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MONEY, BANKING, AND FINANCIAL MARKETS

Business School Edition

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THE ECONOMICS OF MONEY, BANKING, AND FINANCIAL MARKETS

Business School Edition

Fifth Edition

Frederic S. Mishkin
Columbia University

Pearson

New York, NY

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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

Additional Chapters on MyLab Economics

Contents in Detail

CHAPTER 5
The Behavior of Interest Rates 86

CHAPTER 5 APPENDIX 1
Models of Asset Pricing

Go to MyLab Economics, 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

CHAPTER 9
Banking and the Management of Financial Institutions 188

CHAPTER 9 APPENDIX 1
Duration Gap Analysis

Go to MyLab Economics, www.pearson.com/mylab/economics

CHAPTER 17
The Money Supply Process 388

CHAPTER 17 APPENDIX 1
The Fed's Balance Sheet and the Monetary Base

Go to MyLab Economics, www.pearson.com/mylab/economics

CHAPTER 17 APPENDIX 2
The M2 Money Multiplier

Go to MyLab Economics, 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

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

Go to MyLab Economics, www.pearson.com/mylab/economics

CHAPTER 18
Tools of Monetary Policy 413

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

APPENDIX TO CHAPTER 20
The Interest Parity Condition 498

CHAPTER 21
The International Financial System 502

CHAPTER 23 APPENDIX 4
The Taylor Principle and Inflation Stability

Go to MyLab Economics, www.pearson.com/mylab/economics

CHAPTER 24
Monetary Policy Theory 594

CHAPTER 25
Transmission Mechanisms of Monetary Policy 623

Additional Contents on Mylab Economics

The following chapters and appendices are available on MyLab Economics www.pearson.com/mylab/economics

CHAPTER 4
The Role of Expectations in Monetary Policy 1

CHAPTER 5
The *ISLM* Model 1

APPENDIX TO WEB CHAPTER 5

CHAPTER APPENDICES

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

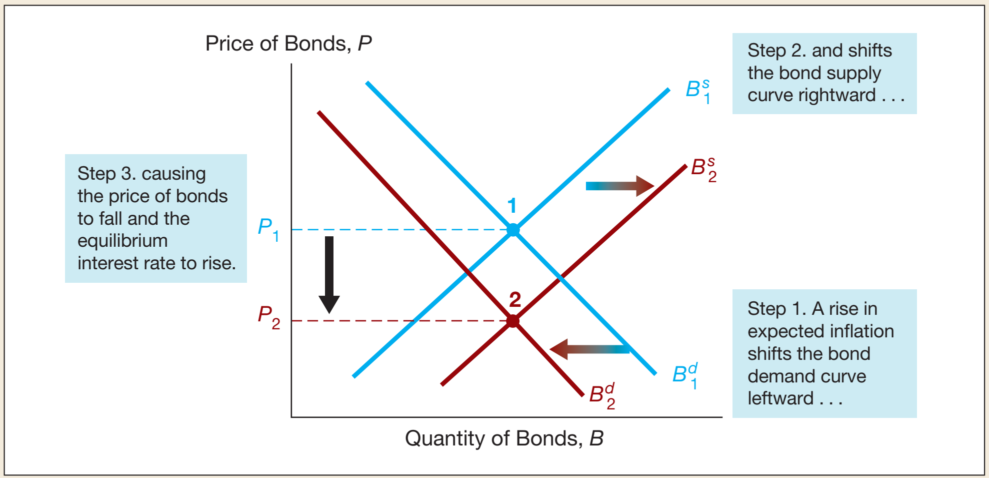
mini-lectures build up each graph step-by-step and explain the intuition necessary to fully understand the theory behind the graph. The mini-lectures are an invaluable study tool for students who typically learn better when they see and hear economic analysis rather than read it.

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.

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.

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.

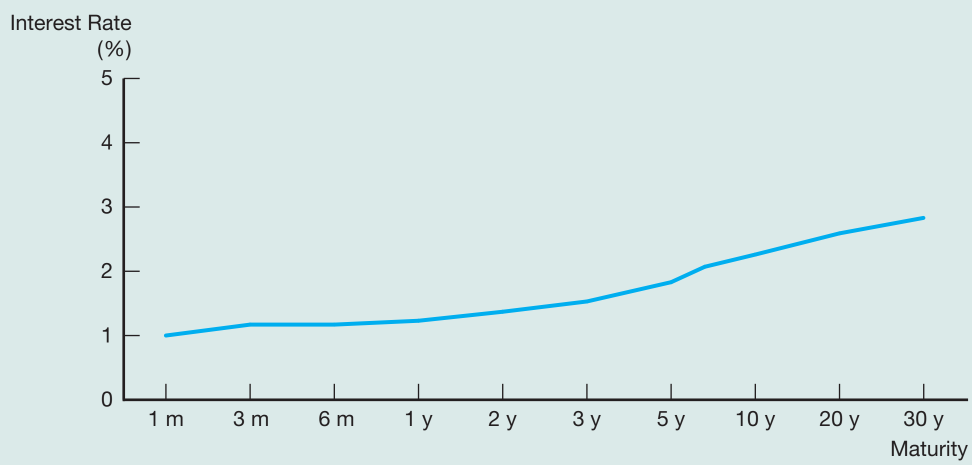
Career Skill Features

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.

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.

INSTRUCTOR TEACHING RESOURCES

This program comes with the following teaching resources.

Supplements available to instructors at www.pearsonhighered.com	Features of the supplement
The Instructor's Resource Manual was prepared by the author and includes the following features:	• 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

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