sixth edition

Financial Markets and Institutions

Anthony Saunders
Stern School of Business
New York University

Marcia Millon Cornett
Bentley University
To Ingo Walter: a mentor, co-author, and friend.
—TONY SAUNDERS

To my parents, Tom and Sue.
—MARCIA MILLON CORNETT
Anthony Saunders

Anthony Saunders is the John M. Schiff Professor of Finance and former Chair of the Department of Finance at the Stern School of Business at New York University. Professor Saunders received his Ph.D. from the London School of Economics and has taught both undergraduate and graduate level courses at NYU since 1978. Throughout his academic career, his teaching and research have specialized in financial institutions and international banking. He has served as a visiting professor all over the world, including INSEAD, the Stockholm School of Economics, and the University of Melbourne.

Professor Saunders holds or has held positions on the Board of Academic Consultants of the Federal Reserve Board of Governors as well as the Council of Research Advisors for the Federal National Mortgage Association. In addition, Dr. Saunders has acted as a visiting scholar at the Comptroller of the Currency and at the International Monetary Fund. He is editor of the *Journal of Financial Markets, Instruments and Institutions*, as well as the associate editor of a number of other journals. His research has been published in all of the major finance and banking journals and in several books. He has just published a new edition of his textbook, with Dr. Marcia Millon Cornett, *Financial Institutions Management: A Risk Management Approach* for McGraw-Hill (eighth edition) as well as a third edition of his book on credit risk measurement for John Wiley & Sons. Professor Saunders was ranked the most prolific author out of more than 5,800 who have published in the seven leading finance academic journals from 1959–2008 (“Most Prolific Authors in the Financial Literature, 1959–2008,” Jean Heck and Philip Cooley).

Marcia Millon Cornett

Marcia Millon Cornett is the Robert A. and Julia E. Dorn Professor of Finance at Bentley University. She received her B.S. degree in economics from Knox College in Galesburg, Illinois, and her M.B.A. and Ph.D. degrees in finance from Indiana University in Bloomington, Indiana. Dr. Cornett has written and published several articles in the areas of bank performance, bank regulation, corporate finance, and investments. Articles authored by Dr. Cornett have appeared in such academic journals as the *Journal of Finance*, the *Journal of Money, Credit, and Banking*, the *Journal of Financial Economics, Financial Management*, and the *Journal of Banking and Finance*. In 2008, she was ranked the 124th most published out of more than 17,600 authors and the number five female author in finance literature over the last 50 years. Along with Anthony Saunders, Dr. Cornett has recently completed work on the eighth edition of *Financial Institutions Management* (McGraw-Hill/Irwin). With Troy A. Adair, Jr. (Harvard University) and John Nofsinger (University of Alaska, Anchorage), she has also recently completed work on the third edition of *Finance: Applications and Theory* and the second edition of *M: Finance* (McGraw-Hill/Irwin). Professor Cornett serves as an associate editor for the *Journal of Banking and Finance*, the *Journal of Financial Services Research, Review of Financial Economics, Financial Review*, and *Multinational Finance Journal*. Dr. Cornett has served as a member of the Board of Directors, the Executive Committee, and the Finance Committee of the SIU Credit Union. Dr. Cornett has also taught at Southern Illinois University at Carbondale, the University of Colorado, Boston College, Southern Methodist University, and Boston University.
he last 25 years have been dramatic for the financial services industry. In
the 1990s and 2000s, boundaries between the traditional industry sectors,
such as commercial banking and investment banking, broke down and com-
petition became increasingly global in nature. Many forces contributed to
this breakdown in interindustry and intercountry barriers, including financial
innovation, technology, taxation, and regulation. Then in 2008–2009, the
financial services industry experienced the worst financial crisis since the Great Depres-
sion. Even into the mid-2010s, the U.S. and world economies have not recovered from this
crisis. It is in this context that this book is written.

As the economic and competitive environments change, attention to profit and, more
than ever, risk become increasingly important. This book offers a unique analysis of the
risks faced by investors and savers interacting through both financial institutions and finan-
cial markets, as well as strategies that can be adopted for controlling and better managing
these risks. Special emphasis is also put on new areas of operations in financial markets
and institutions such as asset securitization, off-balance-sheet activities, and globalization
of financial services.

While maintaining a risk measurement and management framework, Financial Mar-
kets and Institutions provides a broad application of this important perspective. This book
recognizes that domestic and foreign financial markets are becoming increasingly inte-
grated and that financial intermediaries are evolving toward a single financial services
industry. The analytical rigor is mathematically accessible to all levels of students, under-
graduate and graduate, and is balanced by a comprehensive discussion of the unique envi-
roment within which financial markets and institutions operate. Important practical tools
such as how to issue and trade financial securities and how to analyze financial statements
and loan applications will arm students with the skills necessary to understand and man-
age financial market and institution risks in this dynamic environment. While descriptive
concepts, so important to financial management (financial market securities, regulation,
industry trends, industry characteristics, etc.) are included in the book, ample analytical
techniques are also included as practical tools to help students understand the operation of
modern financial markets and institutions.

INTENDED AUDIENCE

Financial Markets and Institutions is aimed at the first course in financial markets and
institutions at both the undergraduate and M.B.A. levels. While topics covered in this book
are found in more advanced textbooks on financial markets and institutions, the explana-
tions and illustrations are aimed at those with little or no practical or academic experience
beyond the introductory level finance courses. In most chapters, the main relationships are
presented by figures, graphs, and simple examples. The more complicated details and tech-
nical problems related to in-chapter discussion are provided in appendixes to the chapters
(available through McGraw-Hill Connect Finance or your course instructor).

ORGANIZATION

Since our focus is on return and risk and the sources of that return and risk in domestic and
foreign financial markets and institutions, this book relates ways in which a modern finan-
cial manager, saver, and investor can expand return with a managed level of risk to achieve
the best, or most favorable, return–risk outcome.

Part 1 provides an introduction to the text and an overview of financial markets and
institutions. Chapter 1 defines and introduces the various domestic and foreign financial
markets and describes the special functions of FIs. This chapter also takes an analytical
look at how financial markets and institutions benefit today’s economy. In Chapter 2, we
Preface

provide an in-depth look at interest rates. We first look at factors that determine interest rate levels, as well as their past, present, and expected future movements. We then review the concept of time value of money. Chapter 3 then applies these interest rates to security valuation. In Chapter 4, we describe the Federal Reserve System and how monetary policy implemented by the Federal Reserve affects interest rates and, ultimately, the overall economy.

Part 2 of the text presents an overview of the various securities markets. We describe each securities market, its participants, the securities traded in each, the trading process, and how changes in interest rates, inflation, and foreign exchange rates impact a financial manager’s decisions to hedge risk. These chapters cover the money markets (Chapter 5), bond markets (Chapter 6), mortgage markets (Chapter 7), stock markets (Chapter 8), foreign exchange markets (Chapter 9), and derivative securities markets (Chapter 10).

Part 3 of the text summarizes the operations of commercial banks. Chapter 11 describes the key characteristics and recent trends in the commercial banking sector. Chapter 12 describes the financial statements of a typical commercial bank and the ratios used to analyze those statements. This chapter also analyzes actual financial statements for representative commercial banks. Chapter 13 provides a comprehensive look at the regulations under which these financial institutions operate and, particularly, the effect of recent changes in regulation.

Part 4 of the text provides an overview describing the key characteristics and regulatory features of the other major sectors of the U.S. financial services industry. We discuss other lending institutions (savings institutions, credit unions, and finance companies) in Chapter 14, insurance companies in Chapter 15, securities firms and investment banks in Chapter 16, investment companies in Chapter 17, and pension funds in Chapter 18.

Part 5 concludes the text by examining the risks facing a modern FI and FI managers and the various strategies for managing these risks. In Chapter 19, we preview the risk measurement and management chapters in this section with an overview of the risks facing a modern FI. We divide the chapters on risk measurement and management along two lines: measuring and managing risks on the balance sheet, and managing risks off the balance sheet. In Chapter 20, we begin the on-balance-sheet risk measurement and management section by looking at credit risk on individual loans and bonds and how these risks adversely impact an FI’s profits and value. The chapter also discusses the lending process, including loans made to households and small, medium-size, and large corporations. Chapter 21 covers liquidity risk in financial institutions. This chapter includes a detailed analysis of the ways in which FIs can insulate themselves from liquidity risk and the key role deposit insurance and other guarantee schemes play in reducing liquidity risk.

In Chapter 22, we investigate the net interest margin as a source of profitability and risk, with a focus on the effects of interest rate risk and the mismatching of asset and liability maturities on FI risk exposure. At the core of FI risk insulation is the size and adequacy of the owner’s capital stake, which is also a focus of this chapter.

The management of risk off the balance sheet is examined in Chapter 23. The chapter highlights various new markets and instruments that have emerged to allow FIs to better manage three important types of risk: interest rate risk, foreign exchange risk, and credit risk. These markets and instruments and their strategic use by FIs include forwards, futures, options, and swaps.

Finally, Chapter 24 explores ways of removing credit risk from the loan portfolio through asset sales and securitization.
NEW FEATURES

Key changes to this edition include the following:

- Tables and figures in all chapters have been revised to include the most recently available data.
- New boxes highlighting significant events occurring “After the Crisis” have been added to chapters throughout the book.
- Major changes proposed for the regulation of financial institutions have been included and updated where appropriate.
- How financial markets and institutions continue to recover from the financial crisis is discussed throughout the book. Virtually every chapter includes new material detailing how the financial crisis has affected risk management in financial institutions.
- New end-of-chapter questions and problems have been added to all chapters.
- Several chapters include a discussion of the European debt crisis and how it has affected the risk and return for investors and financial institutions.
- Chapter 1 includes a new section on shadow banks. The chapter also provides an update on the implementation of the Wall Street Reform and Consumer Protection Act, which was enacted as a result of the financial crisis.
- Chapter 4 provides an update on the Federal Reserve’s actions intended to strengthen the U.S. economy, including the various quantitative easing programs instituted by the Fed.
- Chapter 5 includes coverage of the Fed’s new Treasury auction process, as well as a discussion of the LIBOR scandal.
- Chapter 7 provides an update of the status of Fannie Mae and Freddie Mac.
- Chapter 8 includes coverage of the merger of NYSE Euronext and ICE.
- Chapter 13 includes coverage of Basel III capital adequacy rules. The major changes are described in detail. Many in-chapter examples and end-of-chapter problems have been added to illustrate the many complex changes to capital adequacy calculations.
- Chapter 16 includes a discussion of the losses incurred by J. P. Morgan Chase from derivatives trading by the “London Whale,” as well as various other scandals plaguing investment banks.
- Chapter 17 has been retitled “Investment Companies” to capture the broader nature of the investment fund industry.
- Chapter 21 includes a detailed discussion and examples of the new international liquidity standards enacted as a result of the financial crisis.

ACKNOWLEDGMENTS

We take this opportunity to thank all of those individuals who helped us prepare this and previous editions. We want to express our appreciation to those instructors whose insightful comments and suggestions were invaluable to us during this revision.

Amanda Adkisson  
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Preface

We would like to thank the staff at McGraw-Hill for their help and guidance, especially Chuck Synovec, executive brand manager; Noelle Bathurst, development editor; Brent dela Cruz, content project manager; Kevin Shanahan, digital product analyst; Melissa Caughlin, marketing manager; Jennifer Jelinski, marketing specialist; and Michael McCormick, senior buyer. Additional thanks to Sarah Otterness, Christina Kouvoulis, Casey Rasch, Christina Holt, and Jennifer Schurer for their editorial assistance. We are also grateful to our secretaries and assistants, Rebecca Roach, Rhianna Joffrion, and Brenda Webb.

Anthony Saunders
Marcia Milon Cornett
The following special features have been integrated throughout the text to encourage student interaction and to aid students in absorbing and retaining the material.

**CHAPTER-OPENING OUTLINES**

These outlines offer students a snapshot view of what they can expect to learn from each chapter’s discussion.

| LG 4-1 | Understand the major functions of the Federal Reserve System. |
| LG 4-2 | Identify the structure of the Federal Reserve System. |
| LG 4-3 | Identify the monetary policy tools used by the Federal Reserve. |
| LG 4-4 | Appreciate how monetary policy changes affect key economic variables. |
| LG 4-5 | Understand how central banks around the world adjusted their monetary policy in the recent financial crisis. |

**LEARNING GOALS**

Learning goals (LGs) appear at the beginning of each chapter to provide a quick introduction to the key chapter material. These goals are also integrated with the end-of-chapter questions and problems, which allows instructors to easily emphasize the learning goal(s) as they choose.

- **Federal Open Market Committee (FOMC)**: The major monetary policy-making body of the Federal Reserve System.
- **open market operations**: Purchases and sales of U.S. government and federal agency securities.

**BOLD KEY TERMS AND A MARGINAL GLOSSARY**

The main terms and concepts are emphasized throughout the chapter by bold key terms called out in the text and defined in the margins.

**PERTINENT WEB ADDRESSES**

Website addresses are referenced in the margins throughout each chapter, providing additional resources to aid in the learning process.
ultly, the federal funds rate regularly fell well below the target rate of 5.25 percent. The Fed also lowered the discount rate by a half percentage point, in a bid to encourage banks to borrow directly from the Fed. But the Fed had little success in spurring the discount window borrowing. Typically, banks are reluctant to borrow from the Fed, and officials are expected to cut the federal funds rate for the first time in four years. Markets widely expect at least a quarter point cut to 5 percent, though some analysts say a half point cut is possible. The smaller cut might have less effect on financial markets because it would simply bring the new target down to where interest rates had been.

Central banks guide the monetary policy in various countries. The European Central Bank (ECB) is the central bank of the eurozone, and the Bank of England is the central bank of the United Kingdom. These are independent central banks whose decisions do not need to be subject to government approval. In contrast, the People’s Bank of China, the central bank of China, and the Federal Reserve of Brazil are less independent in that the government can influence the operations of these central banks. Independent central banks can be free from pressure from political forces.
Using a Spreadsheet to Calculate Pension Benefit Payments: Your employer uses a final pay formula to determine retirement payments to its employees. You have 20 years of service at the company and are considering retirement some time in the next 10 years. Your employer uses a final pay formula by which you receive an annual benefit payment of 4 percent of your average salary over the last three years of service times the number of years employed. Calculate the annual benefit if you retire now, in 2 years, 5 years, 8 years, and 10 years using the estimated annual salary during the last three years of service listed below. (LG 18-2)

<table>
<thead>
<tr>
<th>Years</th>
<th>Salary</th>
<th>Benefit Calculation</th>
<th>Benefit</th>
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<tr>
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<td>54,143 × 0.05 × 28 =</td>
<td>$78,800</td>
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<tr>
<td>2</td>
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<tr>
<td>10</td>
<td>55,231</td>
<td>55,231 × 0.05 × 34 =</td>
<td>$87,238</td>
</tr>
</tbody>
</table>

Questions
1. Who are the suppliers of loanable funds? (LG 2-1)
2. Who are the demanders of loanable funds? (LG 2-2)
3. What factors cause the supply of funds curve to shift? (LG 2-4)
4. What factors cause the demand for funds curve to shift? (LG 2-4)
5. What are six factors that determine the fair interest rate on a security? (LG 2-6)
6. What should happen to a security’s fair interest rate as the security’s liquidity risk increases? (LG 2-6)
7. Discuss and compare the three explanations for the shape of the yield curve. (LG 2-7)

Problems
1. A particular security’s equilibrium rate of return is 8 percent. For all securities, the inflation risk premium is 1.75 percent and the real risk-free rate is 3.5 percent. The security’s liquidity risk premium is 0.25 percent and maturity risk premium is 0.85 percent. The security has no special covenants.

Search the Site
Go to the United States Treasury website and find the latest information available on the size of the U.S. national debt. Go to the U.S. Treasury’s Treasury Direct website at www.treasurydirect.gov. Click on “Debt to GDP” on June 7, 2013, the size of the national debt was $16.74 trillion.

Questions
1. What is the most recent dollar value of the U.S. national debt?
2. Calculate the percentage change in the U.S. national debt since June 7, 2013.
FOR THE INSTRUCTOR

Instructors will have access to teaching support such as electronic files of the ancillary materials, described below, available within Connect.

• **Instructor’s Manual** Prepared by Tim Manuel, University of Montana, the Instructor’s Manual includes detailed chapter contents and outline, additional examples for use in the classroom, and extensive teaching notes.

• **Test Bank** Prepared by Arthur Guarino, Rutgers University, the Test Bank includes nearly 1,000 additional problems to be used for test material.

• **EZ Test Online** A comprehensive bank of test questions is provided within a computerized test bank powered by McGraw-Hill’s flexible electronic testing program EZ Test Online (www.eztestonline.com). EZ Test Online allows you to create tests or quizzes in this easy to use program.

Instructors can select questions from multiple McGraw-Hill test banks or author their own, and then either print the test for paper distribution or give it online. This user-friendly program allows instructors to sort questions by format, edit existing questions or add new ones, and scramble questions for multiple versions of the same test. Sharing tests with colleagues, adjuncts, and TAs is easy! Instant scoring and feedback are provided and EZ Test’s grade book is designed to easily export to your grade book.

• **Solutions Manual** Prepared by coauthor Marcia Millon Cornett, this manual provides worked out solutions to the end-of-chapter questions. Author involvement ensures consistency between the approaches presented in the text and those in the manual.

• **PowerPoint** Developed by Tim Manuel, University of Montana, the PowerPoint presentation includes full-color slides featuring lecture notes, figures, and tables. The slides can be easily downloaded and edited to better fit your lecture.

SUPPLEMENTS

FOR THE INSTRUCTOR

Instructors will have access to teaching support such as electronic files of the ancillary materials, described below, available within Connect.

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CONTENTS IN BRIEF

Preface vii

part 1 INTRODUCTION AND OVERVIEW OF FINANCIAL MARKETS 1
1 Introduction 1
2 Determinants of Interest Rates 26
3 Interest Rates and Security Valuation 57
4 The Federal Reserve System, Monetary Policy, and Interest Rates 91

part 2 SECURITIES MARKETS 127
5 Money Markets 127
6 Bond Markets 164
7 Mortgage Markets 203
8 Stock Markets 234
9 Foreign Exchange Markets 277
10 Derivative Securities Markets 304

part 3 COMMERCIAL BANKS 346
11 Commercial Banks: Industry Overview 346
12 Commercial Banks’ Financial Statements and Analysis 372
13 Regulation of Commercial Banks 405

part 4 OTHER FINANCIAL INSTITUTIONS 444
14 Other Lending Institutions: Savings Institutions, Credit Unions, and Finance Companies 444
15 Insurance Companies 469
16 Securities Firms and Investment Banks 494
17 Investment Companies 517
18 Pension Funds 548

part 5 RISK MANAGEMENT IN FINANCIAL INSTITUTIONS 569
19 Types of Risks Incurred by Financial Institutions 569
20 Managing Credit Risk on the Balance Sheet 588
21 Managing Liquidity Risk on the Balance Sheet 616
22 Managing Interest Rate Risk and Insolvency Risk on the Balance Sheet 639
23 Managing Risk off the Balance Sheet with Derivative Securities 667
24 Managing Risk off the Balance Sheet with Loan Sales and Securitization 696

References 723
Index 725
Preface vii

part 1 INTRODUCTION AND OVERVIEW OF FINANCIAL MARKETS  1

1 Introduction 1

Why Study Financial Markets and Institutions?
Chapter Overview 1
Overview of Financial Markets 3
Primary Markets versus Secondary Markets 4
Money Markets versus Capital Markets 6
Foreign Exchange Markets 9
Derivative Security Markets 9
Financial Market Regulation 10
Overview of Financial Institutions 10
Unique Economic Functions Performed by Financial Institutions 12
Additional Benefits FIs Provide to Suppliers of Funds 14
Economic Functions FIs Provide to the Financial System as a Whole 15
Risks Incurred by Financial Institutions 16
Regulation of Financial Institutions 16
Trends in the United States 17
Globalization of Financial Markets and Institutions 20
Appendix IA: The Financial Crisis: The Failure of Financial Institutions' Specialness (available through Connect or your course instructor)

2 Determinants of Interest Rates 26

Interest Rate Fundamentals: Chapter Overview 26
Loanable Funds Theory 27
Supply of Loanable Funds 28
Demand for Loanable Funds 29
Equilibrium Interest Rate 30
Factors That Cause the Supply and Demand Curves for Loanable Funds to Shift 31
Movement of Interest Rates over Time 35
Determinants of Interest Rates for Individual Securities 35
Inflation 36
Real Risk-Free Rates 36
Default or Credit Risk 37
Liquidity Risk 39
Special Provisions or Covenants 40
Term to Maturity 40

Term Structure of Interest Rates 42
Unbiased Expectations Theory 42
Liquidity Premium Theory 44
Market Segmentation Theory 46
Forecasting Interest Rates 47
Time Value of Money and Interest Rates 49

Time Value of Money 49
Lump Sum Valuation 49
Annuity Valuation 52

3 Interest Rates and Security Valuation 57

Interest Rates as a Determinant of Financial Security Values:
Chapter Overview 57
Various Interest Rate Measures 58
Coupon Rate 58
Required Rate of Return 58
Expected Rate of Return 59
Required versus Expected Rates of Return:
The Role of Efficient Markets 60
Realized Rate of Return 61
Bond Valuation 62
Bond Valuation Formula Used to Calculate Fair Present Values 62
Bond Valuation Formula Used to Calculate Yield to Maturity 64
Equity Valuation 65
Zero Growth in Dividends 67
Constant Growth in Dividends 68
Supernormal (or Nonconstant) Growth in Dividends 69
Impact of Interest Rate Changes on Security Values 70
Impact of Maturity on Security Values 71
Maturity and Security Prices 72
Maturity and Security Price Sensitivity to Changes in Interest Rates 72
Impact of Coupon Rates on Security Values 73
Coupon Rate and Security Price 73
Coupon Rate and Security Price Sensitivity to Changes in Interest Rates 74
Duration 75
A Simple Illustration of Duration 75
A General Formula for Duration 77
Features of Duration 79
Economic Meaning of Duration 80
Large Interest Rate Changes and Duration 83
Contents

4 The Federal Reserve System, Monetary Policy, and Interest Rates 91

Major Duties and Responsibilities of the Federal Reserve System: Chapter Overview 91
Structure of the Federal Reserve System 92
Organization of the Federal Reserve System 92
Board of Governors of the Federal Reserve System 94
Federal Open Market Committee 95
Functions Performed by Federal Reserve Banks 95
Balance Sheet of the Federal Reserve 100

Monetary Policy Tools 103
Open Market Operations 105
The Discount Rate 108
Reserve Requirements (Reserve Ratios) 110

The Federal Reserve, the Money Supply, and Interest Rates 114
Effects of Monetary Tools on Various Economic Variables 115
Money Supply versus Interest Rate Targeting 116

International Monetary Policies and Strategies 119
Systemwide Rescue Programs Employed During the Financial Crisis 121
Challenges Remain After the Crisis 124

5 Money Markets 127

Definition of Money Markets: Chapter Overview 127

Money Markets 128
Yields on Money Market Securities 128
Bond Equivalent Yields 129
Effective Annual Return 129
Discount Yields 129
Single-Payment Yields 130

Money Market Securities 131
Treasury Bills 133
Federal Funds 139
Repurchase Agreements 141
Commercial Paper 143
Negotiable Certificates of Deposit 148

Banker’s Acceptances 150
Comparison of Money Market Securities 151

Money Market Participants 151
The U.S. Treasury 152
The Federal Reserve 152
Commercial Banks 152
Money Market Mutual Funds 152
Brokers and Dealers 152
Corporations 153
Other Financial Institutions 153
Individuals 153

International Aspects of Money Markets 153
Euro Money Markets 155

Appendix 5A: Single versus Discriminating Price Treasury Auctions (available through Connect or your course instructor)
Appendix 5B: Creation of a Banker’s Acceptance (available through Connect or your course instructor)

6 Bond Markets 164

Definition of Bond Markets: Chapter Overview 164

Bond Market Securities 165
Treasury Notes and Bonds 178
Municipal Bonds 178
Corporate Bonds 183
Bond Ratings and Interest Rate Spreads 189
Bond Market Indexes 191

Bond Market Participants 192
Comparison of Bond Market Securities 193

International Aspects of Bond Markets 194
Eurobonds, Foreign Bonds, and Sovereign Bonds 197

7 Mortgage Markets 203

Mortgages and Mortgage-Backed Securities: Chapter Overview 203

Primary Mortgage Market 205
Mortgage Characteristics 206
Mortgage Amortization 211
Other Types of Mortgages 216

Secondary Mortgage Markets 218
History and Background of Secondary Mortgage Markets 219
Mortgage Sales 220
Mortgage-Backed Securities 220

Participants in the Mortgage Markets 227
International Trends in Securitization 229

Appendix 7A: Amortization Schedules for 30-Year Mortgage in Example 7–1 and No-Points versus Points Mortgages in Example 7–4 (available through Connect or your course instructor)
Contents

8 Stock Markets 234

The Stock Markets: Chapter Overview 234
Stock Market Securities 236
Common Stock 236
Preferred Stock 239
Primary and Secondary Stock Markets 241
Primary Stock Markets 241
Secondary Stock Markets 246
Stock Market Indexes 257
Stock Market Participants 261
Other Issues Pertaining to Stock Markets 263
Economic indicators 263
Market Efficiency 263
Stock Market Regulations 267
International Aspects of Stock Markets 269
Appendix 8A: The Capital Asset Pricing Model (available through Connect or your course instructor)
Appendix 8B: Event Study Tests (available through Connect or your course instructor)

9 Foreign Exchange Markets 277

Foreign Exchange Markets and Risk: Chapter Overview 277
Background and History of Foreign Exchange Markets 278
Foreign Exchange Rates and Transactions 282
Foreign Exchange Rates 282
Foreign Exchange Transactions 283
Return and Risk of Foreign Exchange Transactions 286
Role of Financial Institutions in Foreign Exchange Transactions 292
Interaction of Interest Rates, Inflation, and Exchange Rates 295
Purchasing Power Parity 296
Interest Rate Parity 298
Appendix 9A: Balance of Payment Accounts (available through Connect or your course instructor)

10 Derivative Securities Markets 304

Derivative Securities: Chapter Overview 304
Forwards and Futures 306
Spot Markets 306
Forward Markets 307
Futures Markets 309
Options 316
Call Options 317
Put Options 319
Option Values 321
Option Markets 323

Regulation of Futures and Options Markets 329
Swaps 330
Interest Rate Swaps 331
Currency Swaps 335
Credit Swaps 336
Swap Markets 337
Caps, Floors, and Collars 338
International Aspects of Derivative Securities Markets 340
Appendix 10A: Black–Scholes Option Pricing Model (available through Connect or your course instructor)

3 COMMERCIAL BANKS 346

11 Commercial Banks: Industry Overview 346
Commercial Banks as a Sector of the Financial Institutions Industry: Chapter Overview 346
Definition of a Commercial Bank 348
Balance Sheets and Recent Trends 348
Assets 348
Liabilities 351
Equity 352
Off-Balance-Sheet Activities 352
Other Fee-Generating Activities 356
Size, Structure, and Composition of the Industry 356
Bank Size and Concentration 358
Bank Size and Activities 360
Industry Performance 360
Regulators 363
Federal Deposit Insurance Corporation 364
Office of the Comptroller of the Currency 365
Federal Reserve System 365
State Authorities 365
Global Issues 365
Advantages and Disadvantages of International Expansion 366
Global Banking Performance 367

12 Commercial Banks’ Financial Statements and Analysis 372

Why Evaluate the Performance of Commercial Banks? Chapter Overview 372
Financial Statements of Commercial Banks 374
Balance Sheet Structure 375
Off-Balance-Sheet Assets and Liabilities 381
Other Fee-Generating Activities 384
Income Statement 385
Direct Relationship between the Income Statement and the Balance Sheet 389
Contents

Financial Statement Analysis Using a Return on Equity Framework 389
  Return on Equity and Its Components 390
  Return on Assets and Its Components 392
  Other Ratios 397

Impact of Market Niche and Bank Size on Financial Statement Analysis 398
  Impact of a Bank’s Market Niche 398
  Impact of Size on Financial Statement Analysis 399

13 Regulation of Commercial Banks 405

  Specialness and Regulation: Chapter Overview 405
  Types of Regulations and the Regulators 406
    Safety and Soundness Regulation 406
    Monetary Policy Regulation 408
    Credit Allocation Regulation 409
    Consumer Protection Regulation 409
    Investor Protection Regulation 409
    Entry and Chartering Regulation 410
    Regulators 410
  Regulation of Product and Geographic Expansion 411
    Product Segmentation in the U.S. Commercial Banking Industry 412
    Geographic Expansion in the U.S. Commercial Banking Industry 417

  Bank and Savings Institution Guarantee Funds 419
    The Federal Deposit Insurance Corporation (FDIC) 419
    The Demise of the Federal Savings and Loan Insurance Corporation (FSLIC) 421
    Reform of Deposit Insurance 421
    Non-U.S. Deposit Insurance Systems 422

  Balance Sheet Regulations 423
    Regulations on Commercial Bank Liquidity 423
    Regulations on Capital Adequacy (Leverage) 423

  Foreign Versus Domestic Regulation of Commercial Banks 428
    Product Diversification Activities 429
    Global or International Expansion Activities 429

  Appendix 13A: Calculating Deposit Insurance Premium Assessments

  Appendix 13B: Calculating Minimum Required Reserves at U.S. Depository Institutions

  Appendix 13C: Primary Regulators of Depository Institutions (available through Connect or your course instructor)

14 Other Lending Institutions: Savings Institutions, Credit Unions, and Finance Companies 444

  Other Lending Institutions: Chapter Overview 444

  Savings Institutions 445
    Size, Structure, and Composition of the Industry 445
    Balance Sheets and Recent Trends 447
    Regulators 449
    Savings Institution Recent Performance 449

  Credit Unions 450
    Size, Structure, and Composition of the Industry 452
    Balance Sheets and Recent Trends 454
    Regulators 456
    Industry Performance 456

  Finance Companies 458
    Size, Structure, and Composition of the Industry 458
    Balance Sheets and Recent Trends 459
    Industry Performance 464
    Regulation 465

  Global Issues 466

15 Insurance Companies 469

  Two Categories of Insurance Companies: Chapter Overview 469

  Life Insurance Companies 470
    Size, Structure, and Composition of the Industry 470
    Balance Sheets and Recent Trends 475
    Regulation 477

  Property–Casualty Insurance Companies 478
    Size, Structure, and Composition of the Industry 478
    Balance Sheets and Recent Trends 479
    Regulation 489

  Global Issues 489

Appendix 13D: Deposit Insurance Coverage for Commercial Banks in Various Countries (available through Connect or your course instructor)

Appendix 13E: Calculating Risk-Based Capital Ratios (available through Connect or your course instructor)
Contents

16 Securities Firms and Investment Banks  494

Services Offered By Securities Firms Versus Investment Banks: Chapter Overview  494
Size, Structure, and Composition of the Industry  496
Securities Firm and Investment Bank Activity Areas  498
  Investment Banking  498
  Venture Capital  500
  Market Making  501
  Trading  502
  Investing  503
  Cash Management  503
  Mergers and Acquisitions  504
  Other Service Functions  505
Recent Trends and Balance Sheets  505
  Recent Trends  505
  Balance Sheets  508
Regulation  510
Global Issues  512

17 Investment Companies  517

Investment Companies: Chapter Overview  517
Size, Structure, and Composition of the Mutual Fund Industry  518
  Historical Trends  518
  Different Types of Mutual Funds  519
  Other Types of Investment Company Funds  523
Mutual Fund Returns and Costs  525
  Mutual Fund Prospectuses and Objectives  525
  Investor Returns from Mutual Fund Ownership  527
  Mutual Fund Costs  529
Mutual Fund Balance Sheets and Recent Trends  532
  Long-Term Funds  532
  Money Market Funds  533
Mutual Fund Regulation  534
Mutual Fund Global Issues  536
Hedge Funds  538
  Types of Hedge Funds  539
  Fees on Hedge Funds  543
  Offshore Hedge Funds  543
  Regulation of Hedge Funds  544

18 Pension Funds  548

Pension Funds Defined: Chapter Overview  548
Size, Structure, and Composition of the Industry  549
  Defined Benefit versus Defined Contribution Pension Funds  549
  Insured versus Noninsured Pension Funds  551

19 Types of Risks Incurred by Financial Institutions  569

Why Financial Institutions Need to Manage Risk: Chapter Overview  569
Credit Risk  570
Liquidity Risk  573
Interest Rate Risk  574
Market Risk  576
Off-Balance-Sheet Risk  578
Foreign Exchange Risk  580
Country or Sovereign Risk  582
Technology and Operational Risk  582
Insolvency Risk  584
Other Risks and Interaction among Risks  584

20 Managing Credit Risk on the Balance Sheet  588

Credit Risk Management: Chapter Overview  588
Credit Quality Problems  590
Credit Analysis  591
  Real Estate Lending  591
  Consumer (Individual) and Small-Business Lending  595
  Mid-Market Commercial and Industrial Lending  595
  Large Commercial and Industrial Lending  604
Calculating the Return on a Loan  608
  Return on Assets (ROA)  608
RAROC Models  610
Appendix 20A: Loan Portfolio Risk and Management (available through Connect or your course instructor)
## Contents

### 21 Managing Liquidity Risk on the Balance Sheet 616

Liquidity Risk Management: Chapter Overview 616

Causes of Liquidity Risk 617

Liquidity Risk and Depository Institutions 618
  - Liability-Side Liquidity Risk 618
  - Asset-Side Liquidity Risk 621
  - Measuring a DI’s Liquidity Exposure 621
  - Liquidity Risk, Unexpected Deposit Drains, and Bank Runs 627
  - Bank Runs, the Discount Window, and Deposit Insurance 628

Liquidity Risk and Insurance Companies 631
  - Life Insurance Companies 631
  - Property-Casualty Insurance Companies 632
  - Guarantee Programs for Life and Property-Casualty Insurance Companies 633

Liquidity Risk and Investment Funds 633

Appendix 21A: Sources and Uses of Funds Statement: Bank of America, June 2013 (available through Connect or your course instructor)

Appendix 21B: New Liquidity Risk Measures Implemented by the Bank for International Settlements (available through Connect or your course instructor)

### 22 Managing Interest Rate Risk and Insolvency Risk on the Balance Sheet 639

Interest Rate and Insolvency Risk Management: Chapter Overview 639

Interest Rate Risk Measurement and Management 640
  - Repricing Model 640
  - Duration Model 649

Insolvency Risk Management 657
  - Capital and Insolvency Risk 657

### 23 Managing Risk off the Balance Sheet with Derivative Securities 667

Derivative Securities Used to Manage Risk: Chapter Overview 667

Forward and Futures Contracts 668
  - Hedging with Forward Contracts 669
  - Hedging with Futures Contracts 670

Options 673
  - Basic Features of Options 673
  - Actual Interest Rate Options 676
  - Hedging with Options 676
  - Caps, Floors, and Collars 678

Risks Associated With Futures, Forwards, and Options 678

Swaps 679
  - Hedging with Interest Rate Swaps 679
  - Hedging with Currency Swaps 682
  - Credit Swaps 683
  - Credit Risk Concerns with Swaps 686

Comparison of Hedging Methods 687
  - Writing versus Buying Options 687
  - Futures versus Options Hedging 689
  - Swaps versus Forwards, Futures, and Options 690

Appendix 23A: Hedging with Futures Contracts (available through Connect or your course instructor)

Appendix 23B: Hedging with Options (available through Connect or your course instructor)

Appendix 23C: Hedging with Caps, Floors, and Collars (available through Connect or your course instructor)

### 24 Managing Risk off the Balance Sheet with Loan Sales and Securitization 696

Why Financial Institutions Sell and Securitize Loans: Chapter Overview 696

Loan Sales 697
  - Types of Loan Sales Contracts 699
  - The Loan Sales Market 699
  - Secondary Market for Less Developed Country Debt 702
  - Factors Encouraging Future Loan Sales Growth 703
  - Factors Deterring Future Loan Sales Growth 704

Loan Securitization 705
  - Pass-Through Security 706
  - Collateralized Mortgage Obligation 712
  - Mortgage-Backed Bond 716

Securitization of Other Assets 718

Can All Assets Be Securitized? 718

Reference 723

Index 725