

**THE ECONOMICS OF  
MONEY, BANKING, AND  
FINANCIAL MARKETS**

Business School Edition

## 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*
- Blair/Rush**  
*The Economics of Managerial Decisions\**
- 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/Erfl**  
*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**  
*Using Econometrics: A Practical Guide*
- Todaro/Smith**  
*Economic Development*
- Walters/Walters/Appel/Callahan/Centanni/Maex/O'Neill**  
*Econversations: Today's Students Discuss Today's Issues*
- Williamson**  
*Macroeconomics*

\*denotes MyLab™ Economics titles. Visit [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics) to learn more.

# THE ECONOMICS OF **MONEY, BANKING, AND FINANCIAL MARKETS**

---

Business School Edition  
Fifth Edition

**Frederic S. Mishkin**  
Columbia University



New York, NY

Vice President, Business, Economics, and UK Courseware:  
Donna Battista

Director of Portfolio Management: Adrienne D'Ambrosio

Senior Portfolio Manager: Christina Masturzo

Editorial Assistant: Courtney Paganelli

Vice President, Product Marketing: Roxanne McCarley

Senior Product Marketer: Tricia Murphy

Product Marketing Assistant: Marianela Silvestri

Manager of Field Marketing, Business Publishing:

Adam Goldstein

Executive Field Marketing Manager: Senior Field Marketing

Manager: Carlie Marvel

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: Carolyn Philips

Operations Specialist: Carol Melville

Design Lead: Kathryn Foot

Manager, Learning Tools: Brian Surette

Content Developer, Learning Tools: Sarah Peterson

Managing Producer, Digital Studio and GLP, Media Production  
and Development: Ashley Santora

Managing Producer, Digital Studio: Diane Lombardo

Digital Studio Producer: Melissa Honig

Digital Studio Producer: Alana Coles

Digital Content Team Lead: Noel Lotz

Digital Content Project Lead: Noel Lotz

Project Manager: Kathy Smith, Cengage® Publisher Services

Interior Design: Cengage® Publisher Services

Cover Design: Cengage® Publisher Services

Cover Art: Isak55/Shutterstock; Hamik/Shutterstock; Photo.ua/  
Shutterstock; Sergey Dobrydnev/Shutterstock; Zodebala/E+/  
Getty images

Printer/Binder: LSC Communications, Inc./Kendallville

Cover Printer: Phoenix Color/Hagerstown

Copyright © 2019, 2016, 2013 by Frederic S. Mishkin. All Rights Reserved. Manufactured in the United States of America. This publication is protected by copyright, and permission should be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise. For information regarding permissions, request forms, and the appropriate contacts within the Pearson Education Global Rights and Permissions department, please visit [www.pearsoned.com/permissions/](http://www.pearsoned.com/permissions/).

Acknowledgments of third-party content appear on the appropriate page within the text.

PEARSON, ALWAYS LEARNING, and MYLAB are exclusive trademarks owned by Pearson Education, Inc. or its affiliates in the U.S. and/or other countries.

Unless otherwise indicated herein, any third-party trademarks, logos, or icons that may appear in this work are the property of their respective owners, and any references to third-party trademarks, logos, icons, or other trade dress are for demonstrative or descriptive purposes only. Such references are not intended to imply any sponsorship, endorsement, authorization, or promotion of Pearson's products by the owners of such marks, or any relationship between the owner and Pearson Education, Inc., or its affiliates, authors, licensees, or distributors.

Cataloging-in-Publication Data is available on file at the Library of Congress

1 17



ISBN 10: 0-13-473420-3  
ISBN 13: 978-0-13-473420-0

*To Sally*



# About the Author



Frederic S. Mishkin is the Alfred Lerner Professor of Banking and Financial Institutions at the Graduate School of Business, Columbia University. He is also a Research Associate at the National Bureau of Economic Research, co-director of the U.S. Monetary Policy Forum, a member of the Squam Lake Working Group on Financial Reform, and past president of the Eastern Economics Association. Since receiving his Ph.D. from the Massachusetts Institute of Technology in 1976, he has taught at the University of Chicago, Northwestern University, Princeton University, and Columbia. He has also received an honorary professorship from the People's (Renmin) University of China. From 1994 to 1997, he was Executive Vice President and Director of Research at the Federal Reserve Bank of New York and an associate economist of the Federal Open Market Committee of the Federal Reserve System. From September 2006 to August 2008, he was a member (governor) of the Board of Governors of the Federal Reserve System.

Professor Mishkin's research focuses on monetary policy and its impact on financial markets and the aggregate economy. He is the author of more than twenty books, including *Macroeconomics: Policy and Practice*, Second Edition (Pearson, 2015); *Financial Markets and Institutions*, Ninth Edition (Pearson, 2018); *Monetary Policy Strategy* (MIT Press, 2007); *The Next Great Globalization: How Disadvantaged Nations Can Harness Their Financial Systems to Get Rich* (Princeton University Press, 2006); *Inflation Targeting: Lessons from the International Experience* (Princeton University Press, 1999); *Money, Interest Rates, and Inflation* (Edward Elgar, 1993); and *A Rational Expectations Approach to Macroeconometrics: Testing Policy Ineffectiveness and Efficient Markets Models* (University of Chicago Press, 1983). In addition, he has published more than 200 articles in such journals as *American Economic Review*, *Journal of Political Economy*, *Econometrica*, *Quarterly Journal of Economics*, *Journal of Finance*, and *Journal of Monetary Economics*.

Professor Mishkin has served on the editorial board of *American Economic Review* and has been an associate editor at *Journal of Business and Economic Statistics*, *Journal of Applied Econometrics*, *Journal of Economic Perspectives*, *Journal of International Money and Finance*, and *Journal of Money, Credit and Banking*; he also served as the editor of the Federal Reserve Bank of New York's *Economic Policy Review*. He is currently an associate editor (member of the editorial board) at six academic journals, including *International Finance*; *Finance India*; *Review of Development Finance*; *Borsa Economic Review*; *PSU Research Review* and *Emerging Markets*, and *Finance and Trade*. He has been a consultant to the Board of Governors of the Federal Reserve System, the World Bank, and the International Monetary Fund, as well as to many central banks throughout the world. He was also a member of the International Advisory Board to the Financial Supervisory Service of South Korea and an advisor to the Institute for Monetary and Economic Research at the Bank of Korea. Professor Mishkin was a Senior Fellow at the Federal Deposit Insurance Corporation's Center for Banking Research and was an academic consultant to and serves on the Economic Advisory Panel and Monetary Advisory Panel of the Federal Reserve Bank of New York.





# Brief Contents

## PART 1

### Introduction 1

- 1 Why Study Money, Banking, and Financial Markets? ..... 2
- 2 An Overview of the Financial System ..... 22
- 3 What Is Money? ..... 49

## PART 2

### Financial Markets 63

- 4 The Meaning of Interest Rates ..... 64
- 5 The Behavior of Interest Rates ..... 86
- 6 The Risk and Term Structure of Interest Rates ..... 117
- 7 The Stock Market, the Theory of Rational Expectations, and the Efficient Market Hypothesis ..... 141

## PART 3

### Financial Institutions 163

- 8 An Economic Analysis of Financial Structure ..... 164
- 9 Banking and the Management of Financial Institutions ..... 188
- 10 Economic Analysis of Financial Regulation ..... 217
- 11 Banking Industry: Structure and Competition ..... 236
- 12 Financial Crises ..... 268
- 13 Nonbank Finance ..... 293
- 14 Financial Derivatives ..... 317
- 15 Conflicts of Interest in the Financial Industry ..... 344

## PART 4

### Central Banking and the Conduct of Monetary Policy 363

- 16 Central Banks and the Federal Reserve System ..... 364
- 17 The Money Supply Process ..... 388
- 18 Tools of Monetary Policy ..... 413
- 19 The Conduct of Monetary Policy: Strategy and Tactics ..... 439

## PART 5

### International Finance and Monetary Policy 473

- 20 The Foreign Exchange Market ..... 474
- 21 The International Financial System ..... 502

## PART 6

### Monetary Theory 531

- 22 Quantity Theory, Inflation, and the Demand for Money ..... 532
- 23 Aggregate Demand and Supply Analysis ..... 550
- 24 Monetary Policy Theory ..... 594
- 25 Transmission Mechanisms of Monetary Policy ..... 623

## Additional Chapters on MyLab Economics

- 1 Financial Crises in Emerging Market Economies
- 2 The *IS* Curve
- 3 The Monetary Policy and Aggregate Demand Curves
- 4 The Role of Expectations in Monetary Policy
- 5 The *ISLM* Model

# Contents in Detail

## PART 1

## Introduction 1

### CHAPTER 1

#### Why Study Money, Banking, and Financial Markets? 2

Why Study Financial Markets? .....	2
Debt Markets and Interest Rates .....	3
The Stock Market .....	3
Why Study Financial Institutions and Banking?.....	5
Structure of the Financial System .....	5
Banks and Other Financial Institutions.....	6
Financial Innovation.....	6
Financial Crises.....	6
Why Study Money and Monetary Policy?.....	7
Money and Business Cycles.....	7
Money and Inflation.....	7
Money and Interest Rates.....	9
Conduct of Monetary Policy.....	9
Fiscal Policy and Monetary Policy.....	10
Why Study International Finance? .....	11
The Foreign Exchange Market.....	12
The International Financial System.....	13
Money, Banking, and Financial Markets and Your Career.....	14
How We Will Study Money, Banking, and Financial Markets.....	14
Exploring the Web .....	15
Concluding Remarks .....	15
Summary 15 • Key Terms 16 • Questions 16 • Applied Problems 17 •	
Data Analysis Problems 17 • Web Exercises 18 • Web References 18	

### APPENDIX TO CHAPTER 1

#### Defining Aggregate Output, Income, the Price Level, and the Inflation Rate 19

Aggregate Output and Income .....	19
Real Versus Nominal Magnitudes .....	19
Aggregate Price Level.....	20
Growth Rates and the Inflation Rate .....	21

### CHAPTER 2

#### An Overview of the Financial System 22

Function of Financial Markets.....	22
Structure of Financial Markets.....	25
Debt and Equity Markets.....	25
Primary and Secondary Markets.....	25

Exchanges and Over-the-Counter Markets.....	26
Money and Capital Markets.....	27
<b>Financial Market Instruments.....</b>	<b>27</b>
Money Market Instruments.....	27
<b>Following the Financial News</b> Money Market Rates	28
Capital Market Instruments.....	29
<b>Following the Financial News</b> Capital Market Interest Rates	30
Internationalization of Financial Markets.....	31
<b>Global</b> Are U.S. Capital Markets Losing Their Edge?	32
International Bond Market, Eurobonds, and Eurocurrencies.....	32
World Stock Markets.....	33
Function of Financial Intermediaries: Indirect Finance.....	33
<b>Following the Financial News</b> Foreign Stock Market Indexes	34
Transaction Costs.....	34
<b>Global</b> The Importance of Financial Intermediaries Relative to Securities Markets: An International Comparison	35
Risk Sharing.....	36
Asymmetric Information: Adverse Selection and Moral Hazard.....	36
Economies of Scope and Conflicts of Interest.....	38
<b>Types of Financial Intermediaries.....</b>	<b>38</b>
Depository Institutions.....	38
Contractual Savings Institutions.....	40
Investment Intermediaries.....	41
<b>Regulation of the Financial System.....</b>	<b>42</b>
Increasing Information Available to Investors.....	42
Ensuring the Soundness of Financial Intermediaries.....	43
Financial Regulation Abroad.....	45
Summary 45 • Key Terms 46 • Questions 46 • Applied Problems 47 • Data Analysis Problems 48 • Web Exercises 48 • Web References 48	

**CHAPTER 3**  
**What Is Money? 49**

Meaning of Money.....	49
Functions of Money.....	50
Medium of Exchange.....	50
Unit of Account.....	51
Store of Value.....	52
Evolution of the Payments System.....	53
Commodity Money.....	53
Fiat Money.....	53
Checks.....	53

Electronic Payment ..... 54  
 E-Money ..... 54

**FYI** Are We Headed for a Cashless Society? 55

**APPLICATION** Will Bitcoin Become the Money of the Future? ..... 55

Measuring Money ..... 56  
 The Federal Reserve’s Monetary Aggregates ..... 56

**Following the Financial News** The Monetary Aggregates 57

**FYI** Where Are All the U.S. Dollars? 58

Summary 59 • Key Terms 60 • Questions 60 • Applied Problems 61 •  
 Data Analysis Problems 62 • Web Exercises 62 • Web References 62

**PART 2**

**Financial Markets 63**

**CHAPTER 4**  
**The Meaning of Interest Rates 64**

Measuring Interest Rates ..... 64  
 Present Value ..... 64

**APPLICATION** Simple Present Value ..... 66

**APPLICATION** How Much Is That Jackpot Worth? ..... 66  
 Four Types of Credit Market Instruments ..... 67  
 Yield to Maturity ..... 68

**APPLICATION** Yield to Maturity on a Simple Loan ..... 68

**APPLICATION** Yield to Maturity and the Yearly Payment on a Fixed-Payment Loan ..... 70

**APPLICATION** Yield to Maturity and the Bond Price for a Coupon Bond ..... 71

**APPLICATION** Yield to Maturity on a Perpetuity ..... 73

**APPLICATION** Yield to Maturity on a Discount Bond ..... 74

The Distinction Between Interest Rates and Returns ..... 75

**Global** Negative Interest Rates? Japan First, Then the United States, Then Europe 76  
 Maturity and the Volatility of Bond Returns: Interest-Rate Risk ..... 78  
 Summary ..... 79

The Distinction Between Real and Nominal Interest Rates ..... 80

**APPLICATION** Calculating Real Interest Rates ..... 81  
 Summary 83 • Key Terms 83 • Questions 83 • Applied Problems 84 •  
 Data Analysis Problems 85 • Web Exercises 85 • Web References 85

**CHAPTER 4 APPENDIX**  
**Measuring Interest-Rate Risk: Duration**

Go to MyLab Economics: [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 5**  
**The Behavior of Interest Rates 86**

Determinants of Asset Demand..... 86

    Wealth..... 87

    Expected Returns ..... 87

    Risk..... 87

    Liquidity ..... 88

    Theory of Portfolio Choice ..... 88

Supply and Demand in the Bond Market..... 89

    Demand Curve ..... 89

    Supply Curve ..... 90

    Market Equilibrium..... 91

    Supply and Demand Analysis..... 92

Changes in Equilibrium Interest Rates ..... 92

    Shifts in the Demand for Bonds..... 93

    Shifts in the Supply of Bonds..... 96

**APPLICATION** Changes in the Interest Rate Due to a Change in Expected  
    Inflation: The Fisher Effect..... 98

**APPLICATION** Changes in the Interest Rate Due to a Business Cycle Expansion.... 100

**APPLICATION** Explaining Current Low Interest Rates in Europe, Japan, and the  
    United States: Low Inflation and Secular Stagnation ..... 101

Supply and Demand in the Market for Money:  
    The Liquidity Preference Framework..... 102

Changes in Equilibrium Interest Rates in the Liquidity Preference Framework..... 105

    Shifts in the Demand for Money..... 105

    Shifts in the Supply of Money..... 105

**APPLICATION** Changes in the Equilibrium Interest Rate Due to Changes  
    in Income, the Price Level, or the Money Supply ..... 106

    Changes in Income..... 107

    Changes in the Price Level..... 107

    Changes in the Money Supply..... 107

Money and Interest Rates..... 108

**APPLICATION** Does a Higher Rate of Growth of the Money Supply Lower  
    Interest Rates? ..... 110

    Summary 113 • Key Terms 113 • Questions 113 • Applied Problems 114 •  
    Data Analysis Problems 115 • Web Exercises 116 • Web References 116

**CHAPTER 5 APPENDIX 1**  
**Models of Asset Pricing**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 5 APPENDIX 2**  
**Applying the Asset Market Approach to a Commodity Market: The Case of Gold**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 5 APPENDIX 3**

**Loanable Funds Framework**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 6**

**The Risk and Term Structure of Interest Rates 117**

Risk Structure of Interest Rates..... 117  
 Default Risk..... 117

**FYI** Conflicts of Interest at Credit-Rating Agencies and the Global Financial Crisis 121

**APPLICATION** The Global Financial Crisis and the Baa-Treasury Spread ..... 122  
 Liquidity ..... 122  
 Income Tax Considerations ..... 123  
 Summary..... 124

**APPLICATION** Effects of the Obama Tax Increase on Bond Interest Rates ..... 124  
 Term Structure of Interest Rates..... 125

**Following the Financial News** Yield Curves 125

Expectations Theory..... 127  
 Segmented Markets Theory ..... 130  
 Liquidity Premium and Preferred Habitat Theories..... 131  
 Evidence on the Term Structure ..... 134

**FYI** The Yield Curve as a Forecasting Tool for Inflation and the Business Cycle 135  
 Summary..... 135

**APPLICATION** Interpreting Yield Curves, 1980–2017 ..... 135  
 Summary 137 • Key Terms 137 • Questions 137 • Applied Problems 139 •  
 Data Analysis Problems 139 • Web Exercises 140 • Web References 140

**CHAPTER 7**

**The Stock Market, the Theory of Rational Expectations, and the Efficient Market Hypothesis 141**

Computing the Price of Common Stock ..... 141  
 The One-Period Valuation Model ..... 142  
 The Generalized Dividend Valuation Model..... 143  
 The Gordon Growth Model..... 143

How the Market Sets Stock Prices..... 144

**APPLICATION** Monetary Policy and Stock Prices ..... 146

**APPLICATION** The Global Financial Crisis and the Stock Market..... 146

The Theory of Rational Expectations..... 146  
 Formal Statement of the Theory ..... 148  
 Rationale Behind the Theory ..... 148  
 Implications of the Theory ..... 149

The Efficient Market Hypothesis: Rational Expectations in Financial Markets ..... 150  
 Rationale Behind the Hypothesis ..... 151  
 Random-Walk Behavior of Stock Prices ..... 152

**Global** Should Foreign Exchange Rates Follow a Random Walk? 153

**APPLICATION** Practical Guide to Investing in the Stock Market ..... 153  
 How Valuable Are Published Reports by Investment Advisers? ..... 153  
 Should You Be Skeptical of Hot Tips? ..... 154

**FYI** Should You Hire an Ape as Your Investment Adviser? 155  
 Do Stock Prices Always Rise When There Is Good News? ..... 155  
 Efficient Market Prescription for the Investor ..... 155

Why the Efficient Market Hypothesis Does Not Imply That Financial  
 Markets Are Efficient ..... 156

**APPLICATION** What Do Stock Market Crashes Tell Us About the Efficient  
 Market Hypothesis and the Efficiency of Financial Markets? ..... 157

Behavioral Finance ..... 157  
 Summary 158 • Key Terms 159 • Questions 159 • Applied Problems 160 •  
 Data Analysis Problems 161 • Web Exercises 161 • Web References 161

**CHAPTER 7 APPENDIX**

**Evidence on the Efficient Market Hypothesis**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**PART 3**

**Financial Institutions 163**

**CHAPTER 8**

**An Economic Analysis of Financial Structure 164**

Basic Facts About Financial Structure Throughout the World ..... 164

Transaction Costs ..... 167  
 How Transaction Costs Influence Financial Structure ..... 167  
 How Financial Intermediaries Reduce Transaction Costs ..... 168

Asymmetric Information: Adverse Selection and Moral Hazard ..... 169

The Lemons Problem: How Adverse Selection Influences Financial Structure ..... 169  
 Lemons in the Stock and Bond Markets ..... 170  
 Tools to Help Solve Adverse Selection Problems ..... 170

**FYI** The Enron Implosion 172

How Moral Hazard Affects the Choice Between Debt and Equity Contracts ..... 175  
 Moral Hazard in Equity Contracts: The Principal–Agent Problem ..... 175  
 Tools to Help Solve the Principal–Agent Problem ..... 176

How Moral Hazard Influences Financial Structure in Debt Markets ..... 178  
 Tools to Help Solve Moral Hazard in Debt Contracts ..... 178  
 Summary ..... 180



**APPLICATION** Financial Development and Economic Growth..... 181

**FYI** The Tyranny of Collateral 182

**APPLICATION** Is China a Counterexample to the Importance of Financial Development?..... 183

    Summary 184 • Key Terms 185 • Questions 185 • Applied Problems 186 • Data Analysis Problems 187 • Web Exercises 187 • Web References 187

**CHAPTER 9**  
**Banking and the Management of Financial Institutions 188**

The Bank Balance Sheet..... 188

    Liabilities..... 188

    Assets..... 191

Basic Banking..... 192

General Principles of Bank Management..... 195

    Liquidity Management and the Role of Reserves..... 195

    Asset Management..... 198

    Liability Management..... 199

    Capital Adequacy Management..... 200

**APPLICATION** Strategies for Managing Bank Capital..... 202

**APPLICATION** How a Capital Crunch Caused a Credit Crunch During the Global Financial Crisis..... 203

Managing Credit Risk..... 203

    Screening and Monitoring..... 204

    Long-Term Customer Relationships..... 205

    Loan Commitments..... 206

    Collateral and Compensating Balances..... 206

    Credit Rationing..... 206

Managing Interest-Rate Risk..... 207

    Gap and Duration Analysis..... 208

**APPLICATION** Strategies for Managing Interest-Rate Risk..... 209

Off-Balance-Sheet Activities..... 209

    Loan Sales..... 210

    Generation of Fee Income..... 210

    Trading Activities and Risk Management Techniques..... 210

**Global** Barings, Daiwa, Sumitomo, Société Générale, and JP Morgan Chase: Rogue Traders and the Principal-Agent Problem 211

    Summary 212 • Key Terms 213 • Questions 213 • Applied Problems 214 • Data Analysis Problems 215 • Web Exercises 215 • Web References 216

**CHAPTER 9 APPENDIX 1**  
**Duration Gap Analysis**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 9 APPENDIX 2**  
**Measuring Bank Performance**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 10**  
**Economic Analysis of Financial Regulation 217**

Asymmetric Information as a Rationale for Financial Regulation ..... 217  
 Government Safety Net ..... 217

**Global** The Spread of Government Deposit Insurance Throughout the World:  
 Is This a Good Thing? 219

Drawbacks of the Government Safety Net ..... 220

Types of Financial Regulation ..... 222

Restrictions on Asset Holdings ..... 222  
 Capital Requirements ..... 223

**Global** Where Is the Basel Accord Heading After the Global  
 Financial Crisis? 224

Prompt Corrective Action ..... 225  
 Financial Supervision: Chartering and Examination ..... 225  
 Assessment of Risk Management ..... 226  
 Disclosure Requirements ..... 227  
 Consumer Protection ..... 228  
 Restrictions on Competition ..... 228  
 Summary ..... 229

**Global** International Financial Regulation 230

Summary 232 • Key Terms 233 • Questions 233 • Applied Problems 234 •  
 Data Analysis Problems 234 • Web Exercises 235 • Web References 235

**CHAPTER 10 APPENDIX 1**  
**The 1980s Banking and Savings and Loan Crisis**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 10 APPENDIX 2**  
**Banking Crises Throughout the World**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 11**  
**Banking Industry: Structure and Competition 236**

Historical Development of the Banking System ..... 236  
 Multiple Regulatory Agencies ..... 238

Financial Innovation and the Growth of the “Shadow

Banking System” ..... 239  
 Responses to Changes in Demand Conditions: Interest-Rate Volatility ..... 240  
 Responses to Changes in Supply Conditions: Information Technology ..... 241

Securitization and the Shadow Banking System ..... 243  
 Avoidance of Existing Regulations ..... 245

**FYI** Bruce Bent and the Money Market Mutual Fund Panic of 2008 246

    Financial Innovation and the Decline of Traditional Banking..... 247

**Structure of the U.S. Commercial Banking Industry**..... 250

    Restrictions on Branching..... 252  
 Response to Branching Restrictions ..... 252

**Bank Consolidation and Nationwide Banking**..... 253

    The Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 ..... 255  
 What Will the Structure of the U.S. Banking Industry Look Like in the Future? ..... 255

**Global** Comparison of Banking Structure in the United States and Abroad 256

    Are Bank Consolidation and Nationwide Banking Good Things?..... 256

**Separation of the Banking and Other Financial Service Industries**..... 257

    Erosion of Glass-Steagall..... 257  
 The Gramm-Leach-Bliley Financial Services Modernization Act of 1999:  
     Repeal of Glass-Steagall..... 258  
     Implications for Financial Consolidation ..... 258  
 Separation of Banking and Other Financial Services Industries Throughout the World..... 258

**FYI** The Global Financial Crisis and the Demise of Large, Free-Standing  
 Investment Banks 259

**Thrift Industry: Regulation and Structure** ..... 259

    Savings and Loan Associations..... 260  
 Mutual Savings Banks..... 260  
 Credit Unions..... 260

**International Banking** ..... 261

    Eurodollar Market ..... 261

**Global** Ironic Birth of the Eurodollar Market 262

    Structure of U.S. Banking Overseas..... 262  
 Foreign Banks in the United States ..... 263

    Summary 264 • Key Terms 265 • Questions 265 • Data Analysis Problems 266 •  
     Web Exercises 267 • Web References 267

**CHAPTER 12**  
**Financial Crises 268**

What Is a Financial Crisis?..... 268

**Dynamics of Financial Crises** ..... 269

    Stage One: Initial Phase ..... 269  
 Stage Two: Banking Crisis..... 271  
 Stage Three: Debt Deflation..... 272

**APPLICATION** The Mother of All Financial Crises: The Great Depression ..... 273

    Stock Market Crash ..... 273  
 Bank Panics ..... 273

Continuing Decline in Stock Prices.....274  
 Debt Deflation.....274  
 International Dimensions .....275  
**The Global Financial Crisis of 2007–2009**.....275  
     Causes of the 2007–2009 Financial Crisis .....275  
**FYI** Collateralized Debt Obligations (CDOs) 276  
     Effects of the 2007–2009 Financial Crisis.....277  
**Inside the Fed** Was the Fed to Blame for the Housing Price Bubble? 278  
**Global** The European Sovereign Debt Crisis 281  
     Height of the 2007–2009 Financial Crisis .....282  
     Government Intervention and the Recovery.....283  
**Global** Worldwide Government Bailouts During the 2007–2009  
     Financial Crisis 283  
**Response of Financial Regulation**.....284  
     Macroprudential Versus Microprudential Supervision .....284  
     Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 .....285  
**Too-Big-to-Fail and Future Regulation** .....286  
     What Can Be Done About the Too-Big-to-Fail Problem? .....287  
     Beyond Dodd-Frank: Where Might Regulation Head in the Future? .....287  
     Summary 289 • Key Terms 290 • Questions 290 • Data Analysis Problems 291 •  
     Web Exercises 292 • Web References 292

**CHAPTER 13**  
**Nonbank Finance 293**

**Insurance**.....293  
     Life Insurance.....293  
     Property and Casualty Insurance .....294  
     The Competitive Threat from the Banking Industry.....296  
     Credit Insurance.....296  
**FYI** The AIG Blowup 297  
**FYI** The Global Financial Crisis and the Monoline Insurers 298  
**APPLICATION** Insurance Management .....298  
     Screening .....299  
     Risk-Based Premiums .....299  
     Restrictive Provisions.....299  
     Prevention of Fraud.....300  
     Cancellation of Insurance .....300  
     Deductibles .....300  
     Coinsurance .....300  
     Limits on the Amount of Insurance .....300  
     Summary.....301

Pension Funds ..... 301  
 Private Pension Plans ..... 302  
 Public Pension Plans ..... 302

**FYI** Should Social Security Be Privatized? 303

Finance Companies ..... 304

Securities Market Operations ..... 305  
 Investment Banking ..... 305  
 Securities Brokers and Dealers ..... 306  
 Organized Exchanges ..... 306

Mutual Funds ..... 307

**FYI** Sovereign Wealth Funds: Are They a Danger? 308

Money Market Mutual Funds ..... 309

Hedge Funds ..... 309

Private Equity and Venture Capital Funds ..... 310

Government Financial Intermediation ..... 311  
 Federal Credit Agencies ..... 311

**FYI** The Global Financial Crisis and the Bailout of Fannie Mae  
 and Freddie Mac 312

Summary 313 • Key Terms 314 • Questions 314 • Applied Problems 315 •  
 Data Analysis Problems 315 • Web Exercises 316 • Web References 316

**CHAPTER 14**  
**Financial Derivatives 317**

Hedging ..... 317

Interest-Rate Forward Contracts ..... 318

**APPLICATION** Hedging with Interest-Rate Forward Contracts ..... 318  
 Pros and Cons of Forward Contracts ..... 319

Financial Futures Contracts and Markets ..... 320

**APPLICATION** Hedging with Financial Futures ..... 321  
 Organization of Trading in Financial Futures Markets ..... 323  
 The Globalization of Financial Futures Markets ..... 324  
 Explaining the Success of Futures Markets ..... 324

**APPLICATION** Hedging Foreign Exchange Risk ..... 326  
 Hedging Foreign Exchange Risk with Forward Contracts ..... 326  
 Hedging Foreign Exchange Risk with Futures Contracts ..... 326

Options ..... 327  
 Options Contracts ..... 328  
 Profits and Losses on Option and Futures Contracts ..... 328

**APPLICATION** Hedging with Future Options ..... 331  
 Factors Affecting Option Premiums ..... 332  
 Summary ..... 333

Swaps.....	334
Interest-Rate Swap Contracts .....	334
<b>APPLICATION Hedging with Interest-Rate Swaps.....</b>	<b>335</b>
Advantages of Interest-Rate Swaps .....	335
Disadvantages of Interest-Rate Swaps.....	336
Financial Intermediaries in Interest-Rate Swaps .....	336
<b>Credit Derivatives.....</b>	<b>336</b>
Credit Options .....	337
Credit Swaps .....	337
Credit-Linked Notes.....	338
<b>APPLICATION Lessons from the Global Financial Crisis: When Are     Financial Derivatives Likely to Be a Worldwide     Ticking Time Bomb? .....</b>	<b>338</b>
Summary 340 • Key Terms 340 • Questions 341 • Applied Problems 341 • Data Analysis Problems 342 • Web Exercises 343 • Web References 343	
<b>CHAPTER 15</b>	
<b>Conflicts of Interest in the Financial Industry 344</b>	
What Are Conflicts of Interest, and Why Are They Important? .....	345
Why Do We Care About Conflicts of Interest? .....	345
Ethics and Conflicts of Interest.....	345
Types of Conflicts of Interest.....	346
Underwriting and Research in Investment Banking .....	346
Auditing and Consulting in Accounting Firms .....	347
Credit Assessment and Consulting in Credit-Rating Agencies .....	347
<b>FYI The Collapse of Arthur Andersen 348</b>	
Universal Banking .....	348
<b>FYI Why Do Issuers of Securities Pay to Have Their Securities Rated? 349</b>	
<b>FYI Banksters 350</b>	
Can the Market Limit Exploitation of Conflicts of Interest? .....	350
What Has Been Done to Remedy Conflicts of Interest? .....	352
Sarbanes-Oxley Act of 2002 .....	353
Global Legal Settlement of 2002.....	353
Dodd-Frank Bill of 2010 .....	354
<b>A Framework for Evaluating Policies to Remedy     Conflicts of Interest.....</b>	<b>354</b>
Approaches to Remedying Conflicts of Interest.....	355
<b>APPLICATION Evaluating Sarbanes-Oxley, the Global Legal Settlement,     and the Dodd-Frank Bill .....</b>	<b>357</b>
Summary 359 • Key Terms 360 • Questions 360 • Web Exercises 361 • Web References 361	

**PART 4**

**Central Banking and the Conduct of Monetary Policy 363**

**CHAPTER 16**

**Central Banks and the Federal Reserve System 364**

Origins of the Federal Reserve System ..... 364

**Inside the Fed** The Political Genius of the Founders of the Federal Reserve System 365

Structure of the Federal Reserve System ..... 365

    Federal Reserve Banks ..... 366

**Inside the Fed** The Special Role of the Federal Reserve Bank of New York 368

    Member Banks ..... 369

    Board of Governors of the Federal Reserve System ..... 370

    Federal Open Market Committee (FOMC) ..... 370

**Inside the Fed** The Role of the Research Staff 371

**Inside the Fed** The FOMC Meeting 372

**Inside the Fed** Green, Blue, Teal, and Beige: What Do These Colors Mean at the Fed? 373

    Why the Chair of the Board of Governors Really Runs the Show ..... 373

**Inside the Fed** Styles of Federal Reserve Chairs: Bernanke and Yellen Versus Greenspan 374

How Independent Is the Fed? ..... 375

Should the Fed Be Independent? ..... 377

    The Case for Independence ..... 377

    The Case Against Independence ..... 378

    Central Bank Independence and Macroeconomic Performance Throughout the World ..... 379

Explaining Central Bank Behavior ..... 379

**Inside the Fed** The Evolution of the Fed's Communication Strategy 380

Structure and Independence of the European Central Bank ..... 381

    Differences Between the European System of Central Banks and the Federal Reserve System ..... 381

    Governing Council ..... 382

    How Independent Is the ECB? ..... 382

Structure and Independence of Other Foreign Central Banks ..... 383

    Bank of Canada ..... 383

    Bank of England ..... 383

    Bank of Japan ..... 384

    The Trend Toward Greater Independence 385

Summary 385 • Key Terms 386 • Questions 386 • Data Analysis Problems 387 • Web Exercises 387 • Web References 387

**CHAPTER 17**  
**The Money Supply Process 388**

Three Players in the Money Supply Process..... 388

The Fed's Balance Sheet ..... 388

    Liabilities..... 389

    Assets ..... 390

Control of the Monetary Base..... 390

    Federal Reserve Open Market Operations..... 391

    Shifts from Deposits into Currency..... 392

    Loans to Financial Institutions..... 393

    Other Factors That Affect the Monetary Base ..... 393

    Overview of the Fed's Ability to Control the Monetary Base..... 394

Multiple Deposit Creation: A Simple Model..... 395

    Deposit Creation: The Single Bank ..... 395

    Deposit Creation: The Banking System ..... 396

    Deriving the Formula for Multiple Deposit Creation..... 399

    Critique of the Simple Model ..... 400

Factors That Determine the Money Supply..... 401

    Changes in the Nonborrowed Monetary Base,  $MB_n$ ..... 401

    Changes in Borrowed Reserves,  $BR$ , from the Fed ..... 401

    Changes in the Required Reserve Ratio,  $rr$  ..... 402

    Changes in Excess Reserves ..... 402

    Changes in Currency Holdings..... 402

Overview of the Money Supply Process..... 402

The Money Multiplier..... 403

    Deriving the Money Multiplier ..... 403

    Intuition Behind the Money Multiplier ..... 405

    Money Supply Response to Changes in the Factors..... 406

**APPLICATION** Quantitative Easing and the Money Supply, 2007–2017..... 407

    Summary 409 • Key Terms 409 • Questions 409 • Applied Problems 410 •  
    Data Analysis Problems 411 • Web Exercises 411 • Web References 412

**CHAPTER 17 APPENDIX 1**  
**The Fed's Balance Sheet and the Monetary Base**  
Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 17 APPENDIX 2**  
**The M2 Money Multiplier**  
Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 17 APPENDIX 3**  
**Explaining the Behavior of the Currency Ratio**  
Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)



**CHAPTER 17 APPENDIX 4**  
**The Great Depression Bank Panics, 1930–1933, and the Money Supply**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 18**  
**Tools of Monetary Policy 413**

The Market for Reserves and the Federal Funds Rate ..... 413  
     Demand and Supply in the Market for Reserves ..... 414  
     How Changes in the Tools of Monetary Policy Affect the  
         Federal Funds Rate..... 415

**APPLICATION** How the Federal Reserve’s Operating Procedures Limit  
     Fluctuations in the Federal Funds Rate ..... 419

Conventional Monetary Policy Tools..... 420  
     Open Market Operations..... 421

**Inside the Fed** A Day at the Trading Desk 422  
     Discount Policy and the Lender of Last Resort ..... 423

**Inside the Fed** Using Discount Policy to Prevent a Financial Panic 425  
     Reserve Requirements..... 426  
     Interest on Reserves..... 426  
     Relative Advantages of the Different Tools ..... 427

Nonconventional Monetary Policy Tools and Quantitative Easing ..... 427  
     Liquidity Provision ..... 428  
     Large-Scale Asset Purchases..... 428

**Inside the Fed** Fed Lending Facilities During the Global Financial Crisis 429  
     Quantitative Easing Versus Credit Easing..... 430  
     Forward Guidance..... 432  
     Negative Interest Rates on Banks’ Deposits ..... 433

Monetary Policy Tools of the European Central Bank..... 434  
     Open Market Operations..... 434  
     Lending to Banks..... 434  
     Interest on Reserves..... 435  
     Reserve Requirements..... 435

Summary 435 • Key Terms 436 • Questions 436 • Applied Problems 437 •  
     Data Analysis Problems 438 • Web Exercises 438 • Web References 438

**CHAPTER 19**  
**The Conduct of Monetary Policy: Strategy and Tactics 439**

The Price Stability Goal and the Nominal Anchor..... 439  
     The Role of a Nominal Anchor ..... 440  
     The Time-Inconsistency Problem..... 440

Other Goals of Monetary Policy ..... 441  
     High Employment and Output Stability ..... 441  
     Economic Growth ..... 442

Stability of Financial Markets ..... 442

Interest-Rate Stability..... 442

Stability in Foreign Exchange Markets..... 443

Should Price Stability Be the Primary Goal of Monetary Policy?..... 443

    Hierarchical Versus Dual Mandates..... 443

    Price Stability as the Primary, Long-Run Goal of Monetary Policy..... 444

Inflation Targeting ..... 444

    Inflation Targeting in New Zealand, Canada, and the United Kingdom ..... 445

    Advantages of Inflation Targeting ..... 447

    Disadvantages of Inflation Targeting ..... 449

The Evolution of the Federal Reserve’s Monetary Policy Strategy..... 450

    The Fed’s “Just Do It” Monetary Policy Strategy ..... 450

    The Long Road to Inflation Targeting ..... 452

**Inside the Fed** Ben Bernanke’s Advocacy of Inflation Targeting 453

**Global** The European Central Bank’s Monetary Policy Strategy 453

Lessons for Monetary Policy Strategy from the Global Financial Crisis..... 454

    Implications for Inflation Targeting ..... 455

Should Central Banks Try to Stop Asset-Price Bubbles?..... 456

    Two Types of Asset-Price Bubbles..... 456

    The Debate over Whether Central Banks Should Try to Pop Bubbles..... 457

Tactics: Choosing the Policy Instrument..... 460

    Criteria for Choosing the Policy Instrument ..... 462

Tactics: The Taylor Rule..... 463

**Inside the Fed** The Fed’s Use of the Taylor Rule 466

**Inside the Fed** Fed Watchers 466

    Summary 467 • Key Terms 467 • Questions 468 • Applied Problems 469 •

    Data Analysis Problems 469 • Web Exercises 470 • Web References 471

**CHAPTER 19 APPENDIX 1**

**Monetary Targeting**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 19 APPENDIX 2**

**A Brief History of Federal Reserve Policymaking**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**PART 5**

**International Finance and Monetary Policy 473**

**CHAPTER 20**

**The Foreign Exchange Market 474**

Foreign Exchange Market ..... 474

**Following the Financial News** Foreign Exchange Rates 475

What Are Foreign Exchange Rates?..... 475  
 Why Are Exchange Rates Important?..... 475  
 How Is Foreign Exchange Traded?..... 476  
**Exchange Rates in the Long Run..... 477**  
     Theory of Purchasing Power Parity ..... 477  
**APPLICATION Burgernomics: Big Macs and PPP..... 479**  
     Factors That Affect Exchange Rates in the Long Run..... 481  
**Exchange Rates in the Short Run: A Supply and Demand Analysis ..... 483**  
     Supply Curve for Domestic Assets ..... 483  
     Demand Curve for Domestic Assets..... 483  
     Equilibrium in the Foreign Exchange Market ..... 485  
**Explaining Changes in Exchange Rates ..... 485**  
     Shifts in the Demand for Domestic Assets..... 485  
     Recap: Factors That Change the Exchange Rate ..... 488  
**APPLICATION Effects of Changes in Interest Rates on the Equilibrium Exchange Rate ..... 490**  
**APPLICATION The Global Financial Crisis and the Dollar ..... 492**  
**APPLICATION Brexit and the British Pound ..... 493**  
     Summary 494 • Key Terms 495 • Questions 495 • Applied Problems 496 •  
     Data Analysis Problems 496 • Web Exercises 497 • Web References 497

**APPENDIX TO CHAPTER 20**  
**The Interest Parity Condition 498**

Comparing Expected Returns on Domestic and Foreign Assets.....498  
 Interest Parity Condition.....500

**CHAPTER 21**  
**The International Financial System 502**

Intervention in the Foreign Exchange Market.....502  
     Foreign Exchange Intervention and the Money Supply..... 502  
**Inside the Fed** A Day at the Federal Reserve Bank of New York’s Foreign Exchange Desk 503  
     Unsterilized Intervention..... 505  
     Sterilized Intervention ..... 506  
**Balance of Payments ..... 506**  
     Current Account ..... 507  
     Financial Account ..... 507  
**Global** Should We Worry About the Large U.S. Current Account Deficit? 508  
**Exchange Rate Regimes in the International Financial System..... 508**  
     Gold Standard ..... 509  
     The Bretton Woods System ..... 509

How a Fixed Exchange Rate Regime Works .....	510
Speculative Attacks.....	512
<b>APPLICATION</b> The Foreign Exchange Crisis of September 1992 .....	512
The Policy Trilemma.....	514
<b>APPLICATION</b> How Did China Accumulate \$4 Trillion of International Reserves? .....	515
Monetary Unions.....	515
Managed Float.....	516
<b>Global</b> Will the Euro Survive? .....	516
Capital Controls.....	517
Controls on Capital Outflows.....	517
Controls on Capital Inflows.....	517
The Role of the IMF.....	518
Should the IMF Act as an International Lender of Last Resort? .....	518
International Considerations and Monetary Policy .....	519
Direct Effects of the Foreign Exchange Market on Monetary Policy.....	519
Exchange Rate Considerations.....	520
To Peg or Not to Peg: Exchange-Rate Targeting as an Alternative Monetary Policy Strategy .....	520
Advantages of Exchange-Rate Targeting.....	520
Disadvantages of Exchange-Rate Targeting.....	521
When Is Exchange-Rate Targeting Desirable for Industrialized Countries?.....	523
When Is Exchange-Rate Targeting Desirable for Emerging Market Countries? .....	524
Currency Boards.....	524
<b>Global</b> Argentina's Currency Board .....	525
Dollarization .....	525
Summary 526 • Key Terms 527 • Questions 527 • Applied Problems 528 • Data Analysis Problems 529 • Web Exercises 530 • Web References 530	

**PART 6**

**Monetary Theory 531**

<b>CHAPTER 22</b>	
<b>Quantity Theory, Inflation, and the Demand for Money</b>	<b>532</b>
Quantity Theory of Money.....	532
Velocity of Money and Equation of Exchange .....	532
From the Equation of Exchange to the Quantity Theory of Money .....	534
Quantity Theory and the Price Level .....	535
Quantity Theory and Inflation.....	535
<b>APPLICATION</b> Testing the Quantity Theory of Money .....	536
Budget Deficits and Inflation .....	538
Government Budget Constraint .....	538
Hyperinflation.....	540

**APPLICATION** The Zimbabwean Hyperinflation ..... 540

**Keynesian Theories of Money Demand** ..... 541

    Transactions Motive ..... 541

    Precautionary Motive ..... 541

    Speculative Motive ..... 541

    Putting the Three Motives Together ..... 541

**Portfolio Theories of Money Demand** ..... 542

    Theory of Portfolio Choice and Keynesian Liquidity Preference ..... 543

    Other Factors That Affect the Demand for Money ..... 543

    Summary ..... 544

**Empirical Evidence for the Demand for Money** ..... 544

    Interest Rates and Money Demand ..... 544

    Stability of Money Demand ..... 545

    Summary 546 • Key Terms 546 • Questions 546 • Applied Problems 548 •  
     Data Analysis Problems 548 • Web Exercises 549 • Web References 549

**CHAPTER 22 APPENDIX 1**  
**The Baumol-Tobin and Tobin Mean Variance Models of the Demand for Money**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 22 APPENDIX 2**  
**Empirical Evidence on the Demand for Money**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 23**  
**Aggregate Demand and Supply Analysis 550**

Aggregate Demand ..... 550

**Following the Financial News** Aggregate Output, Unemployment, and Inflation 551

    Deriving the Aggregate Demand Curve ..... 551

    Factors That Shift the Aggregate Demand Curve ..... 552

**FYI** What Does *Autonomous* Mean? 553

**Aggregate Supply** ..... 556

    Long-Run Aggregate Supply Curve ..... 556

    Short-Run Aggregate Supply Curve ..... 556

    Price Stickiness and the Short-Run Aggregate Supply Curve ..... 558

**Shifts in the Aggregate Supply Curves** ..... 558

    Shifts in the Long-Run Aggregate Supply Curve ..... 558

    Shifts in the Short-Run Aggregate Supply Curve ..... 559

**Equilibrium in Aggregate Demand and Supply Analysis** ..... 562

    Short-Run Equilibrium ..... 563

    How the Short-Run Equilibrium Moves to the Long-Run Equilibrium over Time ..... 563

    Self-Correcting Mechanism ..... 566

Changes in Equilibrium: Aggregate Demand Shocks..... 566

**APPLICATION** The Volcker Disinflation, 1980–1986 ..... 567

**APPLICATION** Negative Demand Shocks, 2001–2004..... 569

Changes in Equilibrium: Aggregate Supply (Inflation) Shocks..... 569

    Temporary Supply Shocks..... 569

**APPLICATION** Negative Supply Shocks, 1973–1975 and 1978–1980 ..... 572

    Permanent Supply Shocks and Real Business Cycle Theory ..... 572

**APPLICATION** Positive Supply Shocks, 1995–1999 ..... 575

    Conclusions ..... 576

**APPLICATION** Negative Supply and Demand Shocks and the 2007–2009  
    Financial Crisis..... 577

AD/AS Analysis of Foreign Business Cycle Episodes..... 577

**APPLICATION** The United Kingdom and the 2007–2009 Financial Crisis ..... 579

**APPLICATION** China and the 2007–2009 Financial Crisis..... 580

    Summary 581 • Key Terms 582 • Questions 582 • Applied Problems 583 •  
    Data Analysis Problems 583 • Web Exercises 584 • Web References 584

**APPENDIX TO CHAPTER 23**

**The Phillips Curve and the Short-Run Aggregate Supply Curve 585**

The Phillips Curve ..... 585

    Phillips Curve Analysis in the 1960s ..... 585

**FYI** The Phillips Curve Trade-off and Macroeconomic Policy in the 1960s 587

    The Friedman-Phelps Phillips Curve Analysis ..... 587

    The Phillips Curve After the 1960s..... 589

    The Modern Phillips Curve ..... 589

    The Modern Phillips Curve with Adaptive (Backward-Looking) Expectations ..... 590

The Short-Run Aggregate Supply Curve..... 591

**CHAPTER 23 APPENDIX 1**

**The Effects of Macroeconomic Shocks on Asset Prices**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 23 APPENDIX 2**

**Aggregate Demand and Supply: A Numerical Example**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 23 APPENDIX 3**

**The Algebra of the Aggregate Demand and Supply Model**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 23 APPENDIX 4**  
**The Taylor Principle and Inflation Stability**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 24**  
**Monetary Policy Theory 594**

Response of Monetary Policy to Shocks..... 594

- Response to an Aggregate Demand Shock..... 595
- Response to a Permanent Supply Shock..... 597
- Response to a Temporary Supply Shock ..... 599
- The Bottom Line: The Relationship Between Stabilizing Inflation and Stabilizing Economic Activity ..... 602

How Actively Should Policymakers Try to Stabilize Economic Activity? ..... 602

- Lags and Policy Implementation ..... 602

Inflation: Always and Everywhere a Monetary Phenomenon..... 603

**FYI** The Activist/Nonactivist Debate Over the Obama Fiscal Stimulus Package 604

Causes of Inflationary Monetary Policy..... 604

- High Employment Targets and Inflation..... 604

**APPLICATION** The Great Inflation ..... 608

Monetary Policy at the Zero Lower Bound..... 610

- Deriving the Aggregate Demand Curve with the Zero Lower Bound ..... 610
- The Disappearance of the Self-Correcting Mechanism at the Zero Lower Bound..... 612

**APPLICATION** Nonconventional Monetary Policy and Quantitative Easing ..... 613

- Liquidity Provision..... 614
- Asset Purchases and Quantitative Easing ..... 615
- Management of Expectations..... 616

**APPLICATION** Abenomics and the Shift in Japanese Monetary Policy in 2013..... 617

- Summary 619 • Key Terms 619 • Questions 620 • Applied Problems 621 • Data Analysis Problems 621 • Web Exercises 622 • Web References 622

**CHAPTER 25**  
**Transmission Mechanisms of Monetary Policy 623**

Transmission Mechanisms of Monetary Policy..... 623

- Traditional Interest-Rate Channels ..... 624
- Other Asset Price Channels ..... 625
- Credit View ..... 628

**FYI** Consumers' Balance Sheets and the Great Depression 630

- Why Are Credit Channels Likely to Be Important?..... 631

**APPLICATION** The Great Recession..... 632

Lessons for Monetary Policy ..... 632

**APPLICATION** Applying the Monetary Policy Lessons to Japan’s  
Two Lost Decades ..... 634

Summary 635 • Key Terms 635 • Questions 635 • Applied Problems 636 •  
Data Analysis Problems 637 • Web Exercises 637 • Web References 637

**CHAPTER 25 APPENDIX**  
**Evaluating Empirical Evidence: The Debate Over the Importance of  
Money in Economic Fluctuations**

Go to MyLab Economics, [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**Glossary**..... G-1

**Index** ..... I-1

## Additional Contents on Mylab Economics

The following chapters and appendices are available on MyLab Economics  
[www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics)

**CHAPTER 1**  
**Financial Crises in Emerging Market Economies 1**

Dynamics of Financial Crises in Emerging Market Economies ..... 1

Stage One: Initial Phase ..... 1

Stage Two: Currency Crises ..... 5

Stage Three: Full-Fledged Financial Crisis ..... 6

**APPLICATION** Crisis in South Korea, 1997–1998 ..... 7

Financial Liberalization/Globalization Mismanaged ..... 8

Perversion of the Financial Liberalization/Globalization Process: Chaebols  
and the South Korean Crisis ..... 9

Stock Market Decline and Failure of Firms Increase Uncertainty ..... 10

Adverse Selection and Moral Hazard Problems Worsen and the  
Economy Contracts ..... 11

Currency Crisis Ensues ..... 11

Final Stage: Currency Crisis Triggers Full-Fledged Financial Crisis ..... 11

Recovery Commences ..... 13

**APPLICATION** The Argentine Financial Crisis, 2001–2002 ..... 13

Severe Fiscal Imbalances ..... 13

Adverse Selection and Moral Hazard Problems Worsen ..... 14

Bank Panic Begins ..... 14

Currency Crisis Ensues ..... 14

Currency Crisis Triggers Full-Fledged Financial Crisis ..... 15

Recovery Begins ..... 17

**Global** When an Advanced Economy Is Like an Emerging Market Economy:  
The Icelandic Financial Crisis of 2008 18



Preventing Emerging Market Financial Crises..... 18  
 Beef Up Prudential Regulation and Supervision of Banks..... 18  
 Encourage Disclosure and Market-Based Discipline..... 19  
 Limit Currency Mismatch..... 19  
 Sequence Financial Liberalization..... 20  
 Summary 20 • Key Terms 20 • Questions 21

**CHAPTER 2**

**The IS Curve 1**

Planned Expenditure and Aggregate Demand ..... 1  
 The Components of Aggregate Demand ..... 2  
 Consumption Expenditure ..... 2  
**FYI** Meaning of the Word *Investment* 3  
 Planned Investment Spending ..... 3  
 Government Purchases and Taxes..... 5  
 Net Exports..... 6  
 Goods Market Equilibrium ..... 7  
 Solving for Goods Market Equilibrium ..... 7  
 Deriving the *IS* Curve ..... 8  
 Understanding the *IS* Curve ..... 8  
 What the *IS* Curve Tells Us: Intuition ..... 8  
 What the *IS* Curve Tells Us: Numerical Example ..... 8  
 Why the Economy Heads Toward the Equilibrium..... 10  
 Factors that Shift the *IS* Curve..... 10  
 Changes in Government Purchases..... 10  
**APPLICATION** The Vietnam War Buildup, 1964–1969 ..... 11  
 Changes in Taxes..... 12  
**APPLICATION** The Fiscal Stimulus Package of 2009 ..... 13  
 Changes in Autonomous Spending..... 14  
 Changes in Financial Frictions ..... 16  
 Summary of Factors That Shift the *IS* Curve ..... 16  
 Summary 16 • Key Terms 16 • Questions 17 •  
 Applied Problems 18 • Data Analysis Problems 19 •  
 Web Exercises 20 • Web References 20

**CHAPTER 3**

**The Monetary Policy and Aggregate Demand Curves 1**

The Federal Reserve and Monetary Policy..... 1  
 The Monetary Policy Curve..... 2  
 The Taylor Principle: Why the Monetary Policy Curve Has an Upward Slope ..... 2  
 Shifts in the *MP* Curve..... 4  
 Movements Along Versus Shifts in the *MP* Curve..... 5

**APPLICATION** Movement Along the *MP* Curve: The Rise in the Federal Funds Rate Target, 2004–2006..... 5

**APPLICATION** Shift in the *MP* Curve: Autonomous Monetary Easing at the Onset of the Global Financial Crisis..... 5

The Aggregate Demand Curve..... 6  
 Deriving the Aggregate Demand Curve Graphically..... 7  
 Factors That Shift the Aggregate Demand Curve..... 7

**FYI** Deriving the Aggregate Demand Curve Algebraically 7  
 Summary 12 • Key Terms 12 • Questions 12 • Applied Problems 13 •  
 Data Analysis Problems 14 • Web Exercises 15 • Web References 15

**CHAPTER 4**  
**The Role of Expectations in Monetary Policy 1**

Lucas Critique of Policy Evaluation..... 1  
 Econometric Policy Evaluation..... 2

**APPLICATION** The Term Structure of Interest Rates..... 2  
 Policy Conduct: Rules or Discretion?..... 3  
 Discretion and the Time-Inconsistency Problem..... 3  
 Types of Rules..... 4  
 The Case for Rules..... 4

**FYI** The Political Business Cycle and Richard Nixon 5  
 The Case for Discretion..... 5  
 Constrained Discretion..... 6

**Global** The Demise of Monetary Targeting in Switzerland 6

The Role of Credibility and a Nominal Anchor..... 7  
 Benefits of a Credible Nominal Anchor..... 7  
 Credibility and Aggregate Demand Shocks..... 8  
 Credibility and Aggregate Supply Shocks..... 10

A Tale of Three Oil Price Shocks..... 11  
 Credibility and Anti-Inflation Policy..... 13

**Global** Ending the Bolivian Hyperinflation: A Successful Anti-Inflation Program 14

**APPLICATION** Credibility and the Reagan Budget Deficits..... 15

Approaches to Establishing Central Bank Credibility..... 16  
 Nominal GDP Targeting..... 16

**Inside the Fed** The Appointment of Paul Volcker, Anti-Inflation Hawk 17  
 Appoint “Conservative” Central Bankers..... 17  
 Summary 18 • Key Terms 18 • Questions 18 • Applied Problems 19 •  
 Data Analysis Problems 19 • Web Exercises 20

**CHAPTER 5**

**The ISLM Model 1**

Keynes' Fixed Price Level Assumption and the IS Curve ..... 1  
 The LM Curve ..... 1  
 Equilibrium in the Market for Money: The LM Curve..... 2  
 ISLM Approach to Aggregate Output and Interest Rates..... 4  
 Factors That Cause the LM Curve to Shift ..... 5  
 Changes in Equilibrium Level of the Interest Rate and Aggregate Output ..... 7  
 Response to a Change in Monetary Policy ..... 7  
 Response to a Change in Fiscal Policy ..... 8  
**APPLICATION** The Economic Stimulus Act of 2008 ..... 9  
 Effectiveness of Monetary Versus Fiscal Policy ..... 11  
 Monetary Policy Versus Fiscal Policy: The Case of Complete Crowding Out ..... 11  
**APPLICATION** Targeting Money Supply Versus Interest Rates..... 13  
 ISLM Model in the Long Run ..... 16  
 Summary 18 • Key Terms 19 • Questions and Applied Problems 17 •  
 Web Exercises 19 • Web References 20

**APPENDIX TO WEB CHAPTER 5**

Algebra of The ISLM Model ..... 21  
 Basic Closed-Economy ISLM Model..... 21  
 IS and LM Curves ..... 22  
 Solution of the Model..... 22  
 Implications ..... 22  
 Open-Economy ISLM Model..... 23  
 Implications ..... 24

**CHAPTER APPENDICES**

- Chapter 4: Measuring Interest-Rate Risk: Duration
- Chapter 5: Models of Asset Pricing
- Chapter 5: Applying the Asset Market Approach to a Commodity Market:  
The Case of Gold
- Chapter 5: Loanable Funds Framework
- Chapter 7: Evidence on the Efficient Market Hypothesis
- Chapter 9: Duration Gap Analysis
- Chapter 9: Measuring Bank Performance
- Chapter 10: The 1980s Banking and Savings and Loan Crisis
- Chapter 10: Banking Crises Throughout the World
- Chapter 17: The Fed's Balance Sheet and the Monetary Base
- Chapter 17: The M2 Money Multiplier
- Chapter 17: Explaining the Behavior of the Currency Ratio

- Chapter 17: The Great Depression Bank Panics, 1930–1933, and the Money Supply**
- Chapter 19: Monetary Targeting**
- Chapter 19: A Brief History of Federal Reserve Policymaking**
- Chapter 22: The Baumol-Tobin and Tobin Mean-Variance Models of the Demand for Money**
- Chapter 22: Empirical Evidence on the Demand for Money**
- Chapter 23: The Effects of Macroeconomic Shocks on Asset Prices**
- Chapter 23: Aggregate Demand and Supply: A Numerical Example**
- Chapter 23: The Algebra of the Aggregate Demand and Supply Model**
- Chapter 23: The Taylor Principle and Inflation Stability**
- Chapter 25: Evaluating Empirical Evidence: The Debate Over the Importance of Money in Economic Fluctuations**

# Preface

There has never been a more exciting time to teach money and banking. The recent worldwide financial crisis and its aftermath cast a spotlight on the importance of banks, financial markets, and monetary policy to the health of our economy. I experienced this firsthand when I served as a Governor of the Federal Reserve System from 2006 to 2008, and in this book, I emphasize the rich tapestry of recent economic events to enliven the study of money, banking, and financial markets.

## NEW TO THIS EDITION

Although this text has undergone a major revision, it retains the basic hallmarks that have made it the best-selling textbook on money and banking over the past four editions. As with past editions this fifth edition uses basic economic principles to explain financial markets, financial institutions, and monetary policy with rigor and clarity. With each edition, I update content and features based on market feedback from economics professors and students using the book as well as the latest world financial episodes. For the past several editions, the digital assets for this book, which are available on MyLab Economics, have evolved and expanded.

### New Content

New developments in the money and banking field have prompted me to add the following new sections, boxes, and applications that keep the text current:

- A new section on money, banking, and financial markets and your career (Chapter 1) to show students how the study of money, banking, and financial markets can help advance their career, even if they do not end up working on Wall Street or in a bank.
- A new global box on negative interest rates in Japan, the United States, and Europe (Chapter 4) illustrates that although it is normal for interest rates to be positive, recently we have seen negative interest rates in a number of countries.
- A new application on how low inflation and secular stagnation can explain low interest rates in Europe, Japan, and the United States (Chapter 5) shows how the supply and demand model explains current interest rate movements.
- New sections on the Dodd-Frank Act (Chapter 12) describe important provisions on annual stress tests and limits on Federal Reserve lending.
- A new section on where regulation might head in the future after Dodd-Frank (Chapter 12) discusses current debates in Congress on financial regulation.
- A new section on negative interest rates on banks' deposits at the central bank (Chapter 18) describes this new, nonconventional monetary policy tool and how effective it might be.
- A new section on interest on reserves paid by the European Central Bank (Chapter 18) describes this important policy tool of the ECB.
- A revised discussion of the theory of purchasing power parity and why it does not fully explain exchange rates in the short run (Chapter 20) provides a clearer presentation than in the previous edition.

- A new application on Burgernomics, Big Macs, and Purchasing Power Parity (Chapter 20) is a fun way of showing students how purchasing power parity works in practice.
- A new application on Brexit and the British pound (Chapter 20) discusses the controversial exit of Britain from the euro and why it had such a big impact on the value of the British currency.
- A revised section on the balance of payments (Chapter 21) provides a clearer discussion of the key items in the balance of payments that students hear about in the media.
- A revised global box on whether we should worry about the large U.S. current account deficit (Chapter 21) helps students interpret claims made about the current account in both the media and in Congress.

In addition, figures and tables have been updated with data through 2017. Approximately 80 figures are available on MyLab Economics as mini-lecture videos. A number of end-of-chapter problems in each chapter are updated or new. Students can complete these problems on MyLab Economics where they receive instant feedback and tutorial guidance.

## SOLVING TEACHING AND LEARNING CHALLENGES

It's important for students to understand the models, key terms, and equations in any economics textbook. However, students can get bogged down in this detail and miss the bigger picture. The content, structure, and features of this book were designed based on market feedback and many years of teaching experience to build students' skill in applying these elements—models, terms, and equations—to real-world events. Students also learn to apply what they learn to decisions that are directly relevant to their lives, such as what might happen to interest rates on car loans or mortgages, and why events might affect the unemployment rate, which can have a major impact on how easy it is for them to get a job.

### Hallmark Learning Features

Here is an overview of the hallmark features of the book that solve teaching problems and facilitate student learning.

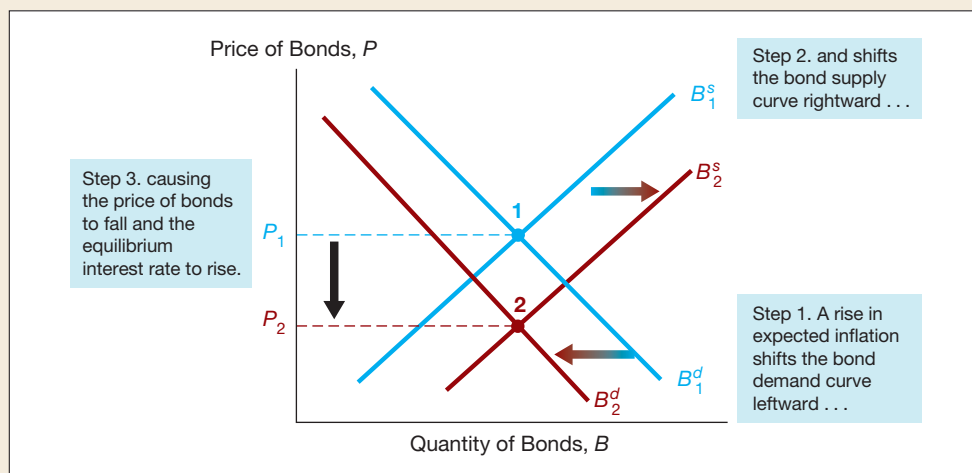
- A **unifying, analytic framework** uses a few basic economic principles that enable students to develop a disciplined, logical way of analyzing the structure of financial markets and understanding foreign exchange changes, financial institution management, and the role of monetary policy in the economy.
- A **careful, step-by-step development of economic models** (the approach used in the best principles of economics textbooks), which makes it easier for students to learn.
- **Graphs and Mini-Lecture Videos** with detailed captions help students clearly understand the interrelationships among the plotted variables and the principles of analysis. The enhanced Pearson e-text in MyLab Economics provides a new way of learning that is particularly geared to today's students. Not only will students be able to read the material in the textbook but by a simple click on an icon they will be able to watch over 80 mini-lecture videos presented by the author, one for every analytic figure in the text. For analytic figures, these

mini-lectures build up each graph step-by-step and explain the intuition necessary to fully understand the theory behind the graph. The mini-lectures are an invaluable study tool for students who typically learn better when they see and hear economic analysis rather than read it.

## MyLab Economics Mini-lecture

**FIGURE 4****Response to a Change in Expected Inflation**

When expected inflation rises, the supply curve shifts from  $B_1^s$  to  $B_2^s$ , and the demand curve shifts from  $B_1^d$  to  $B_2^d$ . The equilibrium moves from point 1 to point 2, causing the equilibrium bond price to fall from  $P_1$  to  $P_2$  and the equilibrium interest rate to rise.



- The complete integration of an international perspective throughout the text through the use of **Global boxes**. These present interesting material with an international focus.

## Global The European Sovereign Debt Crisis

The global financial crisis of 2007–2009 led not only to a worldwide recession but also to a sovereign debt crisis that still threatens to destabilize Europe today. Up until 2007, all of the countries that had adopted the euro found their interest rates converging to very low levels, but with the onset of the global financial crisis, several of these countries were hit very hard by the contraction in economic activity, which reduced tax revenues at the same time that government bailouts of failed financial institutions required additional government outlays. The resulting surge

austerity measures aimed at dramatically cutting government spending and raising taxes, interest rates on Greek debt soared, eventually rising to nearly 40%, and the debt-to-GDP ratio climbed to 160% of GDP in 2012. Even with bailouts from other European countries and liquidity support from the European Central Bank, Greece was forced to write down the value of its debt held in private hands by more than half, and the country was subject to civil unrest, with massive strikes and the resignation of the prime minister.

- **Inside the Fed boxes** give students a feel for the operation and structure of the Federal Reserve.

### Inside the Fed Was the Fed to Blame for the Housing Price Bubble?

Some economists—most prominently, John Taylor of Stanford University—have argued that the low interest rate policy of the Federal Reserve in the 2003–2006 period caused the housing price bubble.\* Taylor argues that the low federal funds rate led to low mortgage rates that stimulated housing demand and encouraged the issuance of subprime mortgages, both of which led to rising housing prices and a bubble.

In a speech given in January 2010, then-Federal Reserve Chairman Ben Bernanke countered this argument.† He concluded that monetary policy was not to blame for the housing price bubble. First, he said, it is not at all clear that the federal funds rate was too low during the 2003–2006 period. Rather,

the culprits were the proliferation of new mortgage products that lowered mortgage payments, a relaxation of lending standards that brought more buyers into the housing market, and capital inflows from countries such as China and India. Bernanke’s speech was very controversial, and the debate over whether monetary policy was to blame for the housing price bubble continues to this day.

\*John Taylor, “Housing and Monetary Policy,” in Federal Reserve Bank of Kansas City, *Housing, Housing Finance and Monetary Policy* (Kansas City: Federal Reserve Bank of Kansas City, 2007), 463–476.

†Ben S. Bernanke, “Monetary Policy and the Housing Bubble,” speech given at the annual meeting of the American Economic Association, Atlanta, Georgia, January 3, 2010; <http://www.federalreserve.gov/newsevents/speech/bernanke20100103a.htm>.

- **Applications**, numbering more than 50, which demonstrate how the analysis presented can be used to explain many important real-world situations.

### APPLICATION

## Explaining Current Low Interest Rates in Europe, Japan, and the United States: Low Inflation and Secular Stagnation

In the aftermath of the global financial crisis, interest rates in Europe and the United States, as well as in Japan, have fallen to extremely low levels. Indeed, as discussed in Chapter 4, we have seen that interest rates have even sometimes turned negative. Why are interest rates in these countries at such low levels?

- **FYI boxes** highlight dramatic historical episodes, interesting ideas, and intriguing facts related to the content of the chapter.

### FYI Should You Hire an Ape as Your Investment Adviser?

The *San Francisco Chronicle* came up with an amusing way of evaluating how successful investment advisers are at picking stocks. They asked eight analysts to pick five stocks at the beginning of the year and then compared the performance of their stock picks to those chosen by Jolyn, an

orangutan living at Marine World/Africa USA in Vallejo, California. Jolyn beat the investment advisers as often as they beat her. Given this result, you might be just as well off hiring an orangutan as your investment adviser as you would be hiring a human being!



- **End-of-chapter questions and applied problems**, numbering more than 600, help students learn the subject matter by applying economic concepts.

## QUESTIONS

All questions are available in **MyLab Economics** at [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics).

1. How does the concept of asymmetric information help to define a financial crisis?
2. How can the bursting of an asset-price bubble in the stock market help trigger a financial crisis?
3. How does an unanticipated decline in the price level cause a drop in lending?
4. Define “financial frictions” in your own terms and explain why an increase in financial frictions is a key element in financial crises.
5. How does a deterioration in balance sheets of financial
10. Provide one argument in favor of and one against the idea that the Fed was responsible for the housing price bubble of the mid-2000s.
11. What role does weak financial regulation and supervision play in causing financial crises?
12. Describe two similarities and two differences between the United States’ experiences during the Great Depression and the Great Recession financial crisis of 2007–2009.
13. What do you think prevented the financial crisis of 2007–2009 from becoming a depression?
14. What technological innovations led to the development of the subprime mortgage market?

## MyLab Economics

**Reach Every Student by Pairing This Text With MyLab Economics** MyLab is the teaching and learning platform that empowers you to reach *every* student. By combining trusted author content with digital tools and a flexible platform, MyLab personalizes the learning experience and improves results for each student. Learn more about MyLab Economics at [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics).

**Deliver Trusted Content** You deserve teaching materials that meet your own high standards for your course. That’s why we partner with highly respected authors to develop interactive content and course-specific resources that you can trust—and that keep your students engaged.

**Empower Each Learner** Each student learns at a different pace. Personalized learning pinpoints the precise areas where each student needs practice, giving all students the support they need—when and where they need it—to be successful.

**Teach Your Course Your Way** Your course is unique. So whether you’d like to build your own assignments, teach multiple sections, or set prerequisites, MyLab gives you the flexibility to easily create *your* course to fit *your* needs.

**Improve Student Results** When you teach with MyLab, student performance improves. That’s why instructors have chosen MyLab for over 20 years, touching the lives of over 50 million students.

## Easy and Flexible Assignment Creation

**MyLab Economics** allows for easy and flexible assignment creation, allowing instructors to assign a variety of assignments tailored to meet their specific course needs.

Visit <http://www.pearson.com/mylab/economics> for more information on Digital Interactives, our LMS integration options, and course management options for any course of any size.

## DEVELOPING CAREER SKILLS

The unifying, analytic framework and step-by-step development of economic models in this text enable students to develop the critical thinking skills they need to successfully pursue their careers. The study of money, banking, and financial markets is particularly valuable if a student wants a job in the financial sector. However, even if their interests lie elsewhere, students benefit by understanding why interest rates rise or fall, helping them to make decisions about whether to borrow now or to wait until later. Knowing how banks and other financial institutions are managed may help students get a better deal when they need to borrow or when they supply them with funds. Knowledge of how financial markets work can enable students to make better investment decisions, whether for themselves or for the companies they work for.

### Career Skill Features

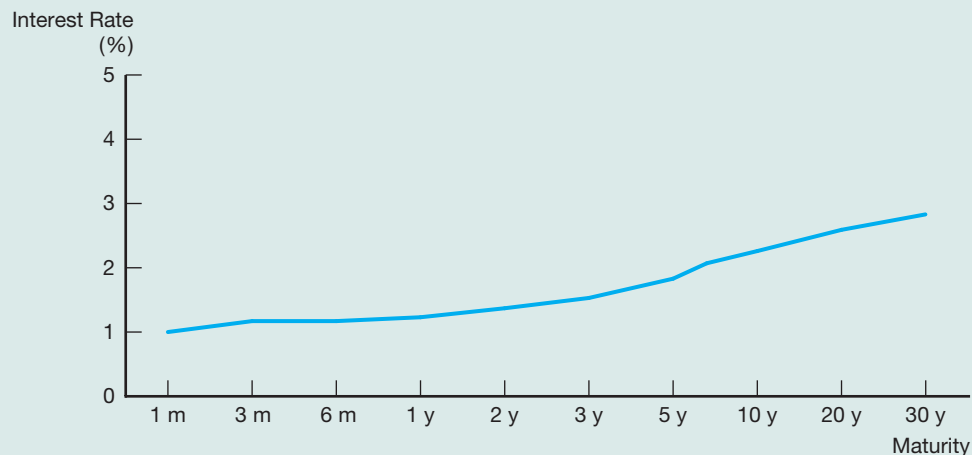
This text also has additional features, discussed below, which directly develop career skills.

- A special feature called “Following the Financial News,” included to encourage reading of a financial newspaper. **Following the Financial News boxes** introduce students to relevant news articles and data that are reported daily in the press, and teach students how to interpret these data. Being able to think critically about what is reported in the financial press is a skill that can make students far more effective in their future jobs.


### Following the Financial News Yield Curves

Many newspapers and Internet sites such as <http://www.finance.yahoo.com> publish a daily plot of the yield curves for Treasury securities. An example for July 24, 2017 is presented here. The numbers on the

vertical axis indicate the interest rate for the Treasury security, with the maturity term given on the horizontal axis, with “m” denoting “month” and “y” denoting “year.”






- **Real Time Data** in a high percentage of the in-text data figures are labeled *MyLab Economics Real-Time Data*. For these figures, students can see the latest data in the enhanced Pearson e-text, using the Federal Reserve Bank of St. Louis's FRED database and learn where they can access this data when they need to throughout their career.
- **Real-Time Data Analysis Problems**, included in MyLab Economics, which ask students to apply up-to-the-minute data, taken from the St. Louis Federal Reserve Bank's FRED database, so that they can understand what is happening in the economy in real time. These problems, marked with , ask the student to download data from the Federal Reserve Bank of St. Louis FRED website and then use the data to answer questions about current issues in money and banking. In MyLab Economics, these easy-to-assign and automatically graded Real-Time Data Analysis exercises communicate directly with the FRED site, so that students see updated data every time new data is posted by FRED. Thus the Real-Time Data Analysis exercises offer a no-fuss solution for instructors who want to make the most current data a central part of their macroeconomics course. These exercises will give students practice manipulating data, a skill that employers value highly.

## DATA ANALYSIS PROBLEMS

The Problems update with real-time data in **MyLab Economics** and are available for practice or instructor assignment.

-  **1.** Go to the St. Louis Federal Reserve FRED database, and find data on the exchange rate of U.S. dollars per British pound (DEXUSUK). A Mini Cooper can be purchased in London, England, for £17,865 or in Boston, United States, for \$23,495.
  - a. Use the most recent exchange rate available to calculate the real exchange rate of the London Mini per Boston Mini.
  - b. Based on your answer to part (a), are Mini Coopers relatively more expensive in Boston or in London?
  - c. What price in British pounds would make the Mini Cooper equally expensive in both locations, all else being equal?

## FLEXIBILITY AND MODULARITY

In using previous editions, adopters, reviewers, and survey respondents have continually praised this text's flexibility and modularity—that is, the option to pick and choose which chapters to cover and in what order to cover them. Flexibility and modularity are especially important in the money and banking course because there are as many ways to teach this course as there are instructors. To satisfy the diverse needs of instructors, the text achieves flexibility as follows:

- Core chapters provide the basic analysis used throughout the book, and other chapters or sections of chapters can be used or omitted according to instructor preferences. For example, Chapter 2 introduces the financial system and basic concepts such as transaction costs, adverse selection, and moral hazard. After covering

Chapter 2, the instructor may decide to give more detailed coverage of financial structure by assigning Chapter 8 or may choose to skip Chapter 8 and take any of a number of different paths through the book.

- Part 6 on monetary theory can easily be taught before Part 4 of the text if the instructor wishes to give students a deeper understanding of the rationale behind monetary policy.
- Chapter 25 on the transmission mechanisms of monetary policy can be taught at many different points in the course—either with Part 4, when monetary policy is discussed, or with Chapter 23, when the concept of aggregate demand is developed. Transmission mechanisms of monetary policy can also be taught as a special topic at the end of the course.
- The international approach of the text, accomplished through marked international sections within chapters as well as separate chapters on the foreign exchange market and the international monetary system, is comprehensive yet flexible. Although many instructors will teach all the international material, others will not. Instructors who wish to put less emphasis on international topics can easily skip Chapter 20 on the foreign exchange market and Chapter 21 on the international financial system and monetary policy. The international sections within chapters are self-contained and can be omitted with little loss of continuity.

To illustrate how this book can be used for courses with varying emphases, several course outlines are suggested for a one-semester teaching schedule. More detailed information about how the text can be used flexibly in your course is available in the Instructor's Manual.

- *General Money and Banking Course*: Chapters 1–5, 9–11, 16, 18, 23–24, with a choice of 7 of the remaining 13 chapters
- *General Money and Banking Course with an International Emphasis*: Chapters 1–5, 9–11, 16, 18–21, 23–24, with a choice of 4 of the remaining 10 chapters
- *Financial Markets and Institutions Course*: Chapters 1–12, with a choice of 7 of the remaining 13 chapters

## The Business School Edition: A More Finance-Oriented Approach

I am pleased to continue providing two versions of *The Economics of Money, Banking, and Financial Markets*. While both versions contain the core chapters that all professors want to cover, *The Economics of Money, Banking, and Financial Markets*, Business School Edition, presents a more finance-oriented approach—an approach more commonly taught in business schools, but also one that some professors in economics departments prefer when teaching their money and banking courses. The Business School Edition includes chapters on nonbank finance, financial derivatives, and conflicts of interest in the financial industry. The Business School Edition omits the chapters on the IS curve and the monetary policy and aggregate demand curves, as well as the chapter on the role of expectations in monetary policy. *The Economics of Money, Banking, and Financial Markets*, Business School Edition, will more closely fit the needs of those professors whose courses put less emphasis on monetary theory.

For professors who desire a comprehensive discussion of monetary theory and monetary policy, *The Economics of Money, Banking, and Financial Markets*, Twelfth Edition, contains all of the chapters on monetary theory. Professors who *do* want this

coverage are often hard-pressed to cover all of the finance and institutions chapters. To that end, the Twelfth Edition omits the chapters on nonbank finance, financial derivatives, and conflicts of interest.

## Appendices and Additional Resources

Additional resources for the Fifth Edition of *The Economics of Money, Banking, and Financial Markets*, Business School Edition include: (1) the three unique chapters from the twelfth edition; (2) chapters on financial crises in emerging market economies and the ISLM model; and (3) more than twenty appendices that cover additional topics and more technical material that instructors might want to include in their courses. This content can be accessed on [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics).

Instructors can either use these chapters and appendices in class to supplement the material in the textbook, or recommend them to students who want to expand their knowledge of the money and banking field. Please find them and other additional resources at [www.pearson.com/mylab/economics](http://www.pearson.com/mylab/economics).

## INSTRUCTOR TEACHING RESOURCES

This program comes with the following teaching resources.

### Supplements available to instructors at [www.pearsonhighered.com](http://www.pearsonhighered.com)

The Instructor's Resource Manual was prepared by the author and includes the following features:

### Features of the supplement

- Sample course outlines
- Chapter outlines
- Answers to questions and problems in the text

The Test Bank was prepared by Kathy Kelly of University of Texas at Arlington and James Hueng of Western Michigan University and includes the following features:

- More than 2,500 multiple-choice and essay test items, many with graphs
- Questions are connected to the AACSB learning standards (Written and Oral Communication; Ethical Understanding and Reasoning; Analytical Thinking; Information Technology; Interpersonal Relations and Teamwork; Diverse and Multicultural Work; Reflective Thinking; Application of Knowledge)

The Testgen enables instructors to produce exams efficiently:

- This product consists of the multiple-choice and essay questions provided in the online Test Bank, and offers editing capabilities

The PowerPoint Presentation was prepared by Paul Kubik of DePaul University and includes the following features:

- All of the tables and graphs presented in the text
- Detailed lecture notes for all the course material
- Instructors who prefer to teach with a blackboard can use these PowerPoint slides as their own class notes; for those who prefer to teach with visual aids, the PowerPoint slides afford them the flexibility to do so

## ACKNOWLEDGMENTS

As always in so large a project, there are many people to thank. My gratitude goes especially to Christina Masturzo, my editor. I would like to thank Carolyn Philips and Kathy Smith for their contributions as well. I also have been assisted by comments from my colleagues at Columbia and from my students.

In addition, I have been guided by the thoughtful commentary of outside reviewers and correspondents, especially Jim Eaton and Aaron Jackson. Their feedback has made this a better book. In particular, I thank the following professors who reviewed the text in preparation for this edition and previous editions:

Burt Abrams, University of Delaware  
Francis W. Ahking, University of Connecticut  
Mohammed Akacem, Metropolitan State College of Denver  
Stefania Albanesi, Columbia University  
Nancy Anderson, Mississippi College  
Muhammad Anwar, University of Massachusetts  
Harjit K. Arora, Le Moyne College  
Bob Barnes, Northern Illinois University  
Stacie Beck, University of Delaware  
Larry Belcher, Stetson University  
Thomas Bernardin, Smith College  
Gerry Bialka, University of North Florida  
Daniel K. Biederman, University of North Dakota  
John Bishop, East Carolina University  
Daniel Blake, California State University, Northridge  
Robert Boatler, Texas Christian University  
Henning Bohn, University of California, Santa Barbara  
Michael W. Brandl, University of Texas at Austin  
Oscar T. Brookins, Northeastern University  
William Walter Brown, California State University, Northridge  
James L. Butkiewicz, University of Delaware  
Colleen M. Callahan, Lehigh University  
Ray Canterbury, Florida State University  
Mike Carew, Baruch University  
Tina Carter, University of Florida  
Sergio Castello, University of Mobile  
Matthew S. Chambers, Towson University  
Jen-Chi Cheng, Wichita State University  
Chi-Young Choi, University of Texas, Arlington  
Patrick Crowley, Middlebury College  
Sarah E. Culver, University of Alabama, Birmingham  
Julie Dahlquist, University of Texas, San Antonio  
Maria Davis, San Antonio College  
Ranjit S. Dighe, State University of New York, Oswego  
Richard Douglas, Bowling Green University  
Donald H. Dutkowsky, Syracuse University  
Richard Eichhorn, Colorado State University  
Paul Emberton, Southwest Texas State University  
Erick Eschker, Humboldt State University

Diego Escobari, The University of Texas–Pan American  
Robert Eyler, Sonoma State University  
L. S. Fan, Colorado State University  
Imran Farooqi, University of Iowa  
Sasan Fayazmanesh, California State University, Fresno  
Dennis Fixler, George Washington University  
Gary Fleming, Roanoke College  
Grant D. Forsyth, Eastern Washington University  
Layton W. Franko, Queens College  
Timothy Fuerst, Bowling Green State University  
Marc Fusaro, Arkansas Tech University  
James Gale, Michigan Technological University  
Shirley Gedeon, University of Vermont  
Edgar Ghossoub, University of Texas, San Antonio  
Mark Gibson, Washington State University  
Lance Girton, University of Utah  
Stuart M. Glosser, University of Wisconsin, Whitewater  
Fred C. Graham, American University  
Jo Anna Gray, University of Oregon  
David Gulley, Bentley University  
Ralph Gunderson, University of Wisconsin  
Daniel Haak, Stanford University  
Larbi Hammami, McGill University  
Bassan Harik, Western Michigan University  
J. C. Hartline, Rutgers University  
Scott Hein, Texas Tech  
Robert Stanley Herren, North Dakota State University  
Jane Himarios, University of Texas, Arlington  
Chad Hogan, University of Michigan  
Linda Hooks, Washington and Lee University  
James Hueng, Western Michigan University  
Dar-Yeh Hwang, National Taiwan University  
Jayvanth Ishwaran, Stephen F. Austin State University  
Aaron Jackson, Bentley University  
Jonatan Jelen, Queens College and City College of CUNY  
U Jin Jhun, State University of New York, Oswego  
Frederick L. Joutz, George Washington University  
Ahmed Kalifa, Colorado State University  
Bryce Kanago, University of Northern Iowa  
Magda Kandil, International Monetary Fund  
Theodore Kariotis, Towson University  
George G. Kaufman, Loyola University Chicago  
Richard H. Keehn, University of Wisconsin, Parkside  
Elizabeth Sawyer Kelly, University of Wisconsin, Madison  
Kathy Kelly, University of Texas, Arlington  
Michael Kelsay, University of Missouri, Kansas City  
Hyeongwoo Kim, Auburn University  
Paul Kubik, DePaul University  
Sungkyu Kwak, Washburn University  
Fritz Laux, Northeastern State University

Jim Lee, Fort Hays State University  
Robert Leeson, University of Western Ontario  
Mary H. Lesser, Lenoir–Rhyne University  
Tony Lima, California State University, Hayward  
Fiona Maclachlan, Manhattan College  
Elham Mafi-Kreft, Indiana University  
Bernard Malamud, University of Nevada, Las Vegas  
James Maloy, University of Pittsburgh  
James Marchand, Mercer University  
Marvin Margolis, Millersville University  
Elaine McBeth, College of William and Mary  
Stephen McCafferty, Ohio State University  
James McCown, Ohio State University  
Robin McCutcheon, Marshall University  
Cheryl McGaughey, Angelo State University  
W. Douglas McMillin, Louisiana State University  
William Merrill, Iowa State University  
Carrie Meyer, George Mason University  
Stephen M. Miller, University of Connecticut  
Masoud Moghaddam, Saint Cloud State University  
Thomas S. Mondschean, DePaul University  
George Monokroussos, University of Albany  
Clair Morris, U.S. Naval Academy  
Jon Nadenichek, California State University, Northridge  
John Nader, Grand Valley State University  
Andrew Nahlik, Illinois College  
Hiranya K. Nath, Sam Houston State University  
Leonce Ndikumana, University of Massachusetts, Amherst  
Ray Nelson, Brigham Young University  
Inder P. Nijhawan, Fayetteville State University  
Nick Noble, Miami University of Ohio  
Dennis O’Toole, Virginia Commonwealth University  
William R. Parke, University of North Carolina, Chapel Hill  
Mark J. Perry, University of Michigan, Flint  
Chung Pham, University of New Mexico  
Marvin M. Phaup, George Washington University  
Andy Prevost, Ohio University  
Ganga P. Ramdas, Lincoln University  
Ronald A. Ratti, University of Missouri, Columbia  
Hans Rau, Ball State University  
Prosper Raynold, Miami University  
Javier Reyes, Texas A&M University  
Jack Russ, San Diego State University  
Steve Russell, IUPUI  
Robert S. Rycroft, Mary Washington College  
Joe Santos, South Dakota State University  
Lynn Schneider, Auburn University, Montgomery



Walter Schwarm, Colorado State University  
 John Shea, University of Maryland  
 Harinder Singh, Grand Valley State University  
 Rajesh Singh, Iowa State University  
 Richard Stahl, Louisiana State University  
 Burak Sungu, Miami University  
 Larry Taylor, Lehigh University  
 Leigh Tesfatsion, Iowa State University  
 Aditi Thapar, New York University  
 Frederick D. Thum, University of Texas, Austin  
 Robert Tokle, Idaho State University  
 Demetri Tsanacas, Ferrum College and Hollins University  
 C. Van Marrewijk, Erasmus University  
 Rubina Vohra, New Jersey City University  
 Christopher J. Waller, Indiana University  
 Yongsheng Wang, Washington and Jefferson College  
 Chao Wei, George Washington University  
 Maurice Weinrobe, Clark University  
 James R. Wible, University of New Hampshire  
 Philip R. Wiest, George Mason University  
 William Wilkes, Athens State University  
 Thomas Williams, William Paterson University  
 Elliot Willman, New Mexico State University  
 Donald Wills, University of Washington, Tacoma  
 Laura Wolff, Southern Illinois University, Edwardsville  
 JaeJoon Woo, DePaul University  
 Robert Wright, University of Virginia  
 Ben T. Yu, California State University, Northridge  
 Ky H. Yuhn, Florida Atlantic University  
 Ed Zajicek, Winston-Salem State University  
 David Zalewski, Providence College  
 Liping Zheng, Drake University  
 Jeffrey Zimmerman, Methodist College

Finally, I want to thank my wife, Sally; my son, Matthew; my daughter, Laura; my three god-daughters, Glenda, Alba, and Norma; and my seven grandchildren, Roby, Sofia, Sammy, Sarita, Adrian, Olivia, and Ellis, all of whom provide me with a warm and happy environment that enables me to do my work, and also my father, Sidney, now deceased, who a long time ago put me on the path that led to this book.

FREDERIC S. MISHKIN

