

MISHKIN



**The Economics of Money, Banking,
and Financial Markets**

BUSINESS SCHOOL EDITION

FOURTH EDITION

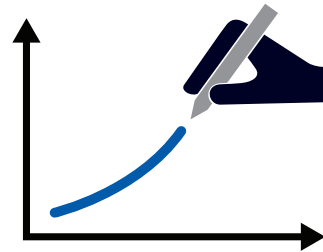
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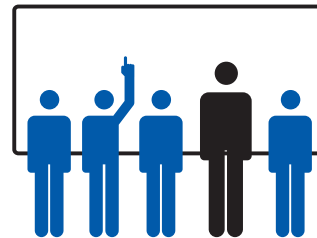
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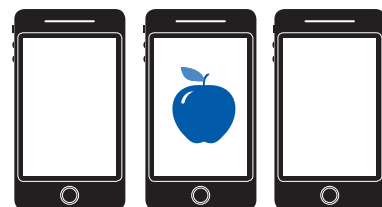
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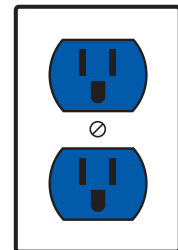
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THE ECONOMICS OF MONEY, BANKING, AND FINANCIAL MARKETS

BUSINESS SCHOOL EDITION

Fourth Edition

Frederic S. Mishkin

Columbia University

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HALLMARKS

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 since its inception over thirty-years ago:

- A unifying, analytic framework that uses a few basic economic principles to organize students' thinking about the structure of financial markets, the foreign exchange markets, 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
- The complete integration of an international perspective throughout the text
- A thoroughly up-to-date treatment of the latest developments in monetary theory
- A special feature called "Following the Financial News," included to encourage reading of a financial newspaper
- An applications-oriented perspective with numerous applications and special-topic boxes that increase students' interest by showing them how to apply theory to real-world examples

WHAT'S NEW IN THE FOURTH EDITION

In addition to the expected updating of all data through 2014 whenever possible, there is major new material in every part of the text.

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Real-Time Data

A high percentage of the in-text data figures are labeled *MyEconLab 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. In addition, the new edition of

the text has a whole new class of problems that involve real-time data analysis. These problems, marked with , ask the students 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 macroeconomics.

In MyEconLab, these easy-to-assign and automatically-graded Real-Time Data Analysis Problems 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 Problems offer a no-fuss solution for instructors who wish to make the most current data a central part of their macroeconomics course. These exercises will not only help students understand macroeconomics better, but will also enable them to see the real-world relevance of their studies.

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, more closely fits the needs of those professors whose courses have less of an 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*, Eleventh 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 Eleventh Edition omits the chapters on nonbank finance, financial derivatives, and conflicts of interest. The Companion Website at <http://www.pearsonhighered.com/mishkin> provides the omitted chapters, making them readily available for those who wish to utilize them in their courses.

Reorganization of Part 3, Financial Institutions

The global financial crisis of 2007–2009 has become a central topic in the teaching of money and banking. When I teach this material, I find that students understand the dynamics of the crisis more deeply if they are taught about bank management, financial regulation, and the shadow banking system before they delve into the details of the global financial crisis. For this reason, I have moved the chapter titled “Financial Crises” so that it follows the three chapters titled “Banking and the Management of Financial Institutions,” “Economic Analysis of Financial Regulation,” and “Banking Industry: Structure and Competition.”

In addition, I have added the following new material to Part 3 of the text:

- A new FYI box on the tyranny of collateral (Chapter 8)
- A new section that provides more detail on securitization and the shadow banking system (Chapter 11)

- A new section on the response of financial regulation to the global financial crisis (Chapter 12)
- A new section exploring what can be done about the too-big-to-fail problem (Chapter 12)

Nonconventional Monetary Policy and the Zero Lower Bound

Monetary policy entered a brave new world when policymakers were forced to resort to nonconventional measures when the policy interest rate—the federal funds rate in the United States—hit a floor of zero, the so-called “zero lower bound.” Because the policy rate cannot be driven lower than zero, under this condition conventional monetary policy becomes infeasible. Nonconventional monetary policy at the zero lower bound, such as quantitative easing, has become a very controversial topic that stimulates a lot of student interest. The Fourth Edition contains extensive discussion of this topic, including the following new material:

- A new application on quantitative easing and the money supply from 2007 to 2014 (Chapter 17)
- An updated section on forward guidance and the commitment to future policy actions (Chapter 18)
- A new section on monetary policy at the zero lower bound that uses the aggregate demand and aggregate supply models to explain how the zero lower bound affects the conduct of monetary policy (Chapter 24)
- A new application on nonconventional monetary policy and quantitative easing (Chapter 24)
- A new application on Abenomics and the shift in Japanese monetary policy in 2013 (Chapter 24)

The Euro Crisis

The Euro crisis has been a continuing drama since 2010, and so this edition includes the following new material:

- A new global box on the European sovereign debt crisis (Chapter 12)
- A new section on monetary unions (Chapter 21)
- A new global box on whether the Euro will survive (Chapter 21)

Additional New Material

New developments in the money and banking field have prompted me to add the following new material to keep the text current:

- A new application on whether Bitcoin will become the money of the future (Chapter 3)
- A new application on the effects of the Obama tax increase on bond interest rates (Chapter 6)
- An updated section on the evolution of the Fed’s communication strategy (Chapter 16)
- A new FYI box that describes the meaning of the word *autonomous* (Chapter 23)
- A new section on nominal GDP targeting (Chapter 24)

Chapters and Appendices on the Web

The Companion Website for the book, <http://www.pearsonhighered.com/mishkin>, is an essential resource for additional content.

The web chapters for the Fourth Edition of *The Economics of Money, Banking, and Financial Markets* include the chapters that are unique to the Eleventh Edition, along with web chapters on financial crises in emerging market economies and the *ISLM* model. These chapters are numbered as follows:

Web Chapter 1:	Financial Crises in Emerging Market Economies
Web Chapter 2:	The <i>IS</i> Curve
Web Chapter 3:	The Monetary Policy and Aggregate Demand Curves
Web Chapter 4:	The Role of Expectations in Monetary Policy
Web Chapter 5:	The <i>ISLM</i> Model

The web appendices include:

Appendix to Chapter 4:	Measuring Interest-Rate Risk: Duration
Appendix 1 to Chapter 5:	Models of Asset Pricing
Appendix 2 to Chapter 5:	Applying the Asset Market Approach to a Commodity Market: The Case of Gold
Appendix 3 to Chapter 5:	Loanable Funds Framework
Appendix to Chapter 7:	Evidence on the Efficient Market Hypothesis
Appendix 1 to Chapter 9:	Duration Gap Analysis
Appendix 2 to Chapter 9:	Measuring Bank Performance
Appendix 1 to Chapter 10:	The 1980s Banking and Savings and Loan Crisis
Appendix 2 to Chapter 10:	Banking Crises Throughout the World
Appendix 1 to Chapter 17:	The Fed's Balance Sheet and the Monetary Base
Appendix 2 to Chapter 17:	The M2 Money Multiplier
Appendix 3 to Chapter 17:	Explaining the Behavior of the Currency Ratio
Appendix 4 to Chapter 17:	The Great Depression Bank Panics, 1930–1933, and the Money Supply
Appendix 1 to Chapter 19:	Monetary Targeting
Appendix 2 to Chapter 19:	A Brief History of Federal Reserve Policymaking
Appendix 1 to Chapter 22:	The Baumol-Tobin and Tobin Mean-Variance Models of the Demand for Money
Appendix 2 to Chapter 22:	Empirical Evidence on the Demand for Money
Appendix 1 to Chapter 23:	The Effects of Macroeconomic Shocks on Asset Prices
Appendix 2 to Chapter 23:	Aggregate Demand and Supply: A Numerical Example
Appendix 3 to Chapter 23:	The Algebra of the Aggregate Demand and Supply Model
Appendix 4 to Chapter 23:	The Taylor Principle and Inflation Stability
Appendix to Chapter 25:	Evaluating Empirical Evidence: The Debate Over the Importance of Money in Economic Fluctuations

Instructors can either use these web 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.

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 of 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

PEDAGOGICAL AIDS

Whether teaching theory or its applications, a textbook must be a solid motivational tool. To this end, I have incorporated a wide variety of pedagogical features that will make the material easy to learn:

1. **Previews** at the beginning of each chapter tell students where the chapter is heading, why specific topics are important, and how these topics relate to other topics discussed in the book.
2. **Applications**, numbering over 50, demonstrate how the analysis presented in the book can be used to explain many important real-world situations.
3. **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.
4. **Inside the Fed boxes** give students a feel for the operation and structure of the Federal Reserve System.
5. **Global boxes** present interesting material with an international focus.
6. **FYI boxes** highlight dramatic historical episodes, interesting ideas, and intriguing facts related to the subject matter.
7. **Summary tables** provide a useful study aid for reviewing material.
8. **Key statements** are important points set in boldface italic type so that students can easily find them for later reference.
9. **Graphs** with captions, numbering more than 120, help students clearly understand the interrelationships among the plotted variables and the principles of analysis.
10. A **Summary** at the end of each chapter lists the main points covered in the chapter.
11. **Key terms** are important words or phrases introduced in the chapter. They are set in boldface when they are defined for the first time, and they are listed by page number at the end of each chapter.
12. **End-of-chapter questions and applied problems**, numbering more than 600, help students learn the subject matter by applying economic concepts.
13. **Real-Time Data Analysis Problems** 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.
14. **Web Exercises** encourage students to collect information from online sources or use online resources to enhance their learning experience.
15. **Web sources** report the URL sources of the data used to create the many tables and charts.
16. **Web References** point the student to websites that provide information or data that supplement the text material.
17. A **Glossary** at the back of the book provides definitions of all the key terms.

AN EASIER WAY TO TEACH: SUPPLEMENTS TO ACCOMPANY THE FOURTH EDITION

The Economics of Money, Banking, and Financial Markets, Fourth Edition, includes the most comprehensive program of supplements of any money, banking, and financial markets textbook.

MyEconLab

MyEconLab has been designed and refined with a single purpose in mind: to create those moments of understanding that transform the difficult into the clear and obvious. With comprehensive homework, quiz, test, and tutorial options, instructors can manage all of their assessment needs within one program.

MyEconLab for *The Economics of Money, Banking, and Financial Markets* offers the following resources for students and instructors:

- **All end-of-chapter questions and applied problems** from the text are available in MyEconLab.
- **Applications** from the text are provided, along with assignable questions.
- **Mini-Lecture Videos** provide a step-by-step analysis of all the data and analytic figures included in the text. The videos can be used in class or viewed by students on their own time.
- A **Personal Study Plan** is created for each individual student based on his or her performance on assigned and sample exercises.
- **Instant tutorial feedback** is provided for problems and graphing responses to questions.
- **Interactive learning aids**, such as *Help Me Solve This* (a step-by-step tutorial), are designed to help the student exactly when he or she needs support.
- **News articles** are available for classroom and assignment use. Up-to-date news articles and complimentary discussion questions are posted weekly to bring today's news into the classroom and course.
- **Real-Time Data Analysis Problems** allow instructors to assign problems that use up-to-the-minute data. Each RTDA exercise loads the appropriate and most current data from FRED, a comprehensive and up-to-date data set maintained by the Federal Reserve Bank of St. Louis. Exercises are graded based on the particular data used, and feedback is provided.
- An **Enhanced Pearson eText** is available within the online course materials and off-line via iPad and Android apps. The enhanced Pearson eText enables instructors and students to highlight, bookmark, and take notes.
- **Auto-graded problems and graphs** are available for assignments.
- A **powerful Gradebook**, flexible and rich with information, provides data on student and class assignment performance and time on task.
- **Advanced communication tools** enable students and instructors to communicate through email, discussion board, chat, and ClassLive.
- **Customization options** provide new and enhanced ways to share documents, add content, and rename menu items.
- **Temporary access.** A fourteen-day grace period of temporary access is provided for students who are awaiting financial aid.
- **One place for students to access all of their MyLab courses.** Students and instructors can register, create, and access all of their MyLab courses, regardless of discipline, from one convenient online location: <http://www.pearsonmylab.com>.

For more information, please visit <http://www.myeconlab.com>.

Additional Instructor Resources

1. **Instructor's Resource Manual.** This online supplement, prepared by me, offers conventional elements such as sample course outlines, chapter outlines, and answers to questions and problems in the text.
2. **PowerPoint® Presentation.** This online supplement provides all of the tables and graphs presented in the text, along with very detailed lecture notes for all the course material. The lecture notes are, in fact, based on the notes I use in class, and they should help other instructors prepare their lectures as they have helped me prepare mine. In this edition, Paul Kubik of DePaul University has enhanced the presentation

by adding additional lecture notes. 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. The analytic figures within the PowerPoint slides are completely manipulable by the user so that instructors can custom-design their PowerPoint lectures with step-by-step animations of all key text figures.

3. **Test Bank.** This online supplement, updated and revised by James Hueng of Western Michigan University and Kathy Kelly of the University of Texas at Arlington, is comprised of more than 2,500 multiple-choice and essay test items, many with graphs. The authors of the test bank have connected questions to the general knowledge and skill guidelines found in The Association to Advance Collegiate Schools of Business (AACSB) assurance of learning standards. AACSB is a not-for-profit corporation of educational institutions, corporations, and other organizations devoted to the promotion and improvement of higher education in business administration and accounting. One of the criteria for AACSB accreditation is quality of the curriculum. Although no specific courses are required, the AACSB expects a curriculum to include learning experiences in the following areas: Written and oral communication, ethical understanding and reasoning, analytical thinking, information technology, interpersonal relations and teamwork, diverse and multicultural work environments, reflective thinking, and application of knowledge. Questions that test skills relevant to these guidelines are appropriately tagged for easy identification and assessment of student mastery.
4. **TestGen.** This online supplement enables the instructor to produce exams efficiently. This product consists of the multiple-choice and essay questions provided in the online Test Bank, and offers editing capabilities. It is available in Windows and Macintosh versions.
5. **Mishkin Companion Website.** This online supplement, located at <http://www.pearsonhighered.com/mishkin>, features appendices on a wide variety of topics (see “Appendices on the Web”), omitted chapters, and links to the URLs that are listed at the ends of the chapters.

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FREDERIC S. MISHKIN

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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*, Eighth Edition (Pearson, 2015); *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 Macroeconomics: 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*, the *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 five academic journals, including *International Finance*; *Finance India*; *Review of Development Finance*; *Borsa Economic Review*; and *Emerging Markets, 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 of the Federal Reserve Bank of New York.

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PART

1

Introduction

Crisis and Response: Global Financial Crisis and Its Aftermath

In August 2007, financial markets began to seize up, and over the next two years the world economy experienced a global financial crisis that was the most severe since the Great Depression years of the 1930s. Housing prices plummeted, the stock market crashed, unemployment skyrocketed, and both businesses and households found they couldn't get credit. Not only did the central bank of the United States, the Federal Reserve, respond by sharply lowering interest rates and intervening in credit markets to provide them with massive amounts of liquidity, but the federal government also entered into the act with a \$700 billion bailout of weakened financial institutions and huge fiscal stimulus packages totaling over \$1 trillion. However, even with these aggressive actions aimed at stabilizing the financial system and boosting the economy, seven years after the crisis the U.S. economy was still experiencing an unemployment rate above 6%, with many homeowners losing their homes. The financial systems of many governments throughout the world were also in tatters.

The global financial crisis and its aftermath demonstrate the importance of banks and financial systems to economic well-being, as well as the major role of money in the economy. Part I of this book provides an introduction to the study of money, banking, and financial markets. Chapter 1 outlines a road map of the book and discusses why it is so worthwhile to study money, banking, and financial markets. Chapter 2 provides a general overview of the financial system. Chapter 3 then explains what money is and how it is measured.