# Brief Contents

## Part I  Money and the Financial System  1

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>chapter 1</td>
<td>An Introduction to Money and the Financial System</td>
</tr>
<tr>
<td>chapter 2</td>
<td>Money and the Payments System</td>
</tr>
<tr>
<td>chapter 3</td>
<td>Financial Instruments, Financial Markets, and Financial Institutions</td>
</tr>
</tbody>
</table>

## Part II  Interest Rates, Financial Instruments, and Financial Markets  74

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>chapter 4</td>
<td>Future Value, Present Value, and Interest Rates</td>
</tr>
<tr>
<td>chapter 5</td>
<td>Understanding Risk</td>
</tr>
<tr>
<td>chapter 6</td>
<td>Bonds, Bond Prices, and the Determination of Interest Rates</td>
</tr>
<tr>
<td>chapter 7</td>
<td>The Risk and Term Structure of Interest Rates</td>
</tr>
<tr>
<td>chapter 8</td>
<td>Stocks, Stock Markets, and Market Efficiency</td>
</tr>
<tr>
<td>chapter 9</td>
<td>Derivatives: Futures, Options, and Swaps</td>
</tr>
<tr>
<td>chapter 10</td>
<td>Foreign Exchange</td>
</tr>
</tbody>
</table>

## Part III  Financial Institutions  267

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>chapter 11</td>
<td>The Economics of Financial Intermediation</td>
</tr>
<tr>
<td>chapter 12</td>
<td>Depository Institutions: Banks and Bank Management</td>
</tr>
<tr>
<td>chapter 13</td>
<td>Financial Industry Structure</td>
</tr>
<tr>
<td>chapter 14</td>
<td>Regulating the Financial System</td>
</tr>
</tbody>
</table>

## Part IV  Central Banks, Monetary Policy, and Financial Stability  393

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>chapter 15</td>
<td>Central Banks in the World Today</td>
</tr>
<tr>
<td>chapter 16</td>
<td>The Structure of Central Banks: The Federal Reserve and the European Central Bank</td>
</tr>
<tr>
<td>chapter 17</td>
<td>The Central Bank Balance Sheet and the Money Supply Process</td>
</tr>
<tr>
<td>chapter 18</td>
<td>Monetary Policy: Stabilizing the Domestic Economy</td>
</tr>
<tr>
<td>chapter 19</td>
<td>Exchange-Rate Policy and the Central Bank</td>
</tr>
</tbody>
</table>

## Part V  Modern Monetary Economics  552

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>chapter 20</td>
<td>Money Growth, Money Demand, and Modern Monetary Policy</td>
</tr>
<tr>
<td>chapter 21</td>
<td>Output, Inflation, and Monetary Policy</td>
</tr>
<tr>
<td>chapter 22</td>
<td>Understanding Business Cycle Fluctuations</td>
</tr>
<tr>
<td>chapter 23</td>
<td>Modern Monetary Policy and the Challenges Facing Central Bankers</td>
</tr>
</tbody>
</table>
Part I  Money and the Financial System  1

CHAPTER 1  An Introduction to Money and the Financial System  2
  The Six Parts of the Financial System  3
  The Five Core Principles of Money and Banking  5
    Core Principle 1: Time Has Value  5
    Core Principle 2: Risk Requires Compensation  6
    Core Principle 3: Information Is the Basis for Decisions  7
    Core Principle 4: Markets Determine Prices and Allocate Resources  7
    Core Principle 5: Stability Improves Welfare  8

Special Features of This Book  9
  Your Financial World  9
  Applying the Concept  10
  Lessons from the Crisis  10
  In the News  11
  Tools of the Trade  11
  End-of-Chapter Sections  11

The Organization of This Book  13

Learning Tools  Your Financial World: Guard Your Identity  10

Terms  14
Using FRED: Codes for Data in This Chapter  14
Chapter Lessons  15
Conceptual and Analytical Problems  15
Data Exploration  16
APPENDIX A TO CHAPTER 1: Measuring Economic Activity, Prices, and the Inflation Rate  18
APPENDIX B TO CHAPTER 1: Using FRED  21

CHAPTER 2  Money and the Payments System  23
  Money and How We Use It  24
    Means of Payment  24
    Unit of Account  24
    Store of Value  25
  The Payments System  26
    Commodity and Fiat Monies  26
CHAPTER 3 Financial Instruments, Financial Markets, and Financial Institutions

Financial Instruments

Uses of Financial Instruments
Characteristics of Financial Instruments: Standardization and Information
Underlying versus Derivative Instruments
A Primer for Valuing Financial Instruments
Examples of Financial Instruments

Financial Markets

The Role of Financial Markets
The Structure of Financial Markets
Characteristics of a Well-Run Financial Market

Financial Institutions

The Role of Financial Institutions
The Structure of the Financial Industry

Learning Tools

Lessons from the Crisis: Leverage
Your Financial World: Disability Income Insurance
Tools of the Trade: Trading in Financial Markets
In the News: High-Frequency Trading
Lessons from the Crisis: Interbank Lending
Lessons from the Crisis: Shadow Banks
Your Financial World: Shop for a Mortgage
Part II Interest Rates, Financial Instruments, and Financial Markets 74

CHAPTER 4 Future Value, Present Value, and Interest Rates 75
Valuing Monetary Payments Now and in the Future 76
Future Value and Compound Interest 76
Present Value 80
Applying Present Value 84
Internal Rate of Return 85
Bonds: The Basics 88
Real and Nominal Interest Rates 92

Learning Tools
Your Financial World: How Long Does Your Investment Take to Double? 79
Lessons from the Crisis: Risk Taking and the Search for Yield 81
Tools of the Trade: Computing Compound Annual Rates 84
Your Financial World: Should You Buy a New Car Now or Wait? 85
Applying the Concept: Early Retirement 87
In the News: Economic Scene: Pentagon Shows That It Doesn't Always Pay to Take the Money and Run 88
Your Financial World: Pay Off Your Credit Card Debt as Fast as You Can 93
Applying the Concept: High Interest Rates, Low Interest Rates 95

Terms 96
Using FRED: Codes for Data in This Chapter 97
Chapter Lessons 97
Conceptual and Analytical Problems 98
Data Exploration 100
APPENDIX TO CHAPTER 4: The Algebra of Present-Value Formulas 102

CHAPTER 5 Understanding Risk 104
Defining Risk 105
Measuring Risk 106
Possibilities, Probabilities, and Expected Value 106
Measures of Risk 109
Risk Aversion, the Risk Premium, and the Risk-Return Tradeoff 117
Sources of Risk: Idiosyncratic and Systematic Risk 118
Reducing Risk through Diversification 120
Hedging Risk 120
Spreading Risk 121
 Applying the Concept: It’s Not Just Expected Return That Matters 107
Your Financial World: Choosing the Right Amount of Car Insurance 111
Tools of the Trade: The Impact of Leverage on Risk 114
Lessons from the Crisis: Systemic Risk 116
Your Financial World: Your Risk Tolerance 119
In the News: Risk-On, Risk-Off May Be Ending 122

Terms 124
Using FRED: Codes for Data in This Chapter 125
Chapter Lessons 125
Conceptual and Analytical Problems 126
Data Exploration 128

APPENDIX A TO CHAPTER 5: A Quick Test to Measure Investment Risk Tolerance 129
APPENDIX B TO CHAPTER 5: The Mathematics of Diversification 131

CHAPTER 6 Bonds, Bond Prices, and the Determination of Interest Rates 133
Bond Prices 134
Zero-Coupon Bonds 134
Fixed-Payment Loans 135
Coupon Bonds 136
Consols 136
Bond Yields 137
Yield to Maturity 137
Current Yield 138
Holding Period Returns 139
The Bond Market and the Determination of Interest Rates 141
Bond Supply, Bond Demand, and Equilibrium in the Bond Market 141
Factors That Shift Bond Supply 145
Factors That Shift Bond Demand 146
Understanding Changes in Equilibrium Bond Prices and Interest Rates 149
Why Bonds Are Risky 150
Default Risk 152
Inflation Risk 154
Interest-Rate Risk 155

Learning Tools
Your Financial World: Know Your Mortgage 136
Tools of the Trade: Reading the Bond Page 142
Your Financial World: Understanding the Ads in the Newspaper 148
Applying the Concept: When Russia Defaulted 151
Applying the Concept: Securitization 153
Your Financial World: Bonds Indexed to Inflation 154
In the News: Gross’s Burning Bond Market Fails to Frighten Investors 156
CHAPTER 7 The Risk and Term Structure of Interest Rates 162
Ratings and the Risk Structure of Interest Rates 163
Bond Ratings 163
Commercial Paper Ratings 167
The Impact of Ratings on Yields 168
Differences in Tax Status and Municipal Bonds 171
The Term Structure of Interest Rates 172
The Expectations Hypothesis 172
The Liquidity Premium Theory 177
The Information Content of Interest Rates 179
Information in the Risk Structure of Interest Rates 179
Information in the Term Structure of Interest Rates 180

Learning Tools
Lessons from the Crisis: Subprime Mortgages 165
Lessons from the Crisis: Rating Agencies 166
Your Financial World: Your Credit Rating 169
Lessons from the Crisis: Asset-Backed Commercial Paper 171
Tools of the Trade: Reading Charts 176
Applying the Concept: The Flight to Quality 179
In the News: Banks Decline Yield Curve Invitation to Party On 182
Investing in Stocks for the Long Run 205
The Stock Market's Role in the Economy 208

**Learning Tools**
Your Financial World: A Home Is a Place to Live 192
Tools of the Trade: Reading Stock Indexes in the Business News 195
Your Financial World: Beware Percentage Changes 201
Applying the Concept: The Chinese Stock Market 203
Your Financial World: Should You Own Stocks? 206
In the News: Bubble Spotting 207
Applying the Concept: What Was the Internet Bubble All About? 209

Terms 210
Using FRED: Codes for Data in This Chapter 210
Chapter Lessons 210
Conceptual and Analytical Problems 211
Data Exploration 213

**CHAPTER 9** Derivatives: Futures, Options, and Swaps 214
The Basics: Defining Derivatives 215
Forwards and Futures 216
  - Margin Accounts and Marking to Market 218
  - Hedging and Speculating with Futures 219
  - Arbitrage and the Determinants of Futures Prices 219
Options 222
  - Calls, Puts, and All That: Definitions 222
  - Using Options 223
  - Pricing Options: Intrinsic Value and the Time Value of the Option 225
  - The Value of Options: Some Examples 228
Swaps 230
  - Interest-Rate Swaps 230
  - Credit-Default Swaps 234

**Learning Tools**
Lessons from the Crisis: Central Counterparties and Systemic Risk 220
Your Financial World: Should You Believe Corporate Financial Statements? 224
Your Financial World: Should You Accept Options as Part of Your Pay? 228
Applying the Concept: What Was Long-Term Capital Management Doing? 231
In the News: No Insurance Pay-Out on Greek Debt 233

Terms 235
Using FRED: Codes for Data in This Chapter 236
Chapter Lessons 236
Conceptual and Analytical Problems 237
Data Exploration 239
Financial Intermediaries and Information Costs  286

Screening and Certifying to Reduce Adverse Selection  286
Monitoring to Reduce Moral Hazard  287
How Companies Finance Growth and Investment  289

Learning Tools

Your Financial World: Your First Credit Card  274
Applying the Concept: The Madoff Scandal  278
Your Financial World: Private Mortgage Insurance  280
Applying the Concept: Deflation, Net Worth, and Information Costs  281
Lessons from the Crisis: Information Asymmetry and Securitization  285
In the News: China Shadow Bankers Go Online as Peer-to-Peer Sites Boom  288

Terms  290
Using FRED: Codes for Data in This Chapter  290
Chapter Lessons  290
Conceptual and Analytical Problems  291
Data Exploration  293

CHAPTER 12 Depository Institutions: Banks and Bank Management  295

The Balance Sheet of Commercial Banks  296
Assets: Uses of Funds  296
Liabilities: Sources of Funds  299
Bank Capital and Profitability  303
Off-Balance-Sheet Activities  306
Bank Risk: Where It Comes from and What to Do about It  308
Liquidity Risk  308
Credit Risk  312
Interest-Rate Risk  312
Trading Risk  315
Other Risks  317

Learning Tools

Your Financial World: Choosing the Right Bank for You  300
Tools of the Trade: A Catalog of Depository Institutions  304
Applying the Concept: Growth and Banking in China and India  306
Your Financial World: The Cost of Payday Loans  307
Lessons from the Crisis: Insufficient Bank Capital  314
In the News: Lessons from the London Whale  316
Applying the Concept: The Tri-Party Repo Market  319

Terms  320
Using FRED: Codes for Data in This Chapter  321
Chapter Lessons  321
Conceptual and Analytical Problems  322
Data Exploration  325
CHAPTER 13 Financial Industry Structure 327
Banking Industry Structure 329
A Short History of U.S. Banking 329
Competition and Consolidation 331
The Globalization of Banking 335
The Future of Banks 336
Nondepository Institutions 339
Insurance Companies 340
Pension Funds 344
Securities Firms: Brokers, Mutual Funds, and Investment Banks 346
Finance Companies 347
Government-Sponsored Enterprises 349

Learning Tools
Your Financial World: Pawnshops 333
Applying the Concept: The LIBOR Scandal 337
Your Financial World: How Much Life Insurance Do You Need? 342
Applying the Concept: Reinsurance and "Cat Bonds" 344
Applying the Concept: Public Pensions and the Social Security System 346
Tools of the Trade: Hedge Funds 348
In the News: Fed's Tarullo Says Reviving Glass-Steagall May Be Costly 350
Your Financial World: Annuities 352

Terms 354
Using FRED: Codes for Data This Chapter 354
Chapter Lessons 354
Conceptual and Analytical Problems 356
Data Exploration 357

CHAPTER 14 Regulating the Financial System 359
The Sources and Consequences of Runs, Panics, and Crises 361
The Government Safety Net 364
The Unique Role of Banks and Shadow Banks 365
The Government as Lender of Last Resort 366
Government Deposit Insurance 369
Problems Created by the Government Safety Net 369
Regulation and Supervision of the Financial System 372
Restrictions on Competition 375
Asset Holding Restrictions and Minimum Capital Requirements 376
Disclosure Requirements 378
Supervision and Examination 380
Evolving Challenges for Regulators and Supervisors 381
Micro-Prudential Versus Macro-Prudential Regulation 382
Regulatory Reform: The Dodd-Frank Act of 2010 385
Part IV  Central Banks, Monetary Policy, and Financial Stability  393

CHAPTER 15  Central Banks in the World Today  394
The Basics: How Central Banks Originated and Their Role Today  395
  The Government’s Bank  395
  The Bankers’ Bank  397
Stability: The Primary Objective of All Central Banks  399
  Low, Stable Inflation  400
  High, Stable Real Growth  402
  Financial System Stability  403
  Interest-Rate and Exchange-Rate Stability  404
Meeting the Challenge: Creating a Successful Central Bank  405
  The Need for Independence  407
  Decision Making by Committee  408
  The Need for Accountability and Transparency  409
  The Policy Framework, Policy Tradeoffs, and Credibility  410
Fitting Everything Together: Central Banks and Fiscal Policy  412

Learning Tools  Applying the Concept: Why Is Stable Money Such a Big Deal?  397
Your Financial World: Why Inflation Is Bad for You  401
Lessons from the Crisis: Threats to Fed Independence  406
Applying the Concept: Independent Central Banks Deliver Lower Inflation  409
In the News: The Politicisation (or Not) of Central Banks  414

Terms  416
Using FRED: Codes for Data in This Chapter  417
CHAPTER 16 The Structure of Central Banks: The Federal Reserve and the European Central Bank 421
The Structure of the Federal Reserve System 422
   The Federal Reserve Banks 423
   The Board of Governors 426
   The Federal Open Market Committee 428
Assessing the Federal Reserve System's Structure 432
   Independence from Political Influence 432
   Decision Making by Committee 433
   Accountability and Transparency 433
   Policy Framework 435
The European Central Bank 436
   Organizational Structure 437
   Accountability and Transparency 441
   The Price Stability Objective and Monetary Policy Strategy 444

Learning Tools
Your Financial World: Treasury Direct 427
Tools of the Trade: Decoding the FOMC Statement 431
Applying the Concept: The Evolution of Federal Reserve Independence 433
Your Financial World: The Fed Can't Save You from a Stock-Market Crash 434
In the News: Should the Fed Change Its Target?: Interview with Michael Woodford 440
Lessons from the Crisis: The Euro-Area Crisis and the ECB 442

Terms 445
Using FRED: Codes for Data in This Chapter 446
Chapter Lessons 446
Conceptual and Analytical Problems 447
Data Exploration 448

CHAPTER 17 The Central Bank Balance Sheet and the Money Supply Process 450
The Central Bank’s Balance Sheet 452
   Assets 452
   Liabilities 453
   The Importance of Disclosure 455
   The Monetary Base 456
Changing the Size and Composition of the Balance Sheet 456
   Open Market Operations 457
   Foreign Exchange Intervention 458
   Discount Loans 459
   Cash Withdrawal 460
Learning Tools

Your Financial World: What the Federal Funds Rate Means to You 490
Applying the Concept: The Channel System and the Future of Monetary Policy 494
Applying the Concept: Inflation Targeting 499
In the News: How Jawboning Works 504
Tools of the Trade: Some Unconventional Policy Tools 507
Your Financial World: Economic History Is Constantly Changing 515

Terms 516
Using FRED: Codes for Data in This Chapter 517
Chapter Lessons 517
Conceptual and Analytical Problems 518
Data Exploration 520

CHAPTER 19 Exchange-Rate Policy and the Central Bank 522
Linking Exchange-Rate Policy with Domestic Monetary Policy 524
Inflation and the Long-Run Implications of Purchasing Power Parity 524
Interest Rates and the Short-Run Implications of Capital Market Arbitrage 525
Capital Controls and the Policymakers’ Choice 527
Mechanics of Exchange-Rate Management 529
The Central Bank’s Balance Sheet 529
Sterilized Intervention 532
The Costs, Benefits, and Risks of Fixed Exchange Rates 533
Assessing the Costs and Benefits 533
The Danger of Speculative Attacks 535
Summarizing the Case for a Fixed Exchange Rate 537
Fixed Exchange-Rate Regimes 538
Exchange-Rate Pegs and the Bretton Woods System 538
Hard Pegs: Currency Boards and Dollarization 539

Learning Tools

Your Financial World: Emerging Market Crises and You 526
Applying the Concept: Malaysia Imposes Capital Controls 528
Applying the Concept: The Gold Standard: an Exchange-Rate Regime Whose Time Has Passed 537
Lessons of the Crisis: Oasis of Stability 539
Applying the Concept: Implications of China’s Exchange-Rate Regime 540
In the News: Phony Currency Wars 542

Terms 545
Using FRED: Codes for Data in This Chapter 545
Chapter Lessons 546
Conceptual and Analytical Problems 547
Data Exploration 548
APPENDIX TO CHAPTER 19: What You Really Need to Know about the Balance of Payments 550

Part V Modern Monetary Economics 552

CHAPTER 20 Money Growth, Money Demand, and Modern Monetary Policy 553
Why We Care about Monetary Aggregates 554
The Quantity Theory and the Velocity of Money 557
Velocity and the Equation of Exchange 557
The Quantity Theory of Money 559
The Facts about Velocity 560
The Demand for Money 563
The Transactions Demand for Money 564
The Portfolio Demand for Money 566
Targeting Money Growth in a Low-Inflation Environment 567
The Instability of U.S. Money Demand 569
Targeting Money Growth: The Fed and the ECB 571

Learning Tools
Applying the Concept: Inflation and the Collapse of the Soviet Union 556
Your Financial World: Understanding Inflation Statistics 560
Applying the Concept: The ECB’s Reference Value For Money Growth 564
Your Financial World: Free Checking Accounts Are Rarely Free 566
Tools of the Trade: Using Statistical Models in Policy Evaluation 570
Applying the Concept: Financial Innovation and the Shifting Velocity of Money 572
In the News: Will Fed’s “Easy Money” Push Up Prices? 574

Terms 576
Using FRED: Codes for Data in This Chapter 577
Chapter Lessons 577
Conceptual and Analytical Problems 578
Data Exploration 579

CHAPTER 21 Output, Inflation, and Monetary Policy 581
Output and Inflation in the Long Run 582
Potential Output 582
Long-Run Inflation 583
Monetary Policy and the Dynamic Aggregate Demand Curve 584
Aggregate Expenditure and the Real Interest Rate 586
Inflation, the Real Interest Rate, and the Monetary Policy Reaction Curve 590
The Dynamic Aggregate Demand Curve 595