Contents

Part I

About the Authors iv

Learning Tools Walkthrough xiv

Preface v

```
Money and the Financial System
            An Introduction to Money and the Financial System 2
CHAPTER 1
             The Six Parts of the Financial System 3
             The Five Core Principles of Money and Banking 5
               Core Principle 1: Time Has Value
               Core Principle 2: Risk Requires Compensation 6
               Core Principle 3: Information Is the Basis for Decisions
               Core Principle 4: Markets Determine Prices and Allocate Resources
                Core Principle 5: Stability Improves Welfare 8
             Special Features of This Book
                Your Financial World 9
               Applying the Concept
                Lessons from the Crisis 10
                In the Blog 11
                Tools of the Trade 11
                End-of-Chapter Sections
             The Organization of This Book 13
Learning Tools Your Financial World: Guard Your Identity 10
             Key Terms 14
             Using FRED: Codes for Data in This Chapter 14
             Chapter Lessons
                               15
             Conceptual and Analytical Problems 15
             Data Exploration
                              17
             APPENDIX A TO CHAPTER 1: Measuring Economic Activity, Prices, and the
             Inflation Rate
             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
                Checks 28
                Electronic Payments 30
```

XXVi

The Future of Money 33 Measuring Money 34

Learning Tools

Your Financial World: Debit Cards versus Credit Cards 25
Your Financial World: Free Checking Accounts Are Rarely Free 30
Lessons from the Crisis: Market Liquidity, Funding Liquidity, and Making Markets 32

In the Blog: Virtual Frenzies: Bitcoin and the Block Chain 34
Tools of the Trade: The Consumer Price Index 38
Applying the Concept: Where Are All Those \$100 Bills? 39

Key Terms 41
Using FRED: Codes for Data in This Chapter 41
Chapter Lessons 42
Conceptual and Analytical Problems 42

Data Exploration 44

CHAPTER 3 Financial Instruments, Financial Markets, and Financial Institutions 45
Financial Instruments 47

Uses of Financial Instruments 48

Characteristics of Financial Instruments: Standardization and Information 49

Underlying versus Derivative Instruments 51 A Primer for Valuing Financial Instruments 51 Examples of Financial Instruments 52

Financial Markets 54

The Role of Financial Markets 55
The Structure of Financial Markets 57

Characteristics of a Well-Run Financial Market 62

Financial Institutions 64

The Role of Financial Institutions 64
The Structure of the Financial Industry 65

Learning Tools

Lessons from the Crisis: Leverage 50

Your Financial World: Disability Income Insurance 53

Tools of the Trade: Trading in Financial Markets 56

Applying the Concept: Basics of High-Frequency Trading 61

Lessons from the Crisis: Shadow Banks 63

In the Blog: Banking the Masses 66

Key Terms 68
Using FRED: Codes for Data in This Chapter 69
Chapter Lessons 69
Conceptual and Analytical Problems 70
Data Exploration 72

Part II	Interest F	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 87 Real and Nominal Interest Rates 91
	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 Applying the Concept: How Much Is Our Distant Future Worth? 87 In the Blog: Investing in College 88 Your Financial World: What Is <i>Your</i> Risk-Free Rate? 92 Applying the Concept: High Interest Rates, Low Interest Rates 94
		Key Terms 95 Using FRED: Codes for Data in This Chapter 96 Chapter Lessons 96 Conceptual and Analytical Problems 97 Data Exploration 100 APPENDIX TO CHAPTER 4: The Algebra of Present-Value Formulas 101
	CHAPTER 5	Understanding Risk 104 Defining Risk 105 Possibilities, Probabilities, and Expected Value 105 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
	Learning Tools	Applying the Concept: It's Not Just Expected Return That Matters 106 In the Blog: Making Driving Safe 108 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 Applying the Concept: Do U.S. Households Benefit When Growth Is Stable? 122

Key Terms 124 Using FRED: Codes for Data in This Chapter 124 Chapter Lessons 125 Conceptual and Analytical Problems 125 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 Your Financial World: Know Your Mortgage 136 Learning Tools 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 Applying the Concept: Securitization 153 Your Financial World: Bonds Indexed to Inflation In the Blog: Bond Market Liquidity: Should We Be Concerned? 156 Key Terms 158 Using FRED: Codes for Data in This Chapter 158 Chapter Lessons 158 Conceptual and Analytical Problems Data Exploration

The Risk and Term Structure of Interest Rates 163 CHAPTER 7 Ratings and the Risk Structure of Interest Rates 164 Bond Ratings 164 Commercial Paper Ratings 167 The Impact of Ratings on Yields 169 Differences in Tax Status and Municipal Bonds The Term Structure of Interest Rates 173 The Expectations Hypothesis 174 The Liquidity Premium Theory 177 The Information Content of Interest Rates Information in the Risk Structure of Interest Rates Information in the Term Structure of Interest Rates 180 Learning Tools Lessons from the Crisis: Subprime Mortgages 166 In the Blog: In Search of Better Credit Assessments 168 Your Financial World: Your Credit Rating 170 Lessons from the Crisis: Asset-Backed Commercial Paper 172 Applying the Concept: The Flight to Quality 179 Applying the Concept: Emerging-Market Bonds Key Terms 184 Using FRED: Codes for Data in This Chapter Chapter Lessons 185 Conceptual and Analytical Problems 185 Data Exploration 188 CHAPTER 8 Stocks, Stock Markets, and Market Efficiency 189 The Essential Characteristics of Common Stock 190 Measuring the Level of the Stock Market The Dow Jones Industrial Average The Standard & Poor's 500 Index 194 Other U.S. Stock Market Indexes 196 World Stock Indexes 196 Valuing Stocks 198 Fundamental Value and the Dividend-Discount Model 198 Why Stocks Are Risky 200 Risk and the Value of Stocks 202 The Theory of Efficient Markets 204 Investing in Stocks for the Long Run 205 The Stock Market's Role in the Economy 207

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: China's Stock Market Boom and Bust 203
Your Financial World: Should You Own Stocks? 206
In the Blog: Should I Buy or Should I Sell? 208
Applying the Concept: What Was the Internet Bubble All About? 210

Key Terms 210
Using FRED: Codes for Data in This Chapter 211
Chapter Lessons 211
Conceptual and Analytical Problems 212
Data Exploration 214

CHAPTER 9

Derivatives: Futures, Options, and Swaps 215
The Basics: Defining Derivatives 216
Forwards and Futures 217

Margin Accounts and Marking to Market 219

Hedging and Speculating with Futures 220
Arbitrage and the Determinants of Futures Prices 220

Options 223

Calls, Puts, and All That: Definitions 223

Using Options 224

Pricing Options: Intrinsic Value and the Time Value of the Option 226
The Value of Options: Some Examples 229

Swaps 231

Interest-Rate Swaps 231 Credit-Default Swaps 235

Learning Tools

Lessons from the Crisis: Central Counterparties and Systemic Risk 221 Your Financial World: Should You Believe Corporate Financial Statements? 225

Your Financial World: Should You Accept Options as Part of Your Pay? 229

Applying the Concept: What Was Long-Term Capital Management Doing? 232

In the Blog: The VIX: The Thing to Fear Is the *Lack* of Fear Itself 234

Key Terms 236
Using FRED: Codes for Data in This Chapter 237
Chapter Lessons 237
Conceptual and Analytical Problems 238
Data Exploration 240

CHAPTER 10 Foreign Exchange 241

Foreign Exchange Basics 243

The Nominal Exchange Rate 243

The Real Exchange Rate 245

Foreign Exchange Markets 247

Exchange Rates in the Long Run 248

The Law of One Price 248

Purchasing Power Parity 250

Exchange Rates in the Short Run 254

The Supply of Dollars 254

The Demand for Dollars 254

Equilibrium in the Market for Dollars 255

Shifts in the Supply of and Demand for Dollars 255

Explaining Exchange Rate Movements 257

Government Policy and Foreign Exchange Intervention 259

Learning Tools Tools of the Trade: Following Exchange Rates in the News 246

Your Financial World: Investing Abroad 249

Applying the Concept: The Big Mac Index 253

Your Financial World: Yogi Berra and the Dollar 255

Lessons from the Crisis: Currency Risk and Rollover Risk 258

In the Blog: To RMB or Not to RMB? Lessons from Currency History 260

Key Terms 261

Using FRED: Codes for Data in This Chapter 262

Chapter Lessons 262

Conceptual and Analytical Problems 263

Data Exploration 266

APPENDIX TO CHAPTER 10: Interest-Rate Parity and Short-Run Exchange Rate

Determination 267

Part III Financial Institutions 269

CHAPTER II The Economics of Financial Intermediation 270

The Role of Financial Intermediaries 272

Pooling Savings 275

Safekeeping, Payments System Access, and Accounting 275

Providing Liquidity 277

Diversifying Risk 278

Collecting and Processing Information 278

Information Asymmetries and Information Costs 279

Adverse Selection 280

Solving the Adverse Selection Problem 282

Moral Hazard: Problem and Solutions 285

Financial Intermediaries and Information Costs Screening and Certifying to Reduce Adverse Selection 289 Monitoring to Reduce Moral Hazard 290 How Companies Finance Growth and Investment 291 Learning Tools Your Financial World: Your First Credit Card 276 Applying the Concept: Truth or Consequences: Ponzi Schemes and Other Frauds 280 Applying the Concept: Deflation, Net Worth, and Information Costs 283 Lessons from the Crisis: Information Asymmetry and Securitization 284 In the Blog: Conflicts of Interest in Finance 288 Key Terms 292 Using FRED: Codes for Data in This Chapter Chapter Lessons 292 Conceptual and Analytical Problems 293 Data Exploration 295 CHAPTER 12 Depository Institutions: Banks and Bank Management 297 The Balance Sheet of Commercial Banks Assets: Uses of Funds 298 Liabilities: Sources of Funds 301 Bank Capital and Profitability 305 Off-Balance-Sheet Activities 308 Bank Risk: Where It Comes from and What to Do about It 310 Liquidity Risk 310 Credit Risk 314 Interest-Rate Risk 314 Trading Risk 317 Other Risks 319 Your Financial World: Choosing the Right Bank for You 302 Learning Tools Tools of the Trade: A Catalog of Depository Institutions 306 Applying the Concept: Shadow Banking in China Your Financial World: The Cost of Payday Loans 309 Lessons from the Crisis: Insufficient Bank Capital In the Blog: The Cloudy Future of Peer-to-Peer Lending 318 Applying the Concept: The Tri-Party Repo Market Key Terms 322 Using FRED: Codes for Data in This Chapter 323 Chapter Lessons 323 Conceptual and Analytical Problems 324 Data Exploration 328

CHAPTER 13 Financial Industry Structure 329 Banking Industry Structure 331 331 A Short History of U.S. Banking Competition and Consolidation 333 The Globalization of Banking 336 The Future of Banks 338 **Nondepository Institutions** 340 Insurance Companies Pension Funds 346 Securities Firms: Brokers, Mutual Funds, and Investment Banks 348 Finance Companies 349 Government-Sponsored Enterprises 351 Applying the Concept: Reforming LIBOR 338 Learning Tools Your Financial World: Why You Are Obliged to Buy Health Insurance Your Financial World: How Much Life Insurance Do You Need? Applying the Concept: Reinsurance and "Cat Bonds" Applying the Concept: Public Pensions and the Social Security System 348 Tools of the Trade: Hedge Funds 350 In the Blog: Still Riding the GSE Train 352 Your Financial World: Annuities 353 Key Terms 355 Using FRED: Codes for Data This Chapter 355 Chapter Lessons 356 Conceptual and Analytical Problems 357 Data Exploration 359 CHAPTER 14 Regulating the Financial System The Sources and Consequences of Runs, Panics, and Crises The Government Safety Net 365 The Unique Role of Banks and Shadow Banks 366 The Government as Lender of Last Resort 367 Government Deposit Insurance 370 Problems Created by the Government Safety Net 370 Regulation and Supervision of the Financial System 373 Restrictions on Competition 376 Asset Holding Restrictions and Minimum Capital Requirements 377 Disclosure Requirements 379 Supervision and Examination 380 Stress Tests 381 Evolving Challenges for Regulators and Supervisors 383 Micro-Prudential versus Macro-Prudential Regulation 386

Regulatory Reform: The Dodd-Frank Act of 2010 388

Learning Tools

Your Financial World: The Securities Investor Protection Corporation 368

Applying the Concept: The Day the Bank of New York Borrowed \$23 Billion 369

Lessons from the Crisis: Should the Lender of Last Resort Also Supervise? 371

Applying the Concept: Making Finance Safe 374

Your Financial World: Are Your Deposits Insured? 376

Tools of the Trade: The Basel Accords: I, II, III, and Counting . . . 382

In the Blog: Narrow Banks Won't Stop Bank Runs 384

Key Terms 391
Using FRED: Codes for Data in This Chapter 39
Chapter Lessons 391
Conceptual and Analytical Problems 392
Data Exploration 394

Part IV Central Banks, Monetary Policy, and Financial Stability 395

CHAPTER 15 Central Banks in the World Today 396

The Basics: How Central Banks Originated and Their Role Today 397

The Government's Bank 397

The Bankers' Bank 399

Stability: The Primary Objective of All Central Banks 401

Low, Stable Inflation 402

High, Stable Real Growth 404

Financial System Stability 405

Interest-Rate and Exchange-Rate Stability 406

Meeting the Challenge: Creating a Successful Central Bank 407

The Need for Independence 409

The Need for Accountability and Transparency 410

The Policy Framework, Policy Tradeoffs, and Credibility 412

Decision Making by Committee 414

Fitting Everything Together: Central Banks and Fiscal Policy 414

Learning Tools

Applying the Concept: Why Is Stable Money Such a Big Deal? 399
Your Financial World: Why Inflation Is Bad for You 403
Lessons from the Crisis: Threats to Fed Independence 408
Applying the Concept: Independent Central Banks Deliver Lower Inflation 411
In the Blog: Do Central Banks Need Capital? 416

Key Terms 418

Using FRED: Codes for Data in This Chapter 419

Chapter Lessons 419

Conceptual and Analytical Problems 420

Data Exploration 422

CHAPTER 16 The Structure of Central Banks: The Federal Reserve and the European Central Bank 423 The Structure of the Federal Reserve System 424 The Federal Reserve Banks 425 The Board of Governors 428 The Federal Open Market Committee 430 Assessing the Federal Reserve System's Structure Independence from Political Influence 434 Decision Making by Committee 435 Accountability and Transparency 435 Policy Framework 437 The European Central Bank 438 Organizational Structure 439 Accountability and Transparency 443 The Price Stability Objective and Monetary Policy Strategy 445 Your Financial World: TreasuryDirect 429 Learning Tools Tools of the Trade: Decoding the FOMC Statement 433 Applying the Concept: The Evolution of Federal Reserve Independence 435 436 Your Financial World: The Fed Can't Save You from a Stock Market Crash Lessons from the Crisis: The Euro-Area Crisis and the ECB 442 In the Blog: The Importance of Being Europe 444 Key Terms 447 Using FRED: Codes for Data in This Chapter 447 Chapter Lessons 447 Conceptual and Analytical Problems 448 Data Exploration 450 CHAPTER 17 The Central Bank Balance Sheet and the Money Supply Process 451 The Central Bank's Balance Sheet 453 Assets 453 Liabilities 454 The Importance of Disclosure 456 The Monetary Base 457 Changing the Size and Composition of the Balance Sheet 457 Open Market Operations 458 Foreign Exchange Intervention 459 Discount Loans 461 Cash Withdrawal 461 The Deposit Expansion Multiplier 463 Deposit Creation in a Single Bank 463 Deposit Expansion in a System of Banks 464 The Monetary Base and the Money Supply

Deposit Expansion with Excess Reserves and Cash Withdrawals 468

The Arithmetic of the Money Multiplier 470
The Limits of the Central Bank's Ability to Control the Quantity of Money 474

Learning Tools

Applying the Concept: The Fed's Balance Sheet: Impact of the Crisis 455
Your Financial World: Has Paper Money Outlived Its Purpose? 460
Your Financial World: Your Excess Reserves 469
Applying the Concept: Negative Nominal Interest Rates: Blast from the Past? 472
Lessons from the Crisis: The Impact on Money Supply 474
In the Blog: Monetary Policy: A Lesson Learned 476

Key Terms 477
Using FRED: Codes for Data in This Chapter 477
Chapter Lessons 477
Conceptual and Analytical Problems 478
Data Exploration 480

CHAPTER 18 Monetary Policy: Stabilizing the Domestic Economy 482

The Federal Reserve's Conventional Policy Toolbox 485

The Target Federal Funds Rate and Interest on Excess Reserves 487

Discount Lending, the Lender of Last Resort, and Crisis Management 491
Reserve Requirements 493

Operational Policy at the European Central Bank 494

The ECB's Target Interest Rate and Open Market Operations 494

The Marginal Lending Facility 495

The Deposit Facility 495

Reserve Requirements 496

Linking Tools to Objectives: Making Choices 497

Desirable Features of a Policy Instrument 497

Inflation Targeting 499

A Guide to Central Bank Interest Rates: The Taylor Rule 500

Unconventional Policy Tools 506

Forward Guidance 508

Quantitative Easing 509

Targeted Asset Purchases 511

Making an Effective Exit 513

Concluding Remarks 515

Learning Tools

Your Financial World: How the Federal Funds Rate Changes Your Budget 492
Applying the Concept: Alternative Monetary Policy Targets: Inflation, Price
Level, and Nominal GDP 498

Your Financial World: CDP: Seasons and Povisions 504

Your Financial World: GDP: Seasons and Revisions 504
Tools of the Trade: Some Unconventional Policy Tools 507

In the Blog: How Big Should Central Balance Sheets Be? 512

Lessons from the Crisis: The Financial Stability-Monetary Policy Nexus 514

Key Terms 516

Using FRED: Codes for Data in This Chapter 516

Chapter Lessons 517

Conceptual and Analytical Problems 518

Data Exploration 520

APPENDIX TO CHAPTER 18: Monetary Policy Operations and the Reverse Repo Rate 522

CHAPTER 19 Exchange-Rate Policy and the Central Bank 525

Linking Exchange-Rate Policy with Domestic Monetary Policy 527

Inflation and the Long-Run Implications of Purchasing Power Parity 527

Interest Rates and the Short-Run Implications of Capital Market Arbitrage 528

Capital Controls and the Policymakers' Choice 530

Mechanics of Exchange-Rate Management 532

The Central Bank's Balance Sheet 532

Sterilized Intervention 534

The Costs, Benefits, and Risks of Fixed Exchange Rates 536

Assessing the Costs and Benefits 536

The Danger of Speculative Attacks 538

Summarizing the Case for a Fixed Exchange Rate 540

Fixed Exchange-Rate Regimes 540

Exchange-Rate Pegs and the Bretton Woods System 540

Hard Pegs: Currency Boards and Dollarization 543

Learning Tools

Your Financial World: Is International Diversification Dead? 529

Applying the Concept: The Gold Standard: An Exchange-Rate Regime Whose Time Has Passed 539

Lessons of the Crisis: Oasis of Stability? 541

Applying the Concept: China's Changing Exchange-Rate Regime 542

In the Blog: AllB: The First International Financial Institution of the 21st Century 544

Key Terms 548

Using FRED: Codes for Data in This Chapter 548

Chapter Lessons 549

Conceptual and Analytical Problems 550

Data Exploration 551

APPENDIX TO CHAPTER 19: What You Really Need to Know about the Balance

of Payments 553

Part V Modern Monetary Economics 555

CHAPTER 20 Money Growth, Money Demand, and Modern Monetary Policy 556

Why We Care about Monetary Aggregates 557

The Quantity Theory and the Velocity of Money 559

Velocity and the Equation of Exchange 560

The Quantity Theory of Money 561

The Facts about Velocity 563

The Demand for Money 566

The Transactions Demand for Money 566

The Portfolio Demand for Money 568

Targeting Money Growth in a Low-Inflation Environment 570

The Instability of U.S. Money Demand 570

Targeting Money Growth: The Fed and the ECB 573

Learning Tools

Applying the Concept: Central Bank Money without Inflation? 559

Your Financial World: Understanding Inflation Statistics 562

Applying the Concept: The ECB's Reference Value for Money Growth 567

Tools of the Trade: Using Statistical Models in Policy Evaluation 572

In the Blog: We Are Still Overstating Inflation 574

Key Terms 577

Using FRED: Codes for Data in This Chapter 578

Chapter Lessons 578

Conceptual and Analytical Problems 579

Data Exploration 581

CHAPTER 21 Output, Inflation, and Monetary Policy 582

Output and Inflation in the Long Run 583

Potential Output 583

Long-Run Inflation 584

Monetary Policy and the Dynamic Aggregate Demand Curve 585

Aggregate Expenditure and the Real Interest Rate 587

Inflation, the Real Interest Rate, and the Monetary Policy Reaction Curve 591

The Dynamic Aggregate Demand Curve 596

Aggregate Supply 601

Short-Run Aggregate Supply 601

Shifts in the Short-Run Aggregate Supply Curve 601

The Long-Run Aggregate Supply Curve 603

Equilibrium and the Determination of Output and Inflation 606

Short-Run Equilibrium 606

Adjustment to Long-Run Equilibrium 608

The Sources of Fluctuations in Output and Inflation 609

What Causes Recessions? 610

Learning Tools

Your Financial World: Distinguishing Inflation, Deflation, and Disinflation 584
Applying the Concept: Investment and the Business Cycle 593
Your Financial World: It's the Real Interest Rate That Matters 598
In the Blog: Forecasting Trend Growth: Living with Uncertainty 604
Tools of the Trade: Output Growth and Output Gaps 607
Applying the Concept: Zero Matters 612

Key Terms 612
Using FRED: Codes for Data in This Chapter 613
Chapter Lessons 613
Conceptual and Analytical Problems 614
Data Exploration 617
APPENDIX TO CHAPTER 21: The Dynamic Aggregate Demand–Aggregate Supply Model 618

CHAPTER 22 Understanding Business Cycle Fluctuations 621 Sources of Fluctuations in Output and Inflation 623

Shifts in the Dynamic Aggregate Demand Curve 623 Shifts in the Short-Run Aggregate Supply Curve 628

Using the Aggregate Demand–Aggregate Supply Framework 629

How Do Policymakers Achieve Their Stabilization Objectives? 629

What Accounts for the Great Moderation? 636

What Happens When Potential Output Changes? 639

What Are the Implications of Globalization for Monetary Policy? 642 Can Policymakers Stabilize Output and Inflation Simultaneously? 644

Learning Tools

Tools of the Trade: Defining a Recession: The NBER Reference Cycle 630 Your Financial World: Stabilizing Your Consumption 634 Applying the Concept: Data: Big and Small 638 Your Financial World: The Problem with Measuring Nominal GDP 643 In The Blog: Is 2 Percent Still the Right Inflation Target? 646

Key Terms 648
Using FRED: Codes for Data in This Chapter 648
Chapter Lessons 649
Conceptual and Analytical Problems 650
Data Exploration 652

CHAPTER 23 Modern Monetary Policy and the Challenges Facing Central Bankers 653

The Monetary Policy Transmission Mechanism 655

The Traditional Channels: Interest Pates and Exphance Pates 655

The Traditional Channels: Interest Rates and Exchange Rates 655
Bank-Lending and Balance-Sheet Channels 657
Asset-Price Channels: Wealth and Investment 661
Financial Crises and the Transmission of Monetary Policy 662

The Challenges Modern Monetary Policymakers Face 664

Booms and Busts in Property and Equity Prices 665

Deflation and the Effective Lower Interest-Rate Bound 668

The Evolving Structure of the Financial System 672

Learning Tools

Tools of the Trade: Correlation Does Not Imply Causality 657
Your Financial World: Don't Count on Inflation to Bail You Out 660
Applying the Concept: Debt, the Great Recession, and the Awful
Recovery 664
In the Blog: A Guide to "Secular Stagnation" 670

Key Terms 674
Using FRED: Codes for Data in This Chapter 675
Chapter Lessons 675
Conceptual and Analytical Problems 676
Data Exploration 678

Glossary G-1 Notation Index N-1 Index I-1