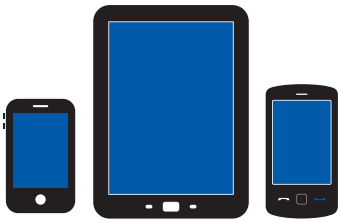
- **Current News Exercises**—Every week, current microeconomic and macroeconomic news articles or videos, with accompanying exercises, are posted to Pearson MyLab Economics. Assignable and auto-graded, these multi-part exercises ask students to recognize and apply economic concepts to real-world events.

- **Experiments**—Flexible, easy-to-assign, auto-graded, and available in Single Player and Multiplayer versions, Experiments in Pearson MyLab Economics make learning fun and engaging.

- **Reporting Dashboard**—View, analyze, and report learning outcomes clearly and easily. Available via the Gradebook and fully mobile-ready, the Reporting Dashboard presents student performance data at the class, section, and program levels in an accessible, visual manner.

- **LMS Integration**—Link from any LMS platform to access assignments, rosters, and resources, and synchronize MyLab grades with your LMS gradebook. For students, new direct, single sign-on provides access to all the personalized learning MyLab resources that make studying more efficient and effective.





- **Mobile Ready**—Students and instructors can access multimedia resources and complete assessments right at their fingertips, on any mobile device.

THE PEARSON SERIES IN ECONOMICS

Abel/Bernanke/Croushore
Macroeconomics†

Acemoglu/Laibson/List
Economics†

Bade/Parkin
Foundations of Economics†

Berck/Helfand
The Economics of the Environment

Bierman/Fernandez
Game Theory with Economic Applications

Blanchard
Macroeconomics†

Boyer
Principles of Transportation Economics

Branson
Macroeconomic Theory and Policy

Bruce
Public Finance and the American Economy

Carlton/Perloff
Modern Industrial Organization

Case/Fair/Oster
Principles of Economics†

Chapman
Environmental Economics: Theory, Application, and Policy

Daniels/VanHoose
International Monetary & Financial Economics

Downs
An Economic Theory of Democracy

Farnham
Economics for Managers†

Froyen
Macroeconomics: Theories and Policies

Fusfeld
The Age of the Economist

Gerber
International Economics†

Gordon
Macroeconomics†

Greene
Econometric Analysis†

Gregory/Stuart
Russian and Soviet Economic Performance and Structure

Hartwick/Olewiler
The Economics of Natural Resource Use

Heilbroner/Milberg
The Making of the Economic Society

Heyne/Boettke/Prychitko
The Economic Way of Thinking

Hubbard/O'Brien
Economics†

InEcon

*Money, Banking, and the Financial System**

Hubbard/O'Brien/Rafferty
Macroeconomics†

Hughes/Cain
American Economic History

Husted/Melvin
International Economics

Jehle/Reny
Advanced Microeconomic Theory

Keat/Young/Erfle
Managerial Economics

Klein
Mathematical Methods for Economics

Krugman/Obstfeld/Melitz
International Economics: Theory & Policy†

Laidler
The Demand for Money

Lynn
Economic Development: Theory and Practice for a Divided World

Miller
*Economics Today**

Miller/Benjamin
The Economics of Macro Issues

Miller/Benjamin/North
The Economics of Public Issues

Mishkin
The Economics of Money, Banking, and Financial Markets†

*The Economics of Money, Banking, and Financial Markets, Business School Edition**

*Macroeconomics: Policy and Practice**

Murray
Econometrics: A Modern Introduction

O'Sullivan/Sheffrin/Perez
Economics: Principles, Applications and Tools†

Parkin
Economics†

Perloff
Microeconomics†

Microeconomics: Theory and Applications with Calculus†

Perloff/Brander
Managerial Economics and Strategy†

Pindyck/Rubinfeld
Microeconomics†

Riddell/Shackelford/Stamos/Schneider
Economics: A Tool for Critically Understanding Society

Roberts
The Choice: A Fable of Free Trade and Protection

Scherer
Industry Structure, Strategy, and Public Policy

Schiller
The Economics of Poverty and Discrimination

Sherman
Market Regulation

Stock/Watson
Introduction to Econometrics†

Studenmund
A Practical Guide to Using Econometrics†

Todaro/Smith
Economic Development

Walters/Walters/Appel/Callahan/Centanni/Maex/O'Neill
Econversations: Today's Students Discuss Today's Issues

Williamson
Macroeconomics†

***denotes Pearson MyLab Economics in titles**

†denotes availability of Global Edition titles

Log onto www.myeconlab.com to learn more.

International Finance

THEORY & POLICY

ELEVENTH EDITION

GLOBAL EDITION

Paul R. Krugman
Princeton University

Maurice Obstfeld
University of California, Berkeley

Marc J. Melitz
Harvard University

Pearson

Harlow, England • London • New York • Boston • San Francisco • Toronto • Sydney • Dubai • Singapore • Hong Kong
Tokyo • Seoul • Taipei • New Delhi • Cape Town • Sao Paulo • Mexico City • Madrid • Amsterdam • Munich • Paris • Milan

For Robin—P.K.
For my family—M.O.
For Clair, Benjamin, and Max—M.M.

Vice President, Business Publishing: Donna Battista
Director of Portfolio Management: Adrienne D'Ambrosio
Portfolio Manager: Ashley Bryan
Associate Acquisitions Editor, Global Edition: Ananya Srivastava
Associate Project Editor, Global Edition: Paromita Banerjee
Editorial Assistant: Nicole Nedwidek
Vice President, Product Marketing: Roxanne McCarley
Director of Strategic Marketing: Brad Parkins
Strategic Marketing Manager: Deborah Strickland
Product Marketer: Tricia Murphy
Manager of Field Marketing: Adam Goldstein
Field Marketing Manager: Carlie Marvel
Field Marketing Assistant: Kristen Compton
Product Marketing Assistant: Jessica Quazza
Vice President, Production and Digital Studio, Arts and Business: Etain O'Dea
Director of Production, Business: Jeff Holcomb
Managing Producer, Business: Alison Kalil
Content Producer: Nancy Freihofer
Content Producer, Global Edition: Nikhil Rakshit
Senior Manufacturing Controller, Global Edition: Kay Holman
Operations Specialist: Carol Melville
Creative Director: Blair Brown
Manager, Learning Tools: Brian Surette
Managing Producer, Digital Studio, Arts and Business: Diane Lombardo
Digital Studio Producer: Melissa Honig
Digital Studio Producer: Alana Coles
Digital Content Team Lead: Noel Lotz
Digital Content Project Lead: Courtney Kamauf
Manager, Media Production, Global Edition: Vikram Kumar
Full-Service Project Management and Composition: SPi Global
Interior Design: SPi Global
Cover Design: Lumina Datamatics
Cover Art: Liu zishan/Shutterstock

Pearson Education Limited
KAO Two
KAO Park
Harlow
CM17 9NA
United Kingdom

and Associated Companies throughout the world

Visit us on the World Wide Web at: www.pearsonglobaleditions.com

Authorized adaptation from the United States edition, entitled International Finance: Theory & Policy, 11th Edition, ISBN 978-0-13-451954-8 by Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz, published by Pearson Education © 2018.

ISBN 10: 1-292-23873-9
ISBN 13: 978-1-292-23873-9

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

10 9 8 7 6 5 4 3 2 1

Typeset in Times NR MT Pro by SPi Global
Printed and bound by Vivar in Malaysia

Brief Contents


Contents

Preface

Years after the global financial crisis that broke out in 2007–2008, the world economy is still afflicted by tepid economic growth and, for many people, stagnating incomes. The United States has more or less returned to full employment, but it is growing more slowly than it did before the crisis. Nonetheless, it has been relatively fortunate. Europe's common currency project faces continuing strains and the European Union is itself under stress, given Britain's June 2016 vote to withdraw and a surge in anti-immigration sentiment. Japan continues to face deflation pressures and a sky-high level of public debt. Emerging markets, despite impressive income gains in many cases, remain vulnerable to the ebb and flow of global capital and the ups and downs of world commodity prices. Uncertainty weighs on investment globally, driven not least by worries about the future of the liberal international trade regime built up so painstakingly after World War II.

This eleventh edition therefore comes out at a time when we are more aware than ever before of how events in the global economy influence each country's economic fortunes, policies, and political debates. The world that emerged from World War II was one in which trade, financial, and even communication links between countries were limited. Nearly two decades into the 21st century, however, the picture is very different. Globalization has arrived, big time. International trade in goods and services has expanded steadily over the past six decades thanks to declines in shipping and communication costs, globally negotiated reductions in government trade barriers, the widespread outsourcing of production activities, and a greater awareness of foreign cultures and products. New and better communications technologies, notably the Internet, have revolutionized the way people in all countries obtain and exchange information. International trade in financial assets such as currencies, stocks, and bonds has expanded at a much faster pace even than international product trade. This process brings benefits for owners of wealth but also creates risks of contagious financial instability. Those risks were realized during the recent global financial crisis, which spread quickly across national borders and has played out at huge cost to the world economy. Of all the changes on the international scene in recent decades, however, perhaps the biggest one remains the emergence of China—a development that is already redefining the international balance of economic and political power in the coming century.

Imagine how astonished the generation that lived through the depressed 1930s as adults would have been to see the shape of today's world economy! Nonetheless, the economic concerns that drive international debate have not changed that much from those that dominated the 1930s, nor indeed since they were first analyzed by economists more than two centuries ago. What are the merits of free trade among nations compared with protectionism? What causes countries to run trade surpluses or deficits with their trading partners, and how are such imbalances resolved over time? What causes banking and currency crises in open economies, what causes financial contagion between economies, and how should governments handle international financial instability? How can governments avoid unemployment and inflation, what role do exchange rates play in their efforts, and how can countries best cooperate to achieve their economic goals? As always in international economics, the interplay of events and ideas has led to new modes of analysis. In turn, these analytical advances, however abstruse they may seem at first, ultimately do end up playing a major role in governmental policies, in international negotiations, and in people's everyday lives.

Globalization has made citizens of all countries much more aware than ever before of the worldwide economic forces that influence their fortunes, and globalization is here to stay. As we shall see, globalization can be an engine of prosperity, but like any powerful machine it can do damage if managed unwisely. The challenge for the global community is to get the most out of globalization while coping with the challenges that it raises for economic policy.

New to the Eleventh Edition

For this edition as for the last one, we are offering an Economics volume as well as Trade and Finance splits. The goal with these distinct volumes is to allow professors to use the book that best suits their needs based on the topics they cover in their International Economics course. In the Economics volume for a two-semester course, we follow the standard practice of dividing the book into two halves, devoted to trade and to monetary questions. Although the trade and monetary portions of international economics are often treated as unrelated subjects, even within one textbook, similar themes and methods recur in both subfields. We have made it a point to illuminate connections between the trade and monetary areas when they arise. At the same time, we have made sure that the book's two halves are completely self-contained. Thus, a one-semester course on trade theory can be based on Chapters 2 through 12, and a one-semester course on international monetary economics can be based on Chapters 13 through 22. For professors' and students' convenience, however, they can now opt to use either the Trade or the Finance volume, depending on the length and scope of their course.

We have thoroughly updated the content and extensively revised several chapters. These revisions respond both to users' suggestions and to some important developments on the theoretical and practical sides of international economics. The most far-reaching changes are the following:

- **Chapter 3, Exchange Rates and the Foreign Exchange Market: An Asset Approach** China's currency, the yuan renminbi, is playing an increasingly important role in world currency markets. But its government has moved only gradually to integrate the local foreign exchange market with global markets, thereby allowing a separate offshore market in yuan to develop outside mainland China's borders. This chapter features a new box describing the offshore market and the relationship between the onshore and offshore exchange rates.
- **Chapter 6, Output and the Exchange Rate in the Short Run** The chapter includes a new box on the role of invoice currencies in exchange-rate pass-through.
- **Chapter 8, International Monetary Systems: An Historical Overview** The dangers of deflation are outlined in a new box.
- **Chapter 10, Optimum Currency Areas and the Euro** The chapter contains a new box on "Brexit"—the process through which Britain is likely to leave the European Union.
- **Chapter 11, Developing Countries: Growth, Crisis, and Reform** The chapter highlights the key role of commodities in developing-country growth, and the commodity "super cycle."

In addition to these structural changes, we have updated the book in other ways to maintain current relevance. Thus, we discuss the role of negative interest rates in unconventional monetary policy (Chapter 6) and we highlight the increasingly important role of emerging market economies in driving global growth (Chapter 11).

About the Book

The idea of writing this book came out of our experience in teaching international economics to undergraduates and business students since the late 1970s. We perceived two main challenges in teaching. The first was to communicate to students the exciting intellectual advances in this dynamic field. The second was to show how the development of international economic theory has traditionally been shaped by the need to understand the changing world economy and analyze actual problems in international economic policy.

We found that published textbooks did not adequately meet these challenges. Too often, international economics textbooks confront students with a bewildering array of special models and assumptions from which basic lessons are difficult to extract. Because many of these special models are outmoded, students are left puzzled about the real-world relevance of the analysis. As a result, many textbooks often leave a gap between the somewhat antiquated material to be covered in class and the exciting issues that dominate current research and policy debates. That gap has widened dramatically as the importance of international economic problems—and enrollments in international economics courses—have grown.

This book is our attempt to provide an up-to-date and understandable analytical framework for illuminating current events and bringing the excitement of international economics into the classroom. In analyzing both the real and monetary sides of the subject, our approach has been to build up, step by step, a simple, unified framework for communicating the grand traditional insights as well as the newest findings and approaches. To help the student grasp and retain the underlying logic of international economics, we motivate the theoretical development at each stage by pertinent data and policy questions.

The Place of This Book in the Economics Curriculum

Students assimilate international economics most readily when it is presented as a method of analysis vitally linked to events in the world economy, rather than as a body of abstract theorems about abstract models. Our goal has therefore been to stress concepts and their application rather than theoretical formalism. Accordingly, the book does not presuppose an extensive background in economics. Students who have had a course in economic principles will find the book accessible, but students who have taken further courses in microeconomics or macroeconomics will find an abundant supply of new material. Specialized appendices and mathematical postscripts have been included to challenge the most advanced students.

Some Distinctive Features

This book covers the most important recent developments in international economics without shortchanging the enduring theoretical and historical insights that have traditionally formed the core of the subject. We have achieved this comprehensiveness by stressing how recent theories have evolved from earlier findings in response to an evolving world economy. The book is divided into a core of chapters focused on theory and their empirical implications, followed by chapters applying the theory to major policy questions, past and current.

In Chapter 1, we describe in some detail how this book addresses the major themes of international economics. Here we emphasize several of the topics that previous authors failed to treat in a systematic way.

Asset Market Approach to Exchange Rate Determination

The modern foreign exchange market and the determination of exchange rates by national interest rates and expectations are at the center of our account of open-economy macroeconomics. The main ingredient of the macroeconomic model we develop is the interest parity relation, augmented later by risk premiums (Chapter 3). Among the topics we address using the model are exchange rate "overshooting"; inflation targeting; behavior of real exchange rates; balance-of-payments crises under fixed exchange rates; and the causes and effects of central bank intervention in the foreign exchange market (Chapters 4 through 7).

International Macroeconomic Policy Coordination

Our discussion of international monetary experience (Chapters 8 through 11) stresses the theme that different exchange rate systems have led to different policy coordination problems for their members. Just as the competitive gold scramble of the interwar years showed how beggar-thy-neighbor policies can be self-defeating, the current float challenges national policymakers to recognize their interdependence and formulate policies cooperatively.

The World Capital Market and Developing Countries

A broad discussion of the world capital market is given in Chapter 9 which takes up the welfare implications of international portfolio diversification as well as problems of prudential supervision of internationally active banks and other financial institutions. Chapter 11 is devoted to the long-term growth prospects and to the specific macroeconomic stabilization and liberalization problems of industrializing and newly industrialized countries. The chapter reviews emerging market crises and places in historical perspective the interactions among developing country borrowers, developed country lenders, and official financial institutions such as the International Monetary Fund. Chapter 11 also reviews China's exchange-rate policies and recent research on the persistence of poverty in the developing world.

Learning Features

This book incorporates a number of special learning features that will maintain students' interest in the presentation and help them master its lessons.

Case Studies

Case studies that perform the threefold role of reinforcing material covered earlier, illustrating its applicability in the real world, and providing important historical information often accompany theoretical discussions.

Special Boxes

Less central topics that nonetheless offer particularly vivid illustrations of points made in the text are treated in boxes. Among these are the role of currency swap lines among central banks (Chapter 9) and the rapid accumulation of foreign exchange reserves by developing countries (Chapter 11).

Captioned Diagrams

More than 200 diagrams are accompanied by descriptive captions that reinforce the discussion in the text and help the student in reviewing the material.

Learning Goals

A list of essential concepts sets the stage for each chapter in the book. These learning goals help students assess their mastery of the material.

Summary and Key Terms

Each chapter closes with a summary recapitulating the major points. Key terms and phrases appear in boldface type when they are introduced in the chapter and are listed at the end of each chapter. To further aid student review of the material, key terms are italicized when they appear in the chapter summary.

Problems

Each chapter is followed by problems intended to test and solidify students' comprehension. The problems range from routine computational drills to "big picture" questions suitable for classroom discussion. In many problems we ask students to apply what they have learned to real-world data or policy questions.

Further Readings

For instructors who prefer to supplement the textbook with outside readings, and for students who wish to probe more deeply on their own, each chapter has an annotated bibliography that includes established classics as well as up-to-date examinations of recent issues.

Pearson MyLab Economics

Pearson MyLab Economics

Pearson MyLab Economics is the premier online assessment and tutorial system, pairing rich online content with innovative learning tools. Pearson MyLab Economics includes comprehensive homework, quiz, test, and tutorial options, allowing instructors to manage all assessment needs in one program. Key innovations in the Pearson MyLab Economics course for the eleventh edition of *International Finance: Theory & Policy* include the following:

- *Real-Time Data Analysis Exercises,* marked with , allow students and instructors to use the latest data from FRED, the online macroeconomic data bank from the Federal Reserve Bank of St. Louis. By completing the exercises, students become familiar with a key data source, learn how to locate data, and develop skills to interpret data.
- The Pearson *eText* gives students access to their textbook anytime, anywhere. In addition to note-taking, highlighting, and bookmarking, the Pearson eText offers interactive and sharing features. Students actively read and learn through auto-graded practice, real-time data-graphs, figure animations, author videos, and more. Instructors can share comments or highlights, and students can add their own, for a tight community of learners in any class.
- *Current News Exercises*—Every week, current microeconomic and macroeconomic news articles or videos, with accompanying exercises, are posted to Pearson MyLab Economics. Assignable and auto-graded, these multi-part exercises ask students to recognize and apply economic concepts to real-world events.

Students and Pearson MyLab Economics

This online homework and tutorial system puts students in control of their own learning through a suite of study and practice tools correlated with the online, interactive version of the textbook and learning aids such as animated figures. Within Pearson MyLab Economics's structured environment, students practice what they learn, test their understanding, and then pursue a study plan that Pearson MyLab Economics generates for them based on their performance.

Instructors and Pearson MyLab Economics

Pearson MyLab Economics provides flexible tools that allow instructors easily and effectively to customize online course materials to suit their needs. Instructors can create and assign tests, quizzes, or homework assignments. Pearson MyLab Economics saves time by automatically grading all questions and tracking results in an online gradebook. Pearson MyLab Economics can even grade assignments that require students to draw a graph.

After registering for Pearson MyLab Economics instructors have access to downloadable supplements such as an instructor's manual, PowerPoint lecture notes, and a test bank. The test bank can also be used within Pearson MyLab Economics, giving instructors ample material from which they can create assignments—or the Custom Exercise Builder makes it easy for instructors to create their own questions.

Weekly news articles, video, and RSS feeds help keep students updated on current events and make it easy for instructors to incorporate relevant news in lectures and homework.

For more information about Pearson MyLab Economics or to request an instructor access code, visit www.myeconlab.com.

Additional Supplementary Resources

A full range of additional supplementary materials to support teaching and learning accompanies this book.

- The Online Instructor's Manual—updated by Hisham Foad of San Diego State University—includes chapter overviews and answers to the end-of-chapter problems.
- The Online Test Bank offers a rich array of multiple-choice and essay questions, including some mathematical and graphing problems, for each textbook chapter. It is available in Word, PDF, and TestGen formats. This Test Bank was carefully revised and updated by Van Pham of Salem State University.
- The Computerized Test Bank reproduces the Test Bank material in the TestGen software that is available for Windows and Macintosh. With TestGen, instructors can easily edit existing questions, add questions, generate tests, and print the tests in a variety of formats.
- The Online PowerPoint Presentation with Tables, Figures, & Lecture Notes was revised by Amy Glass of Texas A&M University. This resource contains all text figures and tables and can be used for in-class presentations.
- The Companion Web Site at www.pearsonglobaleditions.com/Krugman contains additional appendices. (See page 12 of the Contents for a detailed list of the Online Appendices.)

Instructors can download supplements from our secure Instructor's Resource Center. Please visit www.pearsonglobaleditions.com/Krugman.

Acknowledgments

Our primary debt is to Ashley Bryan, the Pearson Portfolio Manager in charge of the project. We also are grateful to the Pearson Content Producer, Nancy Freihofer, the Pearson Managing Producer, Alison Kalil, and the Editorial Project Manager at SPi Global, Carla Thompson. Julie Kidd's efforts as Project Manager with SPi Global were essential and efficient. We would also like to thank the digital product team at Pearson—Brian Surette, Noel Lotz, Courtney Kamauf, and Melissa Honig—for all their hard work on the Pearson MyLab Economics course for the eleventh edition. Last, we thank the other editors who helped make the first ten editions of this book as good as they were.

We also wish to acknowledge the sterling research assistance of Lydia Cox and Mauricio Ulate. We thank the following reviewers, past and present, for their recommendations and insights:

Jaleel Ahmad, *Concordia University*
Lian An, *University of North Florida*
Anthony Paul Andrews, *Governors State University*
Myrvin Anthony, *University of Strathclyde, U.K.*
Michael Arghyrou, *Cardiff University*
Richard Ault, *Auburn University*
Amitrajeet Batabyal, *Rochester Institute of Technology*
Tibor Besedes, *Georgia Tech*
George H. Borts, *Brown University*
Robert F. Brooker, *Gannon University*
Francisco Carrada-Bravo, *W.P. Carey School of Business, ASU*
Debajyoti Chakrabarty, *University of Sydney*
Adhip Chaudhuri, *Georgetown University*
Jay Pil Choi, *Michigan State University*
Jaiho Chung, *National University of Singapore*
Jonathan Conning, *Hunter College and The Graduate Center, The City University of New York*
Brian Copeland, *University of British Columbia*
Kevin Cotter, *Wayne State University*
Barbara Craig, *Oberlin College*
Susan Dadres, *University of North Texas*
Ronald B. Davies, *University College Dublin*
Ann Davis, *Marist College*
Gopal C. Dorai, *William Paterson University*
Robert Driskill, *Vanderbilt University*
Gerald Epstein, *University of Massachusetts at Amherst*
JoAnne Feeney, *State University of New York at Albany*
Robert Foster, *American Graduate School of International Management*
Patrice Franko, *Colby College*
Diana Fuguitt, *Eckerd College*
Byron Gangnes, *University of Hawaii at Manoa*
Ranjeeta Ghiara, *California State University, San Marcos*
Neil Gilfedder, *Stanford University*
Mark Gius, *Quinnipiac University*
Amy Glass, *Texas A&M University*
Patrick Gormely, *Kansas State University*
Thomas Grennes, *North Carolina State University*
Bodil Olai Hansen, *Copenhagen Business School*
Michael Hoffman, *U.S. Government Accountability Office*
Henk Jager, *University of Amsterdam*
Arvind Jaggi, *Franklin & Marshall College*
Mark Jelavich, *Northwest Missouri State University*
Philip R. Jones, *University of Bath and University of Bristol, U.K.*
Tsvetanka Karagyozova, *Lawrence University*
Hugh Kelley, *Indiana University*
Michael Kevane, *Santa Clara University*
Maureen Kilkenny, *University of Nevada*
Hyeongwoo Kim, *Auburn University*
Stephen A. King, *San Diego State University, Imperial Valley*
Faik Koray, *Louisiana State University*
Corinne Krupp, *Duke University*
Bun Song Lee, *University of Nebraska, Omaha*
Daniel Lee, *Shippensburg University*
Francis A. Lees, *St. Johns University*
Jamus Jerome Lim, *World Bank Group*
Rodney Ludema, *Georgetown University*
A. G. Malliaris, *Quinlan School of Business, Loyola University Chicago*
Stephen V. Marks, *Pomona College*
Michael L. McPherson, *University of North Texas*
Marcel Mérette, *University of Ottawa*
Shannon Mitchell, *Virginia Commonwealth University*

Kaz Miyagiwa, *Emory University*
Shahriar Mostashari, *Campbell University*
Shannon Mudd, *Ursinus College*
Marc-Andreas Muendler, *University of California, San Diego*
Ton M. Mulder, *Erasmus University, Rotterdam*
Robert G. Murphy, *Boston College*
E. Wayne Nafziger, *Kansas State University*
Steen Nielsen, *University of Aarhus*
Dmitri Nizovtsev, *Washburn University*
Terutomo Ozawa, *Colorado State University*
Arvind Panagariya, *Columbia University*
Nina Pavcnik, *Dartmouth College*
Lourenco Paz, *Baylor University*
Iordanis Petsas, *University of Scranton*
Van Pham, *Salem State University*
Gina Pieters, *Trinity University*
Thitima Puttitanun, *San Diego State University*
Peter Rangazas, *Indiana University-Purdue University Indianapolis*
James E. Rauch, *University of California, San Diego*
Michael Ryan, *Western Michigan University*
Donald Schilling, *University of Missouri, Columbia*
Patricia Higino Schneider, *Mount Holyoke College*
Ronald M. Schramm, *Columbia University*
Craig Schulman, *Texas A&M University*
Yochanan Shachmurove, *University of Pennsylvania*
Margaret Simpson, *The College of William and Mary*
Enrico Spolaore, *Tufts University*
Robert Staiger, *University of Wisconsin-Madison*
Jeffrey Steagall, *University of North Florida*
Robert M. Stern, *University of Michigan*
Abdulhamid Sukar, *Cameron University*
Rebecca Taylor, *University of Portsmouth, U.K.*
Scott Taylor, *University of British Columbia*
Aileen Thompson, *Carleton University*
Sarah Tinkler, *Portland State University*
Arja H. Turunen-Red, *University of New Orleans*
Dick vander Wal, *Free University of Amsterdam*
Gerald Willmann, *University of Kiel*
Susan Wolcott, *State University of New York, Binghamton*
Rossitza Wooster, *California State University, Sacramento*
Bruce Wydick, *University of San Francisco*
Jiawen Yang, *The George Washington University*
Kevin H. Zhang, *Illinois State University*

Although we have not been able to make each and every suggested change, we found reviewers' observations invaluable in revising the book. Obviously, we bear sole responsibility for its remaining shortcomings.

Paul R. Krugman
Maurice Obstfeld
Marc J. Melitz
January 2017

Global Edition Acknowledgments

We want to thank the following people for their contributions:

Viktorija Cohen, *Vilnius University, Lithuania*
Florian Kaulich, *Vienna University of Economics and Business, Austria*
Archontis Pantsios, *Liverpool Hope University, the United Kingdom*
Gabriela Sterian, *Romanian-American University, Romania*
Patrick Terroir, *Sciences Po, France*

We would also like to thank the following people for reviewing the Global Edition and sharing their insightful comments and suggestions:

Valentin Cojanu, *The Bucharest Academy of Economic Studies, Romania*
Michael Graff, *KOF Swiss Economic Institute, Switzerland*
Kwan Wai KO, *The Chinese University of Hong Kong, Hong Kong*
Carsten Küchler, *Lucerne School of Business, Switzerland*
Mario Pezzino, *The University of Manchester, the United Kingdom*

CHAPTER 1

Introduction

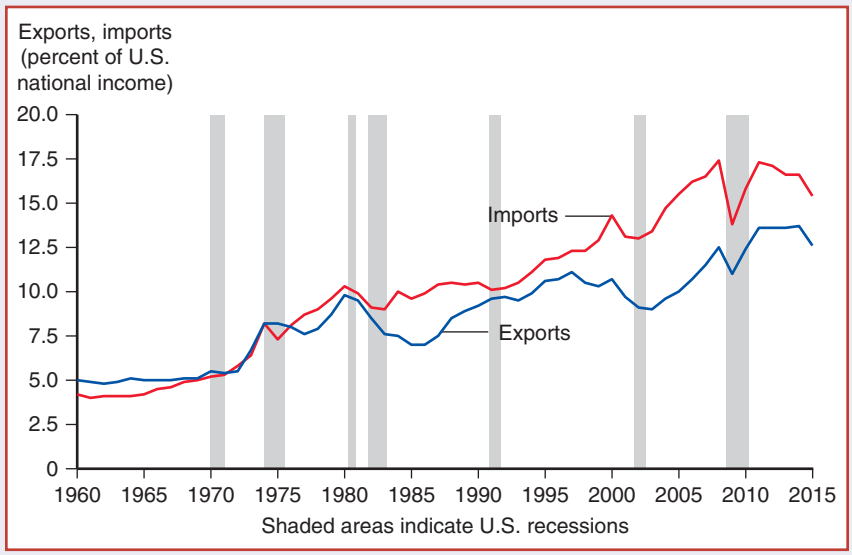
You could say that the study of international trade and finance is where the discipline of economics as we know it began. Historians of economic thought often describe the essay "Of the Balance of Trade" by the Scottish philosopher David Hume as the first real exposition of an economic model. Hume published his essay in 1758, almost 20 years before his friend Adam Smith published *The Wealth of Nations*. And the debates over British trade policy in the early 19th century did much to convert economics from a discursive, informal field to the model-oriented subject it has been ever since.

Yet the study of international economics has never been as important as it is now. In the early 21st century, nations are more closely linked than ever before through trade in goods and services, flows of money, and investment in each other's economies. And the global economy created by these linkages is a turbulent place: Both policy makers and business leaders in every country, including the United States, must now pay attention to what are sometimes rapidly changing economic fortunes halfway around the world.

A look at some basic trade statistics gives us a sense of the unprecedented importance of international economic relations. Figure 1-1 shows the levels of U.S. exports and imports as shares of gross domestic product from 1960 to 2015. The most obvious feature of the figure is the long-term upward trend in both shares: International trade has roughly tripled in importance compared with the economy as a whole.

Almost as obvious is that, while both imports and exports have increased, imports have grown more, leading to a large excess of imports over exports. How is the United States able to pay for all those imported goods? The answer is that the money is supplied by large inflows of capital—money invested by foreigners willing to take a stake in the U.S. economy. Inflows of capital on that scale would once have been inconceivable; now they are taken for granted. And so the gap between imports and exports is an indicator of another aspect of growing international linkages—in this case the growing linkages between national capital markets.

Finally, notice that both imports and exports took a plunge in 2009. This decline reflected the global economic crisis that began in 2008 and is a reminder of the close links between world trade and the overall state of the world economy.



Pearson MyLab Economics Real-time data

FIGURE 1-1

Exports and Imports as a Percentage of U.S. National Income (Shaded areas indicate U.S. recessions.)

Both imports and exports have risen as a share of the U.S. economy, but imports have risen more.

Source: U.S. Bureau of Economic Analysis, 2015. research.stlouisfed.org

If international economic relations have become crucial to the United States, they are even more crucial to other nations. Figure 1-2 shows the average of imports and exports as a share of GDP for a sample of countries. The United States, by virtue of its size and the diversity of its resources, relies less on international trade than almost any other country.

This text introduces the main concepts and methods of international economics and illustrates them with applications drawn from the real world. Much of the text is devoted to old ideas that are still as valid as ever: The 19th-century trade theory of David Ricardo and even the 18th-century monetary analysis of David Hume remain highly relevant to the 21st-century world economy. At the same time, we have made a special effort to bring the analysis up to date. In particular, the economic crisis that began in 2007 threw up major new challenges for the global economy. Economists were able to apply existing analyses to some of these challenges, but they were also forced to rethink some important concepts. Furthermore, new approaches have emerged to old questions, such as the impacts of changes in monetary and fiscal policy. We have attempted to convey the key ideas that have emerged in recent research while stressing the continuing usefulness of old ideas.

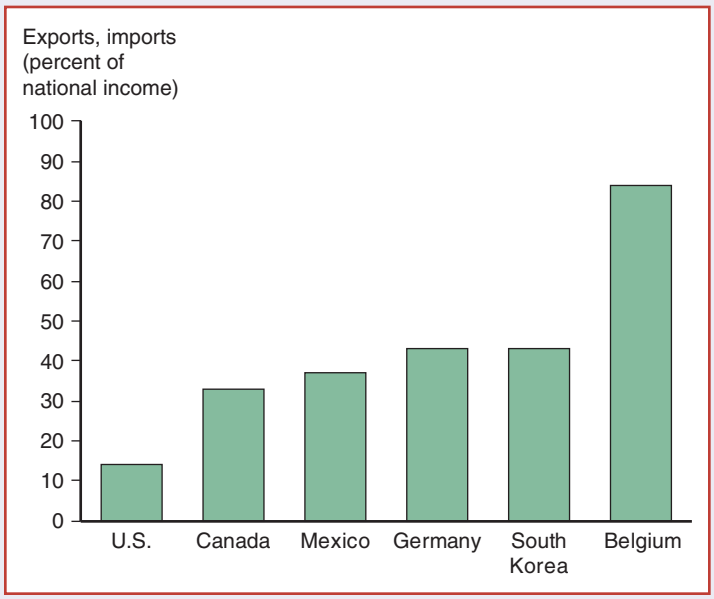


FIGURE 1-2

Average of Exports and Imports as Percentages of National Income in 2015

International trade is even more important to most other countries than it is to the United States.

Source: World Bank.

LEARNING GOALS

After reading this chapter, you will be able to:

- Distinguish between international and domestic economic issues.
- Explain why seven themes recur in international economics, and discuss their significance.
- Distinguish between the trade and monetary aspects of international economics.

What Is International Economics About?

International economics uses the same fundamental methods of analysis as other branches of economics because the motives and behavior of individuals are the same in international trade as they are in domestic transactions. Gourmet food shops in Florida sell coffee beans from both Mexico and Hawaii; the sequence of events that brought those beans to the shop is not very different, and the imported beans traveled a much shorter distance than the beans shipped within the United States! Yet international economics involves new and different concerns because international trade and investment occur between independent nations. The United States and Mexico are sovereign states; Florida and Hawaii are not. Mexico's coffee shipments to Florida could

be disrupted if the U.S. government imposed a quota that limits imports; Mexican coffee could suddenly become cheaper to U.S. buyers if the peso were to fall in value against the dollar. By contrast, neither of those events can happen in commerce within the United States because the Constitution forbids restraints on interstate trade and all U.S. states use the same currency.

The subject matter of international economics, then, consists of issues raised by the special problems of economic interaction between sovereign states. Seven themes recur throughout the study of international economics: (1) the gains from trade, (2) the pattern of trade, (3) protectionism, (4) the balance of payments, (5) exchange rate determination, (6) international policy coordination, and (7) the international capital market.

The Gains from Trade

Everybody knows that some international trade is beneficial—for example, nobody thinks that Norway should grow its own oranges. Many people are skeptical, however, about the benefits of trading for goods that a country could produce for itself. Shouldn't Americans buy American goods whenever possible to help create jobs in the United States?

Probably the most important single insight in all of international economics is that there are *gains from trade*—that is, when countries sell goods and services to each other, this exchange is almost always to their mutual benefit. The range of circumstances under which international trade is beneficial is much wider than most people imagine. For example, it is a common misconception that trade is harmful if large disparities exist between countries in productivity or wages. On one side, businesspeople in less technologically advanced countries, such as India, often worry that opening their economies to international trade will lead to disaster because their industries won't be able to compete. On the other side, people in technologically advanced nations where workers earn high wages often fear that trading with less advanced, lower-wage countries will drag their standard of living down—one presidential candidate memorably warned of a "giant sucking sound" if the United States were to conclude a free trade agreement with Mexico.

Yet two countries can trade to their mutual benefit even when one of them is more efficient than the other at producing everything and when producers in the less-efficient country can compete only by paying lower wages. Trade provides benefits by allowing countries to export goods whose production makes relatively heavy use of resources that are locally abundant while importing goods whose production makes heavy use of resources that are locally scarce. International trade also allows countries to specialize in producing narrower ranges of goods, giving them greater efficiencies of large-scale production.

Nor are the benefits of international trade limited to trade in tangible goods. International migration and international borrowing and lending are also forms of mutually beneficial trade—the first a trade of labor for goods and services, the second a trade of current goods for the promise of future goods. Finally, international exchanges of risky assets such as stocks and bonds can benefit all countries by allowing each country to diversify its wealth and reduce the variability of its income. These invisible forms of trade yield gains as real as the trade that puts fresh fruit from Latin America in Toronto markets in February.

Although nations generally gain from international trade, it is quite possible that international trade may hurt particular groups *within* nations—in other words, that international trade will have strong effects on the distribution of income. The effects of

trade on income distribution have long been a concern of international trade theorists who have pointed out that:

> International trade can adversely affect the owners of resources that are "specific" to industries that compete with imports, that is, cannot find alternative employment in other industries. Examples would include specialized machinery, such as power looms made less valuable by textile imports, and workers with specialized skills, like fishermen who find the value of their catch reduced by imported seafood.
>
> Trade can also alter the distribution of income between broad groups, such as workers and the owners of capital.

These concerns have moved from the classroom into the center of real-world policy debate as it has become increasingly clear that the real wages of less-skilled workers in the United States have been declining—even though the country as a whole is continuing to grow richer. Many commentators attribute this development to growing international trade, especially the rapidly growing exports of manufactured goods from low-wage countries. Assessing this claim has become an important task for international economists.

The Pattern of Trade

Economists cannot discuss the effects of international trade or recommend changes in government policies toward trade with any confidence unless they know their theory is good enough to explain the international trade that is actually observed. As a result, attempts to explain the pattern of international trade—who sells what to whom—have been a major preoccupation of international economists.

Some aspects of the pattern of trade are easy to understand. Climate and resources clearly explain why Brazil exports coffee and Saudi Arabia exports oil. Much of the pattern of trade is more subtle, however. Why does Japan export automobiles, while the United States exports aircraft? In the early 19th century, English economist David Ricardo offered an explanation of trade in terms of international differences in labor productivity, an explanation that remains a powerful insight. In the 20th century, however, alternative explanations also were proposed. One of the most influential explanations links trade patterns to an interaction between the relative supplies of national resources such as capital, labor, and land on one side and the relative use of these factors in the production of different goods on the other. This basic model must be extended in order to generate accurate empirical predictions for the volume and pattern of trade. Also, some international economists have proposed theories that suggest a substantial random component, along with economies of scale, in the pattern of international trade.

How Much Trade?

If the idea of gains from trade is the most important theoretical concept in international economics, the seemingly eternal debate over how much trade to allow is its most important policy theme. Since the emergence of modern nation-states in the 16th century, governments have worried about the effect of international competition on the prosperity of domestic industries and have tried either to shield industries from foreign competition by placing limits on imports or to help them in world competition by subsidizing exports. The single most consistent mission of international economics has been to analyze the effects of these so-called protectionist policies—and usually,

though not always, to criticize protectionism and show the advantages of freer international trade.

The debate over how much trade to allow took a new direction in the 1990s. After World War II the advanced democracies, led by the United States, pursued a broad policy of removing barriers to international trade; this policy reflected the view that free trade was a force not only for prosperity but also for promoting world peace. In the first half of the 1990s, several major free trade agreements were negotiated. The most notable were the North American Free Trade Agreement (NAFTA) between the United States, Canada, and Mexico, approved in 1993, and the so-called Uruguay Round agreement, which established the World Trade Organization in 1994.

Since then, however, there has been considerable backlash against "globalization." In 2016, Britain shocked the political establishment by voting to leave the European Union, which guarantees free movement of goods and people among its members. In that same year, claims that competition from imports and unfair trade deals have cost jobs played an important role in the U.S. presidential campaign. One consequence of this anti-globalization backlash is that free trade advocates are under greater pressure than ever before to find ways to explain their views.

Over the years, international economists have developed a simple yet powerful analytical framework for determining the effects of government policies that affect international trade. This framework helps predict the effects of trade policies, while also allowing for cost-benefit analysis and defining criteria for determining when government intervention is good for the economy.

In the real world, however, governments do not necessarily do what the cost-benefit analysis of economists tells them they should. This does not mean that analysis is useless. Economic analysis can help make sense of the politics of international trade policy by showing who benefits and who loses from such government actions as quotas on imports and subsidies to exports. The key insight of this analysis is that conflicts of interest *within* nations are usually more important in determining trade policy than conflicts of interest *between* nations. Trade usually has very strong effects on income distribution within countries, while the relative power of different interest groups within countries, rather than some measure of overall national interest, is often the main determining factor in government policies toward international trade.

Balance of Payments

In 1998, both China and South Korea ran large trade surpluses of about $40 billion each. In China's case, the trade surplus was not out of the ordinary—the country had been running large surpluses for several years, prompting complaints from other countries, including the United States, that China was not playing by the rules. So is it good to run a trade surplus and bad to run a trade deficit? Not according to the South Koreans: Their trade surplus was forced on them by an economic and financial crisis, and they bitterly resented the necessity of running that surplus.

This comparison highlights the fact that a country's *balance of payments* must be placed in the context of an economic analysis to understand what it means. It emerges in a variety of specific contexts: in discussing foreign direct investment by multinational corporations,, in relating international transactions to national income accounting, and in discussing virtually every aspect of international monetary policy, the subject of this volume. Like the problem of protectionism, the balance of payments has become a central issue for the United States because the nation has run huge trade deficits every year since 1982.

Exchange Rate Determination

In September 2010, Brazil's finance minister, Guido Mantegna, made headlines by declaring that the world was "in the midst of an international currency war." The occasion for his remarks was a sharp rise in the value of Brazil's currency, the *real*, which was worth less than 45 cents at the beginning of 2009 but had risen to almost 60 cents when he spoke (and would rise to 65 cents over the next few months). Mantegna accused wealthy countries—the United States in particular—of engineering this rise, which was devastating to Brazilian exporters. However, the surge in the *real* proved short-lived; the currency began dropping in mid-2011, and by the summer of 2013 it was back down to only 45 cents.

A key difference between international economics and other areas of economics is that countries usually have their own currencies—the euro, which is shared by a number of European countries, being the exception that proves the rule. And as the example of the *real* illustrates, the relative values of currencies can change over time, sometimes drastically.

For historical reasons, the study of exchange rate determination is a relatively new part of international economics. For much of modern economic history, exchange rates were fixed by government action rather than determined in the marketplace. Before World War I, the values of the world's major currencies were fixed in terms of gold; for a generation after World War II, the values of most currencies were fixed in terms of the U.S. dollar. The analysis of international monetary systems that fix exchange rates remains an important subject. Chapter 7 is devoted to the working of fixed-rate systems, Chapter 8 to the historical performance of alternative exchange-rate systems, and Chapter 10 to the economics of currency areas such as the European monetary union. For the time being, however, some of the world's most important exchange rates fluctuate minute by minute and the role of changing exchange rates remains at the center of the international economics story. Chapters 3 through 6 focus on the modern theory of floating exchange rates.

International Policy Coordination

The international economy comprises sovereign nations, each free to choose its own economic policies. Unfortunately, in an integrated world economy, one country's economic policies usually affect other countries as well. For example, when Germany's Bundesbank raised interest rates in 1990—a step it took to control the possible inflationary impact of the reunification of West and East Germany—it helped precipitate a recession in the rest of Western Europe. Differences in goals among countries often lead to conflicts of interest. Even when countries have similar goals, they may suffer losses if they fail to coordinate their policies. A fundamental problem in international economics is determining how to produce an acceptable degree of harmony among the international trade and monetary policies of different countries in the absence of a world government that tells countries what to do.

For almost 70 years, international trade policies have been governed by an international agreement known as the General Agreement on Tariffs and Trade (GATT). Since 1994, trade rules have been enforced by an international organization, the World Trade Organization, that can tell countries, including the United States, that their policies violate prior agreements.

While cooperation on international trade policies is a well-established tradition, coordination of international macroeconomic policies is a newer and more uncertain topic. Attempts to formulate principles for international macroeconomic coordination

date to the 1980s and 1990s and remain controversial to this day. Nonetheless, attempts at international macroeconomic coordination are occurring with growing frequency in the real world. Both the theory of international macroeconomic coordination and the developing experience are reviewed in Chapter 8.

The International Capital Market

In 2007, investors who had bought U.S. mortgage-backed securities—claims on the income from large pools of home mortgages—received a rude shock: As home prices began to fall, mortgage defaults soared, and investments they had been assured were safe turned out to be highly risky. Since many of these claims were owned by financial institutions, the housing bust soon turned into a banking crisis. And here's the thing: It wasn't just a U.S. banking crisis, because banks in other countries, especially in Europe, had also bought many of these securities.

The story didn't end there: Europe soon had its own housing bust. And while the bust mainly took place in southern Europe, it soon became apparent that many northern European banks—such as German banks that had lent money to their Spanish counterparts—were also very exposed to the financial consequences.

In any sophisticated economy, there is an extensive capital market: a set of arrangements by which individuals and firms exchange money now for promises to pay in the future. The growing importance of international trade since the 1960s has been accompanied by a growth in the *international* capital market, which links the capital markets of individual countries. Thus in the 1970s, oil-rich Middle Eastern nations placed their oil revenues in banks in London or New York, and these banks in turn lent money to governments and corporations in Asia and Latin America. During the 1980s, Japan converted much of the money it earned from its booming exports into investments in the United States, including the establishment of a growing number of U.S. subsidiaries of Japanese corporations. Nowadays, China is funneling its own export earnings into a range of foreign assets, including dollars that its government holds as international reserves.

International capital markets differ in important ways from domestic capital markets. They must cope with special regulations that many countries impose on foreign investment; they also sometimes offer opportunities to evade regulations placed on domestic markets. Since the 1960s, huge international capital markets have arisen, most notably the remarkable London Eurodollar market, in which billions of dollars are exchanged each day without ever touching the United States.

Some special risks are associated with international capital markets. One risk is currency fluctuations: If the euro falls against the dollar, U.S. investors who bought euro bonds suffer a capital loss. Another risk is national default: A nation may simply refuse to pay its debts (perhaps because it cannot), and there may be no effective way for its creditors to bring it to court. Fears of default by highly indebted European nations have been a major concern in recent years.

The growing importance of international capital markets and their new problems demand greater attention than ever before. This text devotes two chapters to issues arising from international capital markets: one on the functioning of global asset markets (Chapter 9) and one on foreign borrowing by developing countries (Chapter 11).

International Economics: Trade and Money

The economics of the international economy can be divided into two broad subfields: the study of *international trade* and the study of *international money*. International trade analysis focuses primarily on the *real* transactions in the international economy, that is, transactions involving a physical movement of goods or a tangible commitment of economic resources. International monetary analysis focuses on the *monetary* side of the international economy, that is, on financial transactions such as foreign purchases of U.S. dollars. An example of an international trade issue is the conflict between the United States and Europe over Europe's subsidized exports of agricultural products; an example of an international monetary issue is the dispute over whether the foreign exchange value of the dollar should be allowed to float freely or be stabilized by government action.

In the real world, there is no simple dividing line between trade and monetary issues. Most international trade involves monetary transactions, while, as the examples in this chapter already suggest, many monetary events have important consequences for trade. Nonetheless, the distinction between international trade and international money is useful. *International Trade* covers international trade issues, developing the analytical theory of international trade, applying trade theory to the analysis of government policies toward trade. *International Finance* is devoted to international monetary issues, developing international monetary theory, and applying this analysis to international monetary policy.

This page intentionally left blank