

CECCHETTI AND SCHOENHOLTZ



Money, Banking, and Financial Markets

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Fifth Edition

Money, Banking, and Financial Markets

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MONEY, BANKING, AND FINANCIAL MARKETS, FIFTH EDITION

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Dedication

To my father, Giovanni Cecchetti, who argued tirelessly that financial markets are not efficient; and to my grandfather Albert Schwabacher, who patiently explained why inflation is destructive.

Stephen G. Cecchetti

To my parents, Evelyn and Harold Schoenholtz, and my wife, Elvira Pratsch, who continue to teach me what is true, good, and beautiful.

Kermit L. Schoenholtz

About the Authors



Stephen G. Cecchetti is Professor of International Economics at the Brandeis International Business School (<http://people.brandeis.edu/~cecchetti/>). He previously taught at Brandeis from 2003 to 2008. Before rejoining Brandeis in 2014, Cecchetti completed a five-year term as Economic Adviser and Head of the Monetary and Economic Department at the Bank for International Settlements in Basel, Switzerland. During his time at the Bank for International Settlements, Cecchetti was involved in numerous postcrisis global regulatory reform initiatives, including the work of the Basel Committee on Banking Supervision and the Financial Stability Board.

He has also taught at the New York University Leonard N. Stern School of Business and at The Ohio State University. In addition to his other appointments, Cecchetti served as Executive Vice President and Director of Research, Federal Reserve Bank of New York (1997–1999); Editor, *Journal of Money, Credit, and Banking* (1992–2001); Research Associate, National Bureau of Economic Research (1989–2011); and Research Fellow, Centre for Economic Policy Research (2008–present), among others.

Cecchetti's research interests include inflation and price measurement, monetary policy, macroeconomic theory, economics of the Great Depression, and the economics of financial regulation.

Cecchetti received an SB in Economics from the Massachusetts Institute of Technology in 1977 and a PhD in Economics from the University of California at Berkeley in 1982.



Kermit L. Schoenholtz is Professor of Management Practice in the Department of Economics of New York University's Leonard N. Stern School of Business, where he teaches courses on financial crises, money and banking, and macroeconomics (<http://pages.stern.nyu.edu/~kschoenh/>). He also directs NYU Stern's Center for Global Economy and Business (www.stern.nyu.edu/cgeb). Schoenholtz was Citigroup's global chief economist from 1997 until 2005.

Schoenholtz joined Salomon Brothers in 1986, working in their New York, Tokyo, and London offices. In 1997, he became chief economist at Salomon, after which he became chief economist at Salomon Smith Barney and later at Citigroup.

Schoenholtz has published extensively for the professional investment community about financial, economic, and policy developments; more recently, he has contributed to policy-focused scholarly research in economics. He is a member of the Financial Research Advisory Committee of the U.S. Treasury's Office of Financial Research, a panel member of the U.S. Monetary Policy Forum, and a member of the Council on Foreign Relations. He also has served as a member of the Executive Committee of the London-based Centre for Economic Policy Research.

From 1983 to 1985, Schoenholtz was a Visiting Scholar at the Bank of Japan's Institute for Monetary and Economic Studies. He received an MPhil in economics from Yale University in 1982 and an AB from Brown University in 1977.

Preface

The world of money, banking, and financial markets is constantly evolving. Every year, people explore new ways to pay for purchases, save for the future, and borrow to meet current needs.

New technology is an ongoing source of change. Internet banking makes it easier than ever for individuals to take control of their finances. And smartphones not only allow American college students to pay for their morning coffee but also are giving hundreds of millions of people in poor countries their first access to the financial system.

In some instances, crises provided the impetus for change. For example, new regulations aimed at making the financial system safer have pushed many banks to take fewer risks than they did even five years ago. Financial markets also have become more resilient and less likely to need public support. And monetary policymakers, especially in places where economic growth has slowed and deflation is a risk, have adopted a slew of policies never seen before. In much of Europe and Japan, interest rates have fallen below zero—breaking through what had long been seen as a permanent barrier—while new policies are in place to boost bank lending and restore inflation and growth to precrisis levels.

The same things that are reshaping the global financial system also are transforming the study of money and banking. Some old questions are surfacing with new intensity: How can individuals use the changing financial system to improve their lives? How can governments ensure that the financial system remains stable? And how can monetary policymakers keep inflation low, employment high, and both of them stable?

Against this background, students who memorize the operational details of today's financial system are investing in a short-lived asset. Our purpose in writing this book is to focus on the basic functions served by the financial system while deemphasizing its current structure and rules. Learning the economic rationale behind current financial tools, rules, and structures is much more valuable than concentrating on the tools, rules, and structures themselves. It is an approach designed to give students the lifelong ability to understand and evaluate whatever financial innovations and developments they may one day confront.

The Core Principles Approach

Toward that end, the entire content of this book is based on five *core principles*. Knowledge of these principles is the basis for understanding what the financial system does, how it is organized, how it is linked to the real economy, and how it is changing. If you understand these five principles, you will understand the future:

1. Time has value.
2. Risk requires compensation.
3. Information is the basis for decisions.
4. Markets determine prices and allocate resources.
5. Stability improves welfare.

These five core principles serve as a framework through which to view the history, current status, and future development of money and banking. They are discussed in

detail in Chapter 1; throughout the rest of the text, marginal icons remind students of the principles that underlie particular discussions.

Focusing on core principles has created a book that is both concise and logically organized. This approach does require some adjustments to the traditional methodology used to teach money and banking, but for the most part they are changes in emphasis only. That said, some of these changes have greatly improved both the ease of teaching and the value students draw from the course. Among them are the emphasis on risk and on the lessons from the financial crisis; use of the term *financial instrument*; parallel presentation of the Federal Reserve and the European Central Bank; a streamlined, updated section on monetary economics; and the adoption of an integrated global perspective.

Innovations in This Text

In addition to the focus on core principles, this book introduces a series of innovations designed to foster coherence, relevance, and timeliness in the study of money and banking.

The Money and Banking Blog

The global economy and financial system of the 21st century is evolving quickly. Changes in technology, in the structure of financial institutions and markets, and in monetary and regulatory policy are occurring at a pace that far outstrips the normal three- or four-year cycle at which textbooks are revised. To keep examples and applications current, we have introduced the *Money and Banking* blog. Available at www.moneyandbanking.com, the blog provides timely commentary on events in the news and on questions of more lasting interest.

The blog is closely linked to this book. Like the book, it aims to enhance students' understanding of the world around them. Based on the five core principles of money and banking, each blog entry is associated with a specific chapter. Students following the blog will learn how current events affect the various parts of the financial system—money, financial instruments, financial markets, financial institutions, financial regulators, and central banks.

Starting with the fifth edition, the material from the blog is integrated into the book in two ways. First, each chapter includes an “In the Blog” boxed reading. These are short versions of postings that have appeared on www.moneyandbanking.com since the publication of the previous edition of this book. These excerpts describe current issues that highlight the lessons in the body of the chapter. Second, the website includes a listing of the posts by chapter. This listing allows students and instructors alike to find new, up-to-date material that illustrates the lessons and core principles emphasized in each chapter.

To receive the latest commentary as it is posted every week or so, subscribe to the blog at www.moneyandbanking.com. You can also follow the authors on Twitter (@MoneyBanking1).



Federal Reserve Economic Data (FRED)

Money, Banking, and Financial Markets systematically integrates the use of economic and financial data from FRED, the online database provided free of charge to the public by the Federal Reserve Bank of St. Louis. As of this writing, FRED offers more than 400,000 data series from 80 sources, including indicators for about 200 countries. Information on using FRED appears in Appendix B to Chapter 1 and at www.mhhe.com/moneyandbanking5e (refer to the FRED Resources).

Through frequent use of FRED, students will gain up-to-date knowledge of the U.S. and other economies and an understanding of the real-world challenges of economic measurement; they will also gain skills in analysis and data manipulation that will serve them well for years to come. Many of the graphs in this book were produced (and can be easily updated) using FRED. In addition, end-of-chapter Data Exploration problems call on students to use FRED to analyze key economic and financial indicators highlighted in that chapter. (For detailed instructions for using FRED online to answer the Data Exploration problems in Chapters 1 to 10, visit www.mhhe.com/moneyandbanking5e and click on Data Exploration Hints.) Students can even do some assignments using the FRED app for their mobile devices.

Impact of the Crises

The effects of the global financial crisis of 2007–2009 and the euro-area crisis that began in 2010 are transforming money, banking, and financial markets. Accordingly, from beginning to end, the book integrates the issues raised by these crises and by the responses of policymakers.

The concept of a liquidity crisis surfaces in Chapter 2, and the risks associated with leverage and the rise of shadow banking are introduced in Chapter 3. Issues specific to the 2007–2009 crisis—including securitization, rating agencies, subprime mortgages, over-the-counter trading, and complex financial instruments like credit-default swaps—are included in the appropriate intermediate chapters of the text. Chapter 16 explores the role of the European Central Bank in managing the euro-area crisis. More broadly, the sources of threats to the financial system as a whole are identified throughout the book, and there is a focused discussion on regulatory initiatives to limit such systemic threats. Finally, we present—in a logical and organized manner—the unconventional monetary policy tools, including the use of negative interest rates and the concept of the effective lower bound, that have become so prominent in postcrisis policy debates and remain relevant today.

Early Introduction of Risk

It is impossible to appreciate how the financial system works without understanding risk. In the modern financial world, virtually all transactions transfer some degree of risk between two or more parties. These risk trades can be extremely beneficial, as they are in the case of insurance markets. But there is still potential for disaster. In 2008, risk-trading activity at some of the world's largest financial firms threatened the stability of the international financial system.

Even though risk is absolutely central to an understanding of the financial system, most money and banking books give very little space to the topic. In contrast, this book devotes an entire chapter to defining and measuring risk. Chapter 5 introduces the concept of a risk premium as compensation for risk and shows how diversification can reduce risk. Because risk is central to explaining the valuation of financial instruments, the role of financial intermediaries, and the job of central bankers, the book returns to this concept throughout the chapters.

Emphasis on Financial Instruments

Financial instruments are introduced early in the book, where they are defined based on their economic function. This perspective leads naturally to a discussion of the uses

of various instruments and the determinants of their value. Bonds, stocks, and derivatives all fit neatly into this framework, so they are all discussed together.

This approach solves one of the problems with existing texts, use of the term *financial market* to refer to bonds, interest rates, and foreign exchange. In its conventional microeconomic sense, the term *market* signifies a place where trade occurs, not the instruments that are traded. This book follows standard usage of the term *market* to mean a place for trade. It uses the term *financial instruments* to describe virtually all financial arrangements, including loans, bonds, stocks, futures, options, and insurance contracts. Doing so clears up the confusion that can arise when students arrive in a money and banking class fresh from a course in the principles of economics.

Parallel Presentation of the Federal Reserve and the European Central Bank

To foster a deeper understanding of central banking and monetary policy, the presentation of this material begins with a discussion of the central bank's role and objectives. Descriptions of the Federal Reserve and the European Central Bank follow. By starting on a theoretical plane, students gain the tools they need to understand how all central banks work. This avoids focusing on institutional details that may quickly become obsolete. Armed with a basic understanding of what central banks do and how they do it, students will be prepared to grasp the meaning of future changes in institutional structure.

Another important innovation is the parallel discussion of the two most important central banks in the world, the Federal Reserve and the European Central Bank (ECB). Students of the 21st century are ill-served by books that focus entirely on the U.S. financial system. They need a global perspective on central banking, the starting point for which is a detailed knowledge of the ECB.

Modern Treatment of Monetary Economics

The discussion of central banking is followed by a simple framework for understanding the impact of monetary policy on the real economy. Modern central bankers think and talk about changing the interest rate when inflation deviates from its target and output deviates from its normal level. Yet traditional treatments of monetary economics employ aggregate demand and aggregate supply diagrams, which relate output to the *price level*. Our approach is consistent with that in the most recent editions of the leading macroeconomics textbooks and directly links output to *inflation*, simplifying the exposition and highlighting the role of monetary policy. Because this book also skips the IS-LM framework, its presentation of monetary economics is several chapters shorter. Only those topics that are most important in a monetary economics course are covered: long-run money growth and inflation and short-run monetary policy and business cycles. This streamlined treatment of monetary theory is not only concise but more modern and more relevant than the traditional approach. It helps students to see monetary policy changes as part of a strategy rather than as one-off events, and it gives them a complete understanding of business cycle fluctuations.

Integrated Global Perspective

Technological advances have dramatically reduced the importance of a bank's physical location, producing a truly global financial system. Twenty years ago money and

banking books could afford to focus primarily on the U.S. financial system, relegating international topics to a separate chapter that could be considered optional. But in today's financial world, even a huge country like the United States cannot be treated in isolation. The global financial system is truly an integrated one, rendering separate discussion of a single country's institutions, markets, or policies impossible. This book incorporates the discussion of international issues throughout the text, emphasizing when national borders are important to bankers and when they are not.

Organization

This book is organized to help students understand both the financial system and its economic effects on their lives. That means surveying a broad series of topics, including what money is and how it is used; what a financial instrument is and how it is valued; what a financial market is and how it works; what a financial institution is and why we need it; and what a central bank is and how it operates. More important, it means showing students how to apply the five core principles of money and banking to the evolving financial and economic arrangements that they inevitably will confront during their lifetimes.

Part I: Money and the Financial System. Chapter 1 introduces the core principles of money and banking, which serve as touchstones throughout the book. It also presents FRED, the free online database of the Federal Reserve Bank of St. Louis. The book often uses FRED data for figures and tables, and every chapter calls on students to use FRED to solve end-of-chapter problems. Chapter 2 examines money both in theory and in practice. Chapter 3 follows with a bird's-eye view of financial instruments, financial markets, and financial institutions. (Instructors who prefer to discuss the financial system first can cover Chapters 2 and 3 in reverse order.)

Part II: Interest Rates, Financial Instruments, and Financial Markets. Part II contains a detailed description of financial instruments and the financial theory required to understand them. It begins with an explanation of present value and risk, followed by specific discussions of bonds, stocks, derivatives, and foreign exchange. Students benefit from concrete examples of these concepts. In Chapter 7 (The Risk and Term Structure of Interest Rates), for example, students learn how the information contained in the risk and term structure of interest rates can be useful in forecasting. In Chapter 8 (Stocks, Stock Markets, and Market Efficiency), they learn about stock bubbles and how those anomalies influence the economy. And in Chapter 10 (Foreign Exchange), they study the Big Mac index to understand the concept of purchasing power parity. Throughout this section, two ideas are emphasized: that financial instruments transfer resources from savers to investors, and that in doing so, they transfer risk to those best equipped to bear it.

Part III: Financial Institutions. In Part III, the focus shifts to financial institutions. Chapter 11 introduces the economic theory that is the basis for our understanding of the role of financial intermediaries. Through a series of examples, students see the problems created by asymmetric information as well as how financial intermediaries can mitigate those problems. The remaining chapters in Part III put theory into practice. Chapter 12 presents a detailed discussion of banking, the bank balance sheet, and the risks that banks must manage. Chapter 13 provides a brief overview of the financial industry's structure, and Chapter 14 explains financial regulation, including a discussion of regulation to limit threats to the financial system as a whole.