Money, Banking, and the Financial System

SECOND EDITION

R. Glenn Hubbard • Anthony Patrick O'Brien

ALWAYS LEARNING

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Money, Banking, and the Financial System

Second Edition

R. Glenn Hubbard
Columbia University

Anthony Patrick O'Brien
Lehigh University

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Sumati Varma, Delhi University

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About the Authors

Glenn Hubbard, Professor, Researcher, and Policymaker

R. Glenn Hubbard is the dean and Russell L. Carson Professor of Finance and Economics in the Graduate School of Business at Columbia University and professor of economics in Columbia's Faculty of Arts and Sciences. He is also a research associate of the National Bureau of Economic Research and a director of Automatic Data Processing, Black Rock Closed-End Funds, KKR Financial Corporation, and MetLife. He received a Ph.D. in economics from Harvard University in 1983. From 2001 to 2003, he served as chairman of the White House Council of Economic Advisers and chairman of the OECD Economy Policy Committee, and from 1991 to 1993, he was deputy assistant secretary of the U.S. Treasury Department. He currently serves as co-chair of the nonpartisan Committee on Capital Markets Regulation and the Corporate Boards Study Group. Hubbard's fields of specialization are public economics, financial markets and institutions, corporate finance, macroeconomics, industrial organization, and public policy. He is the author of more than 100 articles in leading journals, including *American Economic Review*, *Brookings Papers on Economic Activity*, *Journal of Finance*, *Journal of Financial Economics*, *Journal of Money, Credit, and Banking*, *Journal of Political Economy*, *Journal of Public Economics*, *Quarterly Journal of Economics*, *RAND Journal of Economics*, and *Review of Economics and Statistics*. His research has been supported by grants from the National Science Foundation, the National Bureau of Economic Research, and numerous private foundations.

Tony O'Brien, Award-Winning Professor and Researcher

Anthony Patrick O'Brien is a professor of economics at Lehigh University. He received a Ph.D. from the University of California, Berkeley, in 1987. He has taught principles of economics for more than 15 years, in both large sections and small honors classes. He received the Lehigh University Award for Distinguished Teaching. He was formerly the director of the Diamond Center for Economic Education and was named a Dana Foundation Faculty Fellow and Lehigh Class of 1961 Professor of Economics. He has been a visiting professor at the University of California, Santa Barbara, and at Carnegie Mellon University. O'Brien's research has dealt with such issues as the evolution of the U.S. automobile industry, sources of U.S. economic competitiveness, the development of U.S. trade policy, the causes of the Great Depression, and the causes of black–white income differences. His research has been published in leading journals, including *American Economic Review*, *Quarterly Journal of Economics*, *Journal of Money, Credit, and Banking*, *Industrial Relations*, *Journal of Economic History*, *Explorations in Economic History*, and the *Journal of Policy History*. His research has been supported by grants from government agencies and private foundations. In addition to teaching and writing, O'Brien also serves on the editorial board of the *Journal of Socio-Economics*.

Brief Contents

Contents

Chapter 5 The Risk Structure and Term Structure of Interest Rates 154

Chapter 6 The Stock Market, Information, and Financial Market Efficiency 187

Chapter 7 Derivatives and Derivative Markets 220

Chapter 9 Transactions Costs, Asymmetric Information, and the Structure of the Financial System 284

Chapter 10 The Economics of Banking 309

Chapter 11 Investment Banks, Mutual Funds, Hedge Funds, and the Shadow Banking System 343

Chapter 12 Financial Crises and Financial Regulation 379

Chapter 16 The International Financial System and Monetary Policy 517

Chapter 17 Monetary Theory I: The Aggregate Demand and Aggregate Supply Model 549

Preface

Do You Think This Might Be Important?

It's customary for authors to begin textbooks by trying to convince readers that their subject is important—even exciting. Following the events of the financial crisis and recession of 2007–2009, we doubt anyone needs to be convinced that the study of money, banking, and financial markets is important. And it's exciting . . . maybe a little too exciting. Nothing comparable to the upheaval of 2007–2009 had happened in the financial system since the Great Depression of the 1930s. The financial crisis changed virtually every aspect of how money is borrowed and lent, how banks and other financial firms operate, and how policymakers regulate the financial system. More than five years after the beginning of the crisis, there seems little doubt that its effects will linger for a very long time, just as did the effects of the Great Depression.

New to This Edition

We were gratified by the enthusiastic response of students and instructors who used the first edition. The response confirmed our view that a modern, relatively brief approach, paying close attention to recent developments in policy and theory, would find a receptive audience. In this second edition, we retain the approach of our first edition while making several changes to address feedback from instructors and students and also to reflect our own classroom experiences. Here is a summary of our key changes. Please see the pages that follow for details about these changes:

- Replaced 7 chapter-opening cases and updated retained cases
- Added 16 new *Making the Connection* features, including several that appeal to students' personal lives and decisions
- Added more than 40 new real-time data exercises that students can complete on MyEconLab
- Added 2 new *Solved Problems* features, and updated retained *Solved Problems*. Some *Solved Problems* also involve subjects that appeal to students' personal lives and decisions.
- Replaced or updated approximately one-half of the questions and problems at the end of each chapter
- Updated graphs and tables with the latest available data

New Chapter-Opening Cases

Each chapter-opening case provides a real-world context for learning, sparks students' interest in money and banking, and helps to unify the chapter. The second edition includes the following new chapter-opening cases:

- "Will Investors Lose Their Shirts in the Market for Treasury Bonds?" (Chapter 3, "Interest Rates and Rates of Return")
- "Are There Any Safe Investments?" (Chapter 4, "Determining Interest Rates")
- "Searching for Yield" (Chapter 5, "The Risk Structure and Term Structure of Interest Rates")
- "Using Financial Derivatives to Reduce Risk" (Chapter 7, "Derivatives and Derivative Markets")
- "Is Ben Bernanke Responsible for Japanese Firms Moving to the United States?" (Chapter 8, "The Market for Foreign Exchange")

- "Should You Crowd-Fund Your Startup?" (Chapter 9, "Transactions Costs, Asymmetric Information, and the Structure of the Financial System")
- "To Buy a House, You Need a Loan" (Chapter 10, "The Economics of Banking")

New* Making the Connection *Features and Supporting Exercises at the End of Each Chapter

Each chapter includes two or more *Making the Connection* features that provide real-world reinforcement of key concepts. Several of these *Making the Connection*s cover topics that apply directly to the personal lives and decisions that students make and include the subtitle of *In Your Interest*.

- "Microlending Aids U.S. Small Businesses" (Chapter 1, "Introducing Money and the Financial System")
- "What Do People Do with Their Savings?" (Chapter 1, "Introducing Money and the Financial System")
- "*In Your Interest*: Interest Rates and Student Loans" (Chapter 3, "Interest Rates and Rates of Return")
- "Why Are Bond Interest Rates So Low?" (Chapter 4, "Determining Interest Rates")
- "*In Your Interest*: Should You Invest in Junk Bonds?" (Chapter 5, "The Risk Structure and Term Structure of Interest Rates")
- "*In Your Interest*: Should You Invest in Emerging Markets?" (Chapter 8, "The Market for Foreign Exchange")
- "*In Your Interest*: Is It Safe to Invest Through Crowd-funding?" (Chapter 9, "Transactions Costs, Asymmetric Information, and the Structure of the Financial System")
- "*In Your Interest*: Corporations Are Issuing More Bonds; Should You Buy Them?" (Chapter 9, "Transactions Costs, Asymmetric Information, and the Structure of the Financial System")
- *"In Your Interest*: Your Bank's Message to You: 'Please Go Away!'" (Chapter 10, "The Economics of Banking")
- *In Your Interest*: "Is Your Neighborhood ATM About to Disappear?" (Chapter 10, "The Economics of Banking")
- "*In Your Interest*: Would You Invest in a Hedge Fund if You Could?" (Chapter 11, "Investment Banks, Mutual Funds, Hedge Funds, and the Shadow Banking System")
- "Greece Experiences a 'Bank Jog'" (Chapter 12, "Financial Crises and Financial Regulation")
- "The Consumer Financial Protection Bureau: The New Sheriff of Financial Town" (Chapter 12, "Financial Crises and Financial Regulation")
- "Fedspeak vs. Transparency" (Chapter 13, "The Federal Reserve and Central Banking")
- "*In Your Interest*: If You Were Greek, Would You Prefer the Euro or the Drachma?" (Chapter 16, "The International Financial System and Monetary Policy")
- "'Fracking' Transforms Energy Markets in the United States" (Chapter 17, "Monetary Theory I: The Aggregate Demand and Aggregate Supply Model")

***Added More Than 40 New Real-Time Data Exercises That Students Can Complete on* MyEconLab**

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MyEconLab is a powerful assessment and tutorial system that works hand-in-hand with *Money, Banking, and the Financial System*. MyEconLab includes comprehensive homework, quiz, test, and tutorial options, allowing instructors to manage all assessment needs

in one program. Key innovations in the MyEconLab course for *Money, Banking, and the Financial System*, second edition, include the following:

- Real-time *Data Analysis Exercises*, marked with  , allow students and instructors to use the absolute latest data from FRED, the online macroeconomic data bank from the Federal Reserve Bank of St. Louis. By completing the exercises, students become familiar with a key data source, learn how to locate data, and develop skills to interpret data.
- In the eText available in MyEconLab, select figures labeled MyEconLab Real-time data allow students to display a popup graph updated with real-time data from FRED.
- Current News Exercises, new to this edition of the MyEconLab course, provide a turnkey way to assign gradable news-based exercises in MyEconLab. Every week, Pearson scours the news, finds a current article appropriate for the money and banking course, creates an exercise around this news article, and then automatically adds it to MyEconLab. Assigning and grading current news-based exercises that deal with the latest money, banking, financial system events and policy issues has never been more convenient.

Other Changes

- New *Solved Problems*—Many students have great difficulty handling problems in applied economics. We help students overcome this hurdle by including worked-out problems in each chapter. The following *Solved Problems* are new to this edition:
  - *"In Your Interest:* How Do You Value a College Education?" (Chapter 3, "Interest Rates and Rates of Return")
  - "*In Your Interest*: Should You Worry About Falling Bond Prices When the Inflation Rate Is Low?" (Chapter 4, "Determining Interest Rates")
- Replaced or updated approximately one-half of the questions and problems at the end of each chapter
- Updated graphs and tables with the latest available data

Our Approach

In this book, we provide extensive analysis of the financial events of the past few years. We believe these events are sufficiently important to be incorporated into the body of the text rather than just added as boxed features. In particular, we stress a lesson policymakers recently learned the hard way: What happens in the shadow banking system is as important to the economy as what happens in the commercial banking system.

We realize, however, that the details of the financial crisis and recession will eventually pass into history. What we strive to do in this text is not to add to the laundry list of facts that students must memorize. Instead, we present students with the underlying economic explanations of why the financial system is organized as it is and how the financial system is connected to the broader economy. We are gratified by the success of our principles of economics textbook, and we have employed a similar approach in this textbook: We provide students with a framework that allows them to apply the theory that they learn in the classroom to the practice of the real world. By learning this framework, students will understand not just the 2007–2009 financial crisis and other past events but also developments in the financial system during the years to come. To achieve this goal, we have built four advantages into this text:

1. A framework for understanding, evaluating, and predicting
2. A modern approach

3. Integration of international topics
4. A focus on the Federal Reserve

Framework of the Text: Understand, Evaluate, Predict

The framework underlying all discussions in this text has three levels. First, students learn to *understand* economic analysis. "Understanding" refers to students developing the economic intuition they need to organize concepts and facts. Second, students learn to *evaluate* current developments and the financial news. Here, we challenge students to use financial data and economic analysis to think critically about how to interpret current events. Finally, students learn to use economic analysis to *predict* likely changes in the economy and the financial system. Having just come through a period in which Federal Reserve officials, members of Congress, heads of Wall Street firms, and nearly everyone else failed to predict a huge financial crisis, the idea that we can prepare students to predict the future of the financial system may seem overly ambitious—to say the least. We admit, of course, that some important events are difficult to anticipate. But knowledge of the economic analysis we present in this book does make it possible to predict many aspects of how the financial system will evolve. For example, in Chapter 12, "Financial Crises and Financial Regulation," we discuss the ongoing cycle of financial crisis, regulatory response, financial innovation, and further regulatory response. The latest episode in this cycle was the passage in July 2010 of the Dodd-Frank *Wall Street Reform and Consumer Protection Act*. With our approach, students learn not just the new regulations contained in Dodd-Frank but, more importantly, the key lesson that over time innovations by financial firms are likely to supersede many of the provisions of Dodd-Frank. In other words, students will learn that the financial system is not static—it evolves over time in ways that can be understood using economic analysis.

A Modern Approach

Textbooks are funny things. Most contain a mixture of the current and the modern alongside the traditional. Material that is helpful to students is often presented along with material that is not so helpful or that is—frankly—counterproductive. We believe the ideal is to produce a textbook that is modern and incorporates the best of recent research on monetary policy and the financial system without chasing every fad in economics or finance. In writing this book, we have looked at the topics in the money and banking course with fresh eyes. We have pruned discussion of material that is less relevant to the modern financial system or no longer considered by most economists to be theoretically sound. We have also tried to be as direct as possible in informing students of what is and is not important in the financial system and policymaking as they exist today. For example, rather than include the traditional long discussion of the role of reserve requirements as a monetary policy tool, we provide a brief overview and note that the Federal Reserve has not changed reserve requirements since 1992. Similarly, it has been several decades since the Fed paid serious attention to targets for M1 and M2. Therefore, in Chapter 18, "Monetary Theory II: The *IS–MP* Model," we replace the *IS–LM* model—which assumes that the central bank targets the money stock, rather than an interest rate—with the *IS–MP* model, first suggested by David Romer more than 15 years ago. We believe that our modern approach improves the ability of students to make the connection between the text material and the economic and financial world they read about. (For those who do wish to cover the *IS–LM* model, we provide an appendix on that model at the end of Chapter 18.)

By cutting out-of-date material, we have achieved two important goals: (1) We provide a much briefer and more readable text, and (2) we have made room for discussion of essential topics, such as the "shadow banking system" of investment banks, hedge

funds, and mutual funds, as well as the origins and consequences of financial crises. See Chapter 11, "Investment Banks, Mutual Funds, Hedge Funds, and the Shadow Banking System," and Chapter 12, "Financial Crises and Financial Regulation." Other texts either omit these topics or cover them only briefly.

We have both taught money and banking to undergraduate and graduate students for many years. We believe that the modern, real-world approach in our text will engage students in ways that no other text can.

Integration of International Topics

When the crisis in subprime mortgages began, Federal Reserve Chairman Ben Bernanke famously observed that it was unlikely to cause much damage to the U.S. housing market, much less the wider economy. (We discuss Bernanke's argument in Chapter 12, "Financial Crises and Financial Regulation," where we note that he was hardly alone in making such statements.) As it turned out, of course, the subprime crisis devastated not only the U.S. housing market but the U.S. financial system, the U.S. economy, and the economies of most of the developed world. That a problem in one part of one sector of one economy could cause a worldwide crisis is an indication that a textbook on money and banking must take seriously the linkages between the U.S. and other economies. Our text consists of only 18 chapters and is one of the briefest texts on the market. We achieved this brevity by carefully pruning many out-of-date and esoteric topics to focus on the essentials, which includes a careful exploration of international topics. We devote two full chapters to international topics: Chapter 8, "The Market for Foreign Exchange," and Chapter 16, "The International Financial System and Monetary Policy." In these chapters, we discuss such issues as the European sovereign debt crisis and the increased coordination of monetary policy actions among central banks. We realize, however, that, particularly in this course, what is essential to one instructor is optional to another. So, we have written the text in a way that allows instructors to skip one or both of the international chapters.

A Focus on the Federal Reserve

We can hardly claim to be unusual in focusing on the Federal Reserve in a money and banking textbook . . . but we do! Of course, all money and banking texts discuss the Fed, but generally not until near the end of the book—and the semester. Based on speaking to instructors in focus groups and based on our own teaching experience, we believe that this approach is a serious mistake. We have found that students often have trouble integrating the material in the money and banking course. To them, the course often seems a jumble of unrelated topics. Particularly in light of recent events, the role of the Fed can serve as a unifying theme for the course. Accordingly, we provide an introduction and overview of the Fed in Chapter 1, "Introducing Money and the Financial System," and in each subsequent chapter, we expand on the Fed's role in the financial system. So, by the time students read Chapter 13, "The Federal Reserve and Central Banking," where we discuss the details of the Fed's operation, students already have a good idea of the Fed's importance and its role in the system.

Special Features

We can summarize our objective in writing this textbook as follows: to produce a streamlined, modern discussion of the economics of the financial system and of the links between the financial system and the economy. To implement this objective, we have developed a number of special features. Some are similar to the features that have proven popular and effective aids to learning in our principles of economics textbook, while others were developed specifically for this book.

Key Issue and Question

Issue: During the financial crisis, the bond rating agencies were criticized for having given high ratings to securities that proved to be very risky.

Question: Should the government more closely regulate the credit rating agencies?

Answered on page 181

Answering the Key Question

Continued from page 154

At the beginning of this chapter, we asked:

"Should the government more closely regulate credit rating agencies?"

Like other policy questions we will encounter in this book, this question has no definitive answer. We have seen in this chapter that many investors rely on the credit rating agencies for important information on the default risk on bonds. During the financial crisis of 2007–2009, many bonds—particularly mortgage-backed securities—turned out to have much higher levels of default risk than the credit rating agencies had indicated. Some observers argued that the rating agencies had given those bonds inflated ratings because the agencies have a conflict of interest in being paid by the firms whose bond issues they rate. Other observers, though, argued that the ratings may have been accurate when given, but the creditworthiness of the bonds declined rapidly following the unexpected severity of the housing bust and the resulting financial crisis.

Key Issue–and–Question Approach

We believe that having a key issue and related key question in each chapter provides us with an opportunity to explain how the financial system works within the context of topics students read about online and in newspapers and discuss among themselves and with their families. In Chapter 1, "Introducing Money and the Financial System," we cover the key components of the financial system, introduce the Federal Reserve, and preview the important issues facing the financial system. At the end of Chapter 1, we present 17 key issues and questions that provide students with a roadmap for the rest of the book and help them to understand that learning the basic principles of money, banking, and the financial system will allow them to analyze intelligently the most important issues about the financial system and monetary policy. The goal here is not to make students memorize a catalog of facts. Instead, we use these key issues and questions to demonstrate that an economic analysis of the financial system is essential to understanding recent events. See pages 48–50 in Chapter 1 for a complete list of the issues and questions.

We start each subsequent chapter with a key issue and key question and end each of those chapters by using the concepts introduced in the chapter to answer the question.

Contemporary Opening Cases

Each chapter-opening case provides a real-world context for learning, sparks students' interest in money and banking, and helps to unify the chapter. For example, Chapter 11, "Investment Banks, Mutual Funds, Hedge Funds, and the Shadow Banking System," opens with a discussion of the rise of the shadow banking system in a case study entitled "When Is a Bank Not a Bank? When It's a Shadow Bank!" We revisit this topic throughout the chapter.

CHAPTER 11

Investment Banks, Mutual Funds, Hedge Funds, and the Shadow Banking System

Learning Objectives

After studying this chapter, you should be able to:

- **11.1** Explain how investment banks operate (pages 344–357)
- **11.2** Distinguish between mutual funds and hedge funds and describe their roles in the financial system (pages 357–364)
- **11.3** Explain the roles that pension funds and insurance companies play in the financial system (pages 364–368)
- **11.4** Explain the connection between the shadow banking system and systemic risk (pages 369–372)

When Is A Bank Not A Bank? When It's A Shadow Bank!

What is a hedge fund? What is the difference between a commercial bank and an investment bank? At the beginning of the financial crisis of 2007–2009, most Americans would have been unable to answer these questions. Many members of Congress were in a

d later became secretary of the
a administration. A Federal
es that by 2008, the shadow
rown to be more than 50% larger
banking system.
isis worsened, two large investment
nd Lehman Brothers—and
r—American International Group
nter of the storm. Although many
e also drawn into the crisis, 2007–
irst time in U.S. history that a ma-
not originated in the commercial
ems with nonbanks made dealing
fficult because U.S. policymaking
and regulatory structures were based on the assumption

been deposited in banks, and they were using these funds to provide credit that banks had previously provided. These nonbanks were using newly developed financial securities that even long-time veterans of Wall Street often did not fully understand.

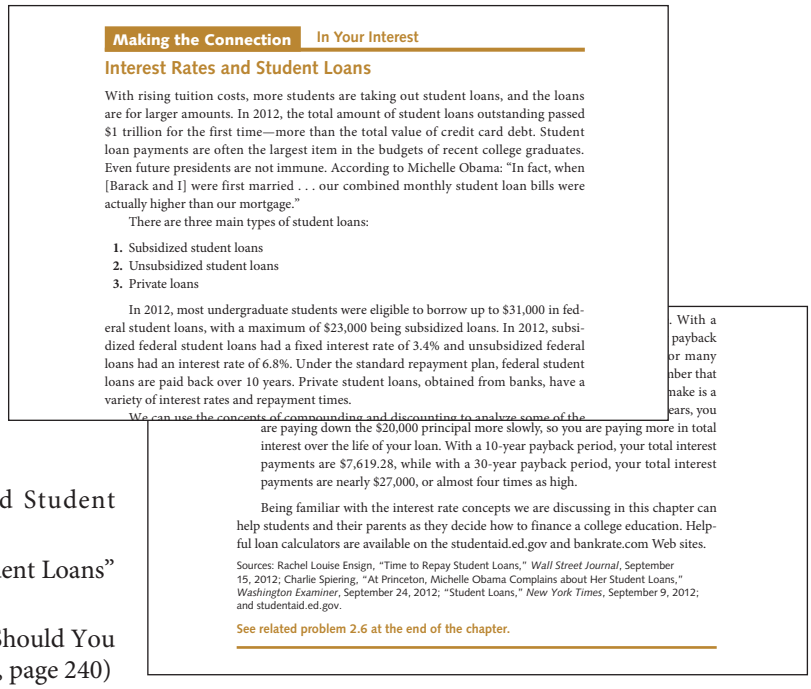
that commercial banks were the most important financial firms. In particular, the Federal Reserve System had been set up in 1913 to stabilize and regulate the commercial banking system.

Partly as a result of the financial crisis, the size of the shadow banking system has declined relative to the size of the commercial banking system, although shadow banking remains larger. Following the financial crisis, in 2010 Congress passed the Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act, which increased to some extent federal regulation of the shadow banking system. But a number of policymakers and economists continue to believe that shadow banking remains a source of instability in the financial system.

Sources: Zoltan Pozar, et al., "The Shadow Banking System," Federal Reserve Bank of New York, Staff Report No. 458, July 2010, Revised February 2012; Timothy F. Geithner, "Reducing Systemic Risk in a Dynamic Financial System," talk at The Economic Club of New York, June 9, 2008; and Paul McCulley, "Discussion," Federal Reserve Bank of Kansas City, *Housing, Housing Finance, and Monetary Policy*, 2007, p. 485.

Making the Connection Features

Each chapter includes two to four *Making the Connection* features that present real-world reinforcement of key concepts and help students learn how to interpret what they read on the Web and in newspapers. Most *Making the Connection* features use relevant, stimulating, and provocative news stories, many focused on pressing policy issues. Several of these *Making the Connections* cover topics that apply directly to the personal lives and decisions that students make and include the subtitle of *In Your Interest*.



Making the Connection In Your Interest

Interest Rates and Student Loans

With rising tuition costs, more students are taking out student loans, and the loans are for larger amounts. In 2012, the total amount of student loans outstanding passed $1 trillion for the first time—more than the total value of credit card debt. Student loan payments are often the largest item in the budgets of recent college graduates. Even future presidents are not immune. According to Michelle Obama: "In fact, when [Barack and I] were first married . . . our combined monthly student loan bills were actually higher than our mortgage."

There are three main types of student loans:

1. Subsidized student loans
2. Unsubsidized student loans
3. Private loans

In 2012, most undergraduate students were eligible to borrow up to $31,000 in federal student loans, with a maximum of $23,000 being subsidized loans. In 2012, subsidized federal student loans had a fixed interest rate of 3.4% and unsubsidized federal loans had an interest rate of 6.8%. Under the standard repayment plan, federal student loans are paid back over 10 years. Private student loans, obtained from banks, have a variety of interest rates and repayment times.

We can use the concepts of compounding and discounting to analyze some of the

. With a payback or many nber that make is a ears, you

are paying down the $20,000 principal more slowly, so you are paying more in total interest over the life of your loan. With a 10-year payback period, your total interest payments are $7,619.28, while with a 30-year payback period, your total interest payments are nearly $27,000, or almost four times as high.

Being familiar with the interest rate concepts we are discussing in this chapter can help students and their parents as they decide how to finance a college education. Helpful loan calculators are available on the studentaid.ed.gov and bankrate.com Web sites.

Sources: Rachel Louise Ensign, "Time to Repay Student Loans," *Wall Street Journal*, September 15, 2012; Charlie Spiering, "At Princeton, Michelle Obama Complains about Her Student Loans," *Washington Examiner*, September 24, 2012; "Student Loans," *New York Times*, September 9, 2012; and studentaid.ed.gov.

See related problem 2.6 at the end of the chapter.

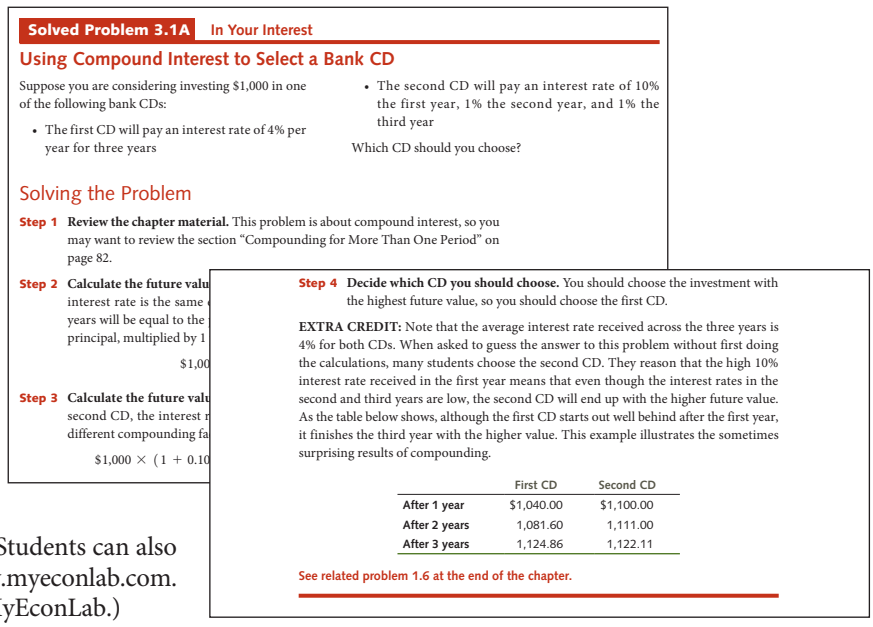
Here are examples:

- "*In Your Interest*: Interest Rates and Student Loans" (Chapter 3, page 91)
- "*In Your Interest*: Interest Rates and Student Loans" (Chapter 3, page 91)
- "*In Your Interest*: How Much Volatility Should You Expect in the Stock Market?" (Chapter 7, page 240)
- "Has Securitization Increased Adverse Selection Problems in the Financial System?" (Chapter 9, page 293)
- "*In Your Interest:* Your Bank's Message to You: 'Please Go Away!'" (Chapter 10, page 321)
- "Did Moral Hazard Derail Investment Banks?" (Chapter 11, page 352)
- "Why Was the Severity of the 2007–2009 Recession So Difficult to Predict?" (Chapter 12, page 385)

Each *Making the Connection* has at least one supporting end-of-chapter problem to allow students to test their understanding of the topic discussed.

Solved Problem Features

Many students have great difficulty handling problems in applied economics. We help students overcome this hurdle by including worked-out problems in each chapter. Our goals are to keep students focused on the main ideas of each chapter and to give students a model of how to solve an economic problem by breaking it down step by step. Several of these *Solved Problems* cover topics that apply directly to the personal lives and decisions that students make and include the subtitle *In Your Interest*.



Solved Problem 3.1A In Your Interest

Using Compound Interest to Select a Bank CD

Suppose you are considering investing $1,000 in one of the following bank CDs:

- The first CD will pay an interest rate of 4% per year for three years
- The second CD will pay an interest rate of 10% the first year, 1% the second year, and 1% the third year

Which CD should you choose?

Solving the Problem

Step 1 **Review the chapter material.** This problem is about compound interest, so you may want to review the section "Compounding for More Than One Period" on page 82.

Step 2 **Calculate the future valu** interest rate is the same years will be equal to the principal, multiplied by 1

$1,00

Step 3 **Calculate the future valu** second CD, the interest different compounding fa

$1,000 × (1 + 0.10

Step 4 **Decide which CD you should choose.** You should choose the investment with the highest future value, so you should choose the first CD.

EXTRA CREDIT: Note that the average interest rate received across the three years is 4% for both CDs. When asked to guess the answer to this problem without first doing the calculations, many students choose the second CD. They reason that the high 10% interest rate received in the first year means that even though the interest rates in the second and third years are low, the second CD will end up with the higher future value. As the table below shows, although the first CD starts out well behind after the first year, it finishes the third year with the higher value. This example illustrates the sometimes surprising results of compounding.

	First CD	Second CD
After 1 year	$1,040.00	$1,100.00
After 2 years	1,081.60	1,111.00
After 3 years	1,124.86	1,122.11

See related problem 1.6 at the end of the chapter.

Additional exercises in the end-of-chapter *Problems and Applications* section are tied to every *Solved Problem*. Students can also complete related *Solved Problems* on www.myeconlab.com. (See page 25 of this preface for more on MyEconLab.)

Table 4.2 Factors That Shift the Demand Curve for Bonds

All else being equal, an increase in …	causes the demand for bonds to …	because …	Graph of effect on equilibrium in the bond market
wealth	increase	more funds are allocated to bonds.	
expected returns on bonds	increase	holding bonds is relatively more attractive.	
expected inflation	decrease	holding bonds is relatively less attractive.	
expected returns on other assets	decrease	holding bonds is relatively less attractive.	
riskiness of bonds relative to other assets	decrease	holding bonds is relatively less attractive.	
liquidity of bonds relative to other assets	increase	holding bonds is relatively more attractive.	
information costs of bonds relative to other assets	decrease	holding bonds is relatively less attractive.	

Graphs and Summary Tables

We use four devices to help students read and interpret graphs:

1. Detailed captions
2. Boxed notes
3. Color-coded curves
4. Summary tables with graphs

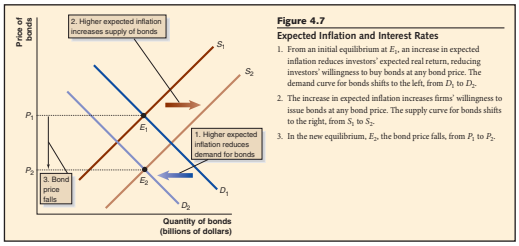


Figure 4.7
Expected Inflation and Interest Rates

1. From an initial equilibrium at E_1, an increase in expected inflation reduces investors' expected real return, reducing investors' willingness to buy bonds at any bond price. The demand curve for bonds shifts to the left, from D_1 to D_2.
2. The increase in expected inflation increases firms' willingness to issue bonds at any bond price. The supply curve for bonds shifts to the right, from S_1 to S_2.
3. In the new equilibrium, E_2, the bond price falls, from P_1 to P_2.

Key Terms and Problems

Key Terms

Bond rating, p. 156
Default risk (or credit risk), p. 156
Expectations theory, p. 170
Liquidity premium theory (or preferred habitat theory), p. 177
Municipal bonds, p. 162
Risk structure of interest rates, p. 155
Segmented markets theory, p. 176
Term premium, p. 177
Term structure of interest rates, p. 167

5.1 The Risk Structure of Interest Rates

Explain why bonds with the same maturity can have different interest rates.

Review Questions

1.1 What is default risk? Is it different from default risk premium?

1.2 List the different ways in which rating agencies measure the creditworthiness of a bond.

1.3 How does the interest rate on an illiquid bond compare with the interest rate on a liquid bond? How does the interest rate on a bond with high information costs compare with the interest rate on a b…

1.4 What… earn …

1.5 Comp… the fo… Hous… by th…

Problems

1.6 Draw… show… lower… curve… befor…

1.7 Accor…

1.8 **[Related to the Chapter Opener on page 154]** According to an article in the *New York Times*, in 2012, "everyone has piled into" the junk bond market. The article also observed, "The average yields on these bonds have dropped to 6.6 percent, hovering near a record low."

a. What are junk bonds?

b. Is there a connection between everyone … demand for Spanish government bonds was increasing or decreasing? Briefly explain.

c. Can we tell from the headline whether the prices of Spanish government bonds were increasing or decreasing? Briefly explain.

d. The article observes that Spain is "reaping the bitter harvest of a decade of ambitious and often unchecked spending on infrastructure and services." What does this observation have to do with the article's headline?

1.10 **[Related to the Making the Connection on page 159]** According to an article in the *New York Times*, "It was the near universal agreement that potential conflicts were embedded in the [bond] ratings model." What is the bond ratings model? What potential conflicts are embedded in it?

Source: David Segal, "Debt Raters Avoid Overhaul After Crisis," *New York Times*, December 7, 2009.

1.11 Some economists have argued that one impor… tant role of rating a… agers of firms that i… funds raised in way… best interests of the… Why might the ma… ent goals than the i… bonds? How does t… reduce this conflict … managers?

5.2 The Term Structure of Interest Rates

Explain why bonds with different maturities can have different interest rates.

Review Questions

2.1 How does the Treasury yield curve illustrate the term structure of interest rates?

2.2 What are the shortcomings of the expectations theory?

2.3 How does a change in default risk affect the interest rate on a bond?

Problems and Applications

2.4 Suppose that you want to invest for three years to earn the highest possible return. You have three options: (a) Roll over three one-year bonds, which pay interest rates of 8% in the first year, 11% in the second year, and 7% in the third year; (b) buy a two-year bond with a 10% interest rate … gives you the highest return by 2018: (a) Buy a four-year bond on January 1, 2014; (b) buy a three-year bond January 1, 2014, and a one-year bond January 1, 2017; (c) buy a two-year bond January 1, 2014, a one-year bond January 1, 2016, and another one-year bond January 1, 2017; or (d) buy a one-year bond January 1, 2014, and then additional one-year bonds on the first days of 2015, 2016, and 2017?

2.6 Suppose that the interest rate on a one-year Treasury bill is currently 1% and that investors expect that the interest rates on one-year Treasury bills over the next three years will be 2%, 3%, and 2%. Use the expectations theory to calculate the current interest rates on two-year, three-year, and four-year Treasury notes.

Review Questions and Problems and Applications—Grouped by Learning Objective to Improve Assessment

The end-of-chapter *Review Questions* and *Problems and Applications* are grouped under learning objectives. The goals of this organization are to make it easier for instructors to assign problems based on learning objectives, both in the book and in MyEconLab, and to help students efficiently review material that they find difficult. If students have difficulty with a particular learning objective, an instructor can easily identify which end-of-chapter questions and problems support that objective and assign them as homework or discuss them in class. Exercises in a chapter's *Problems and Applications* section are available in MyEconLab. Using MyEconLab, students can complete these and many other exercises online, get tutorial help, and receive instant feedback and assistance on exercises they answer incorrectly. Also, student learning will be enhanced by having the summary material and problems grouped together by learning objective, which will allow students to focus on the parts of the chapter they find most challenging. Each major section of the chapter, paired with a learning objective, has at least two review questions and three problems.

We include one or more end-of-chapter problems that test students' understanding of the content presented in each *Solved Problem*, *Making the Connection*, and chapter opener. Instructors can cover a feature in class and assign the corresponding problem for homework. The Test Item Files also include test questions that pertain to these special features.

Data Exercises

Each chapter ends with at least two *Data Exercises* that help students become familiar with a key data source, learn how to locate data, and develop skills to interpret data.

Real-time *Data Analysis Exercises*, marked with  , allow students and instructors to use the very latest data from FRED, the online macroeconomic data bank from the Federal Reserve Bank of St. Louis.

Data Exercises

D5.1: [The yield curve and recessions] Go to the Web site of the Federal Reserve Bank of St. Louis (FRED) (research.stlouisfed.org/fred2/) and for the period from January 1957 to the present download to the same graph the data series for the 3-month Treasury bill (TB3MS) and the 10-year Treasury note (GS10). Go to the Web site of the National Bureau of Economic Research (nber.org) and find the dates for business cycle peaks and troughs (the period between a business cycle peak and trough is a recession). During which months was the yield curve inverted? How many of these periods were followed within a year by a recession?

D5.2: [Predicting with the yield curve] Go to www.treasury.gov and find the page "Daily Treasury Yield Curve Rates." Briefly describe the current shape of the yield curve. Can you use the yield curve to draw any conclusion about what investors in the bond market expect will happen to the economy in the future?

D5.3: [Corporate bond yields] Go to the Web site of the Federal Reserve Bank of St. Louis (FRED) (research.stlouisfed.org/fred2/) and for the period from January 1997 to the present, download to the same graph the data series for the BofA Merrill Lynch US Corporate AAA Effective Yield (BAMLC0A1CAAAEY) and the BofA Merrill Lynch US High Yield CCC or Below Effective Yield (BAMLH0A3HYCEY). Describe how the difference between the yields on high-grade corporate bonds and on junk bonds have changed over this period.

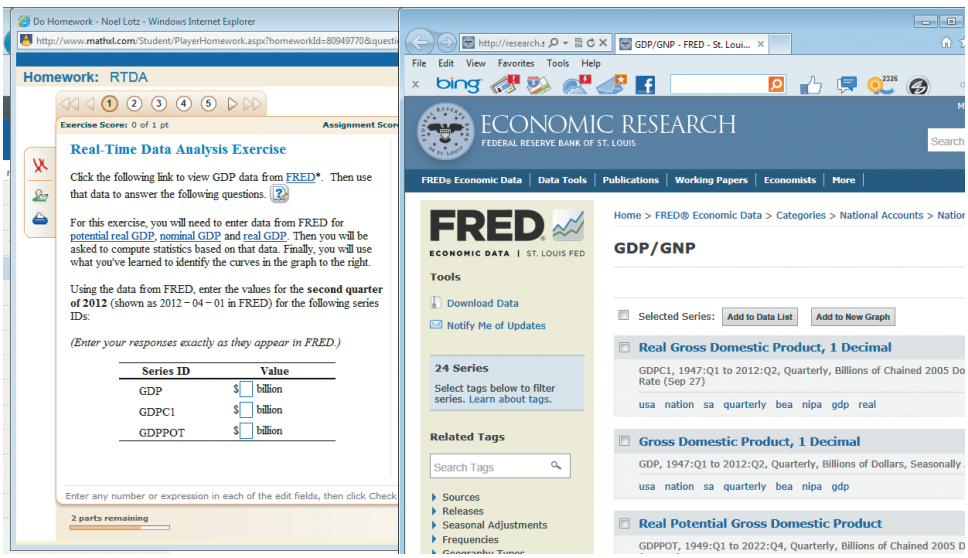
Supplements

The authors and Pearson Education have worked together to integrate the text, print, and media resources to make teaching and learning easier.

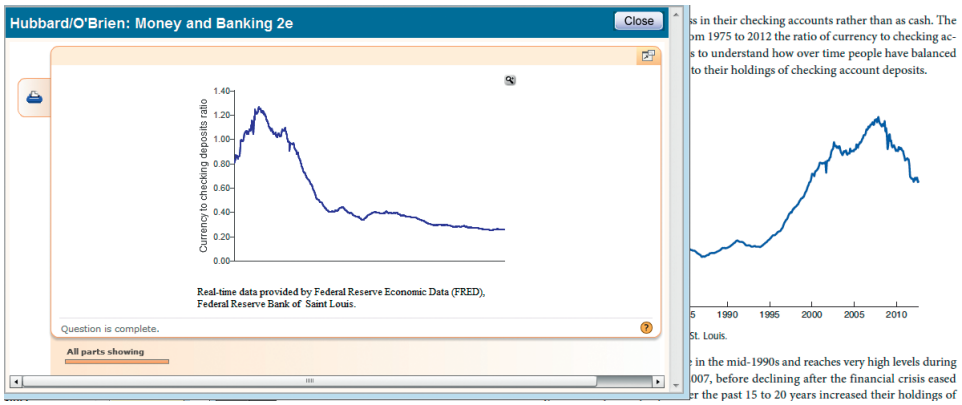
MyEconLab

MyEconLab is a powerful assessment and tutorial system that works hand-in-hand with *Money, Banking, and the Financial System*, second edition. MyEconLab includes comprehensive homework, quiz, test, and tutorial options, allowing instructors to manage all assessment needs in one program. Key innovations in the MyEconLab course for *Money, Banking, and the Financial System*, second edition, include the following:

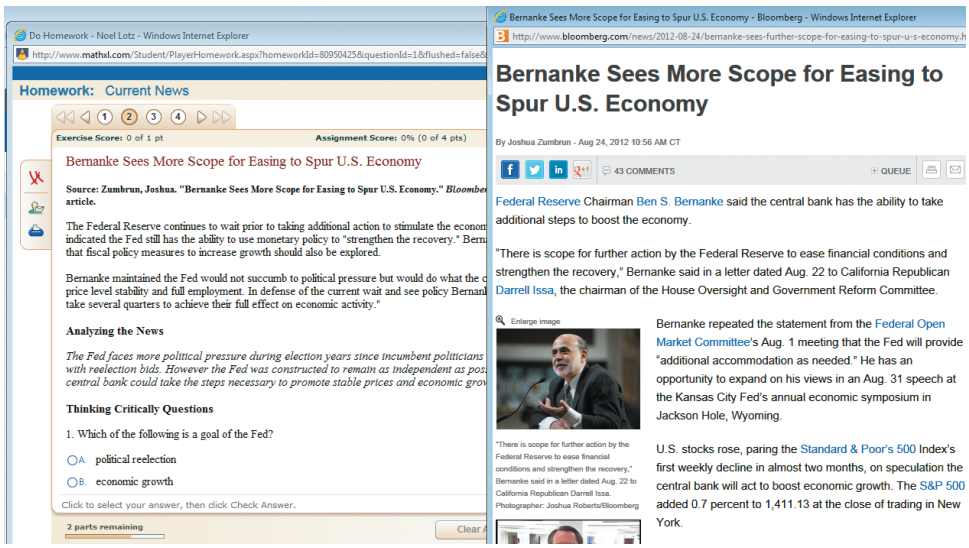
- Real-time *Data Analysis Exercises*, marked with  , allow students and instructors to use the very latest data from FRED, the online macroeconomic data bank from the Federal Reserve Bank of St. Louis. By completing the exercises, students become familiar with a key data source, learn how to locate data, and develop skills to interpret data.



- In the eText available in MyEconLab, select figures labeled MyEconLab Real-time data allow students to display a popup graph updated with real-time data from FRED.



- Current News Exercises, new to this edition of the MyEconLab course, provide a turn-key way to assign gradable news-based exercises in MyEconLab. Each week, Pearson scours the news, finds a current article appropriate for the money and banking course, creates an exercise around this news article, and then automatically adds it to MyEconLab. Assigning and grading current news-based exercises that deal with the latest macro events and policy issues has never been more convenient.



Other features of MyEconLab include:

- All end-of-chapter Questions and Problems, including algorithmic, graphing, and numerical questions and problems, are available for student practice and instructor assignment. Test Item File multiple-choice questions are available for assignment as homework.
- The Custom Exercise Builder allows instructors the flexibility of creating their own problems or modifying existing problems for assignment.
- The powerful Gradebook records each student's performance and time spent on the Tests and Study Plan and generates reports by student or chapter.

A more detailed walk-through of the student benefits and features of MyEconLab can be found at the beginning of this book. Visit **www.myeconlab.com** for more information on and an online demonstration of instructor and student features.

MyEconLab content has been created through the efforts of Melissa Honig, executive media producer, and Noel Lotz and Courtney Kamauf, content leads.

Access to MyEconLab can be bundled with your printed text or purchased directly with or without the full eText, at **www.myeconlab.com**.

Test Item File

William Seyfried of Rollins College prepared the *Test Item File*, which includes more than 1,500 multiple-choice and short-answer questions. Test questions are annotated with the following information:

- **Difficulty:** 1 for straight recall, 2 for some analysis, and 3 for complex analysis
- **Type:** Multiple-choice, short-answer, and essay
- **Topic:** The term or concept that the question supports
- **Learning objective:** The major sections of the main text and its end-of-chapter questions and problems are organized by learning objective. The Test Item File questions continue with this organization to make it easy for instructors to assign questions based on the objective they wish to emphasize.
- **Advanced Collegiate Schools of Business (AACSB) Assurance of Learning Standards:**
  Communication
  Ethical Reasoning
  Analytic Skills
  Use of Information Technology
  Multicultural and Diversity
  Reflective Thinking
- **Page number:** The page in the main text where the answer appears allows instructors to direct students to where supporting content appears.
- **Special features in the main book:** Chapter-opening story, the *Key Issue & Question*, *Solved Problem*, and *Making the Connection*.

The Test Item File is available for download from the Instructor's Resource Center (**www.pearsoninternationaleditions.com/hubbard**).

The multiple-choice questions in the Test Item File are also available in TestGen software for both Windows and Macintosh computers, and questions can be assigned via MyEconLab. The computerized TestGen package allows instructors to customize, save, and generate classroom tests. The TestGen program permits instructors to edit, add, or delete questions from the Test Item Files; analyze test results; and organize a database of tests and student results. This software allows for extensive flexibility and ease of use. It provides many options for organizing and displaying tests, along with search and sort features. The software and the Test Item Files can be downloaded from the Instructor's Resource Center (**www.pearsoninternationaleditions.com/hubbard**).

PowerPoint Lecture Presentation

Instructors can use the PowerPoint slides for class presentations, and students can use them for lecture preview or review. These slides include all the graphs, tables, and equations from the textbook. Student versions of the PowerPoint slides are available as PDF files. These files allow students to print the slides and bring them to class for note taking. Instructors can download these PowerPoint presentations from the Instructor's Resource Center (**www.pearsoninternationaleditions.com/hubbard**).

Blackboard and WebCT Course Content

Pearson Education offers fully customizable course content for the Blackboard and WebCT Course Management Systems.

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Accuracy Checkers, Class Testers, and Reviewers

The guidance and recommendations of the following instructors helped us to revise the content and features of this text. While we could not incorporate every suggestion from every reviewer, we carefully considered each piece of advice we received. We are grateful for the hard work that went into their reviews and truly believe that their feedback was indispensable in revising this text. We appreciate their assistance in making this the best text it could be; they have helped teach a new generation of students about the exciting world of money and banking.

Special thanks to Edward Scahill of the University of Scranton for preparing some of the *Making the Connection* features. We also extend special thanks to Bob Gillette of the University of Kentucky for his extraordinary work accuracy checking these chapters in page proof format and playing a critical role in improving the quality of the final product.

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We also appreciate the thoughtful comments of our reviewers and focus group participants. They brought home to us once again that there are many ways to teach a money and banking class. We hope that we have written a text with sufficient flexibility to meet the needs of most instructors. We carefully read and considered every comment and suggestion we received and incorporated many of them into the text. We believe that our text has been greatly improved as a result of the reviewing process.

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Julie Dahlquist, University of Texas at San Antonio
Peggy Dalton, Frostburg State University
H. Evren Damar, State University of New York–Brockport
Ranjit Dighe, State University of New York College–Oswego
Carter Doyle, Georgia State University
Mark Eschenfelder, Robert Morris University
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Amanda Freeman, Kansas State University
Joseph Friedman, Temple University
Marc Fusaro, Arkansas Tech University
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Eungmin Kang, St. Cloud State University
Leonie Karkoviata, University of Houston
Hugo M. Kaufmann, Queens College, City University of New York
Randall Kesselring, Arkansas State University
Ann Marie Klingenhagen, DePaul University
Sungkyu Kwak, Washburn University
John Lapp, North Carolina State University
Robert J. Martel, University of Connecticut

Don Mathews, College of Coastal Georgia
James McCague, University of North Florida
Christopher McHugh, Tufts University
Doug McMillin, Louisiana State University
Carrie Meyer, George Mason University
Jason E. Murasko, University of Houston–Clear Lake
Theodore Muzio, St. John's University
Nick Noble, Miami University
Hilde Patron, University of West Georgia
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