



# contents

Preface xxiii

## part I Introduction

### Chapter 1 The Science of Macroeconomics 2

- 1-1 What Macroeconomists Study 2
  - **CASE STUDY** *Inflation and Unemployment: Some European Comparisons* 4
  - **CASE STUDY** *The Historical Performance of the UK Economy* 7
- 1-2 How Economists Think 10
  - Theory as Model Building 10
  - **FYI** *Using Functions to Express Relationships among Variables* 14
  - A Multitude of Models 14
  - Prices: Flexible versus Sticky 15
  - Microeconomic Thinking and Macroeconomic Models 15
  - **FYI** *Nobel Macroeconomists* 16
- 1-3 How This Book Proceeds 18

### Chapter 2 The Data of Macroeconomics 21

- 2-1 Measuring the Value of Economic Activity: Gross Domestic Product 22
  - Income, Expenditure and the Circular Flow 22
  - **FYI** *Stocks and Flows* 24
  - Rules for Computing GDP 25
  - **CASE STUDY** *The Size of the Black Economy: Some International Estimates* 28
  - Real GDP versus Nominal GDP 29
  - The GDP Deflator 30
  - **FYI** *Two Arithmetic Tricks for Working with Percentage Changes* 31
  - Chained-Volume Measures of Real GDP 31
  - The Components of Expenditure and the National Income Accounts 32
  - **FYI** *What Is Investment?* 35
  - **CASE STUDY** *GDP and Its Components* 35
  - Other Measures of Income 39
  - **CASE STUDY** *Real GDP Per Person across the European Union* 40
  - Seasonal Adjustment 42
- 2-2 Measuring the Cost of Living: The Consumer Price Index 43
  - The Price of a Basket of Goods 43
  - The CPI versus the GDP Deflator 43

- Does the CPI Overstate Inflation? 45
- **CASE STUDY** *The Consumer Price Index and the Retail Price Index: A Study of European Harmony* 46
- 2-3 Measuring Joblessness: The Unemployment Rate 48
- **CASE STUDY** *Trends in Labour-Force Participation in the UK and France* 51
- 2-4 Conclusion: From Economic Statistics to Economic Models 53

## part II Classical Theory: The Economy in the Long Run

### Chapter 3 National Income: Where It Comes From and Where It Goes 58

- 3-1 What Determines the Total Production of Goods and Services? 60
- The Factors of Production 60
- The Production Function 61
- The Supply of Goods and Services 61
- 3-2 How Is National Income Distributed  
to the Factors of Production? 62
- Factor Prices 62
- The Decisions Facing the Competitive Firm 63
- The Firm's Demand for Factors 64
- The Division of National Income 67
- **CASE STUDY** *The Black Death and Factor Prices* 69
- The Cobb-Douglas Production Function 69
- **CASE STUDY** *UK Labour Productivity as the Key Determinant of Real Wages* 72
- 3-3 What Determines the Demand for Goods and Services? 73
- Consumption 74
- Investment 75
- **FYI** *The Many Different Interest Rates* 77
- Government Purchases 77
- **CASE STUDY** *Consumption, Investment and Government Purchases in European Countries* 78
- 3-4 What Brings the Supply and Demand for Goods  
and Services into Equilibrium? 79
- Equilibrium in the Market for Goods and Services: The Supply and Demand  
for the Economy's Output 80
- Equilibrium in the Financial Markets: The Supply and Demand for Loanable  
Funds 81
- Changes in Saving: The Effects of Fiscal Policy 83
- **CASE STUDY** *Wars and Interest Rates in the United Kingdom, 1730–1920* 84
- Changes in Investment Demand 86
- 3-5 Conclusion 87

## Chapter 4 Money and Inflation 93

- 4-1 What Is Money? 94
  - The Functions of Money 94
  - The Types of Money 95
    - **CASE STUDY** *Cigarette Money* 96
  - How Fiat Money Evolves 96
    - **CASE STUDY** *Money and Social Conventions on the Island of Yap* 97
  - How the Quantity of Money Is Controlled 98
  - How the Quantity of Money Is Measured 98
    - **FYI** *How Do Credit Cards Fit into the Monetary System?* 99
- 4-2 The Quantity Theory of Money 100
  - Transactions and the Quantity Equation 102
  - From Transactions to Income 103
  - The Money Demand Function and the Quantity Equation 103
  - The Assumption of Constant Velocity 104
  - Money, Prices and Inflation 105
    - **CASE STUDY** *Inflation and Money Growth* 106
- 4-3 Seigniorage: The Revenue from Printing Money 107
  - **CASE STUDY** *The Inflation Tax and Money Growth on the Island of Yap* 108
- 4-4 Inflation and Interest Rates 109
  - Two Interest Rates: Real and Nominal 109
  - The Fisher Effect 110
    - **CASE STUDY** *Inflation and Nominal Interest Rates* 110
  - Two Real Interest Rates: *Ex Ante* and *Ex Post* 112
    - **CASE STUDY** *Nominal Interest Rates in the Nineteenth Century* 113
- 4-5 The Nominal Interest Rate and the Demand for Money 114
  - The Cost of Holding Money 114
  - Future Money and Current Prices 114
- 4-6 The Social Costs of Inflation 116
  - The Layman's View and the Classical Response 116
    - **CASE STUDY** *What Economists and the Public Say about Inflation* 117
  - The Costs of Expected Inflation 118
  - The Costs of Unexpected Inflation 119
  - One Benefit of Inflation 120
- 4-7 Hyperinflation 121
  - The Costs of Hyperinflation 121
    - **CASE STUDY** *Wars, Economic Disruption and Hyperinflation* 122
  - The Causes of Hyperinflation 123
    - **CASE STUDY** *Hyperinflation in Interwar Germany* 124
- 4-8 Conclusion: The Classical Dichotomy 126
  - Appendix: The Cagan Model: How Current and Future Money Affect the Price Level 130

## Chapter 5 The Open Economy 133

- ▶ **CASE STUDY** *The Increasing Globalization of the World Economy* 135
- 5-1 The International Flows of Capital and Goods 136
  - The Role of Net Exports 136
  - International Capital Flows and the Trade Balance 138
  - International Flows of Goods and Capital: An Example 139
  - GDP, GNP, the Trade Balance and the Current Account 140
  - ▶ **FYI** *The Irrelevance of Bilateral Trade Balances* 141
  - ▶ **CASE STUDY** *The Current Account Balance and the Trade Balance in Some European Countries* 143
- 5-2 Saving and Investment in a Small Open Economy 144
  - Capital Mobility and the World Interest Rate 144
  - The Model 145
  - How Policies Influence the Trade Balance 147
  - Evaluating Economic Policy 149
  - ▶ **CASE STUDY** *The US Trade Deficit* 150
  - ▶ **CASE STUDY** *Why Doesn't Capital Flow to Poor Countries?* 152
- 5-3 Exchange Rates 153
  - Nominal and Real Exchange Rates 154
  - The Real Exchange Rate and the Trade Balance 156
  - The Determinants of the Real Exchange Rate 157
  - How Policies Influence the Real Exchange Rate 158
  - The Effects of Trade Policies 159
  - The Determinants of the Nominal Exchange Rate 161
  - ▶ **CASE STUDY** *Inflation and Nominal Exchange Rates* 162
  - The Special Case of Purchasing Power Parity 164
  - ▶ **CASE STUDY** *Big Mac PPP* 165
- 5-4 Conclusion: Exchange Rates, the Trade Balance and Capital Flows 167

## Chapter 6 Unemployment 171

- 6-1 Job Loss, Job Finding and the Natural Rate of Unemployment 172
- 6-2 Job Search and Frictional Unemployment 175
  - Government Policy and Frictional Unemployment 175
  - ▶ **CASE STUDY** *Unemployment Benefit and the Rate of Job Finding* 176
- 6-3 Real-Wage Rigidity and Structural Unemployment 177
  - Minimum-Wage Laws 178
  - ▶ **CASE STUDY** *The Secrets to Happiness: Some European Evidence* 180
  - Unions and Collective Bargaining 181
  - Efficiency Wages 182
  - ▶ **FYI** *The Natural Rate of Unemployment and the NAIRU* 183
  - ▶ **CASE STUDY** *Henry Ford's \$5 Workday* 184

6-4	Labour-Market Experience: The United Kingdom	185
	The Duration of Unemployment	185
	Variation in the UK Unemployment Rate across Demographic Groups	186
	Trends in UK Unemployment	187
	Transitions Into and Out of the Labour Force	190
6-5	Labour-Market Experience: Continental Europe	191
	The Rise in European Unemployment	191
	Variation in European Unemployment Rates across Demographic Groups	193
	► <b>CASE STUDY</b> <i>The European Social Model: Must It Necessarily Raise Unemployment?</i>	195
	► <b>CASE STUDY</b> <i>Reforming French Labour Markets: I Predict a Riot</i>	195
6-6	Conclusion	196

## part III Growth Theory: The Economy in the Very Long Run

### Chapter 7 Economic Growth I: Capital Accumulation and Population Growth 202

7-1	The Accumulation of Capital	203
	The Supply and Demand for Goods	203
	Growth in the Capital Stock and the Steady State	206
	Approaching the Steady State: A Numerical Example	208
	► <b>CASE STUDY</b> <i>The Miracle of Japanese and German Growth</i>	211
	How Saving Affects Growth	211
	► <b>CASE STUDY</b> <i>Saving and Investment around the World</i>	213
7-2	The Golden Rule Level of Capital	214
	Comparing Steady States	215
	Finding the Golden Rule Steady State: A Numerical Example	218
	The Transition to the Golden Rule Steady State	219
7-3	Population Growth	222
	The Steady State with Population Growth	222
	The Effects of Population Growth	223
	► <b>CASE STUDY</b> <i>Population Growth around the World</i>	225
	Alternative Perspectives on Population Growth	227
7-4	Conclusion	229

### Chapter 8 Economic Growth II: Technology, Empirics and Policy 232

8-1	Technological Progress in the Solow Model	233
	The Efficiency of Labour	233

	The Steady State with Technological Progress	234
	The Effects of Technological Progress	235
8-2	<b>From Growth Theory to Growth Empirics</b>	236
	Balanced Growth	236
	Convergence	237
	Factor Accumulation versus Production Efficiency	238
	► <b>CASE STUDY</b> <i>Is Free Trade Good for Economic Growth?</i>	239
8-3	<b>Policies to Promote Growth</b>	240
	Evaluating the Rate of Saving	241
	Changing the Rate of Saving	242
	Allocating the Economy's Investment	243
	Establishing the Right Institutions	245
	► <b>CASE STUDY</b> <i>The Colonial Origins of Modern Institutions</i>	246
	Encouraging Technological Progress	247
	► <b>CASE STUDY</b> <i>The Worldwide Slowdown in Economic Growth: 1972–1995</i>	247
	► <b>CASE STUDY</b> <i>A Tale of Two Growth Experiences</i>	250
8-4	<b>Beyond the Solow Model: Endogenous Growth Theory</b>	251
	The Basic Model	252
	A Two-Sector Model	253
	The Microeconomics of Research and Development	254
	► <b>CASE STUDY</b> <i>Economic Growth as a Process of Creative Destruction</i>	255
8-5	<b>Conclusion</b>	257
	<b>Appendix: Accounting for the Sources of Economic Growth</b>	261
	Increases in the Factors of Production	261
	Technological Progress	263
	The Sources of Growth	265
	► <b>CASE STUDY</b> <i>Growth in the East Asian Tigers</i>	265

## part IV Business Cycle Theory: The Economy in the Short Run

### Chapter 9 Introduction to Economic Fluctuations 270

9-1	<b>The Facts about the Business Cycle</b>	272
	GDP and Its Components	272
	Unemployment and Recession	275
9-2	<b>Time Horizons in Macroeconomics</b>	276
	How the Short Run and Long Run Differ	276
	► <b>CASE STUDY</b> <i>Why Are Prices Sticky?</i>	277
	The Model of Aggregate Supply and Aggregate Demand	277

- 9-3 **Aggregate Demand** 278
  - The Quantity Equation as Aggregate Demand 279
  - Why the Aggregate Demand Curve Slopes Downward 280
  - Shifts in the Aggregate Demand Curve 280
- 9-4 **Aggregate Supply** 281
  - The Long Run: The Vertical Aggregate Supply Curve 282
  - The Short Run: The Horizontal Aggregate Supply Curve 283
  - From the Short Run to the Long Run 285
  - **CASE STUDY** *Gold, the Pound Sterling and the UK Contraction of the 1920s* 286
- 9-5 **Stabilization Policy** 287
  - Shocks to Aggregate Demand 287
  - Shocks to Aggregate Supply 288
  - **CASE STUDY** *How OPEC Helped Cause Stagflation in the 1970s and Euphoria in the 1980s* 290
- 9-6 **Conclusion** 292

## **Chapter 10 Aggregate Demand I: Building the *IS-LM* Model** 295

- 10-1 **The Goods Market and the *IS* Curve** 297
  - The Keynesian Cross 297
  - **CASE STUDY** *The Dwindling Popularity of Fiscal Policy as a Means to Fine-Tune the Economy* 304
  - The Interest Rate, Investment and the *IS* Curve 305
  - How Fiscal Policy Shifts the *IS* Curve 306
  - A Loanable-Funds Interpretation of the *IS* Curve 308
- 10-2 **The Money Market and the *LM* Curve** 309
  - The Theory of Liquidity Preference 309
  - **CASE STUDY** *Does a Monetary Tightening Raise or Lower Interest Rates?* 312
  - Income, Money Demand and the *LM* Curve 313
  - How Monetary Policy Shifts the *LM* Curve 313
  - A Quantity-Equation Interpretation of the *LM* Curve 314
- 10-3 **Conclusion: The Short-Run Equilibrium** 316

## **Chapter 11 Aggregate Demand II: Applying the *IS-LM* Model** 320

- 11-1 **Explaining Fluctuations with the *IS-LM* Model** 321
  - How Fiscal Policy Shifts the *IS* Curve and Changes the Short-Run Equilibrium 321
  - How Monetary Policy Shifts the *LM* Curve and Changes the Short-Run Equilibrium 322
  - The Interaction between Monetary and Fiscal Policy 324
  - Shocks in the *IS-LM* Model 326
  - **CASE STUDY** *The International Decline in GDP Growth in 2001* 327
  - What Is the Central Bank's Policy Instrument – the Money Supply or the Interest Rate? 328

<b>11-2</b>	<b><i>IS-LM</i> as a Theory of Aggregate Demand</b>	<b>329</b>
	From the <i>IS-LM</i> Model to the Aggregate Demand Curve	329
	The <i>IS-LM</i> Model in the Short Run and Long Run	332
<b>11-3</b>	<b>The Great Depression</b>	<b>334</b>
	The Spending Hypothesis: Shocks to the <i>IS</i> Curve	335
	The Money Hypothesis : A Shock to the <i>LM</i> Curve	336
	The Money Hypothesis Again: The Effects of Falling Prices	337
	Could the Depression Happen Again?	340
	► <b>CASE STUDY</b> <i>The Japanese Slump of the 1990s</i>	340
	► <b>FYI</b> <i>The Liquidity Trap</i>	342
<b>11-4</b>	<b>Conclusion</b>	<b>342</b>
	Appendix: The Simple Algebra of the <i>IS-LM</i> Model and the Aggregate Demand Curve	346
	The <i>IS</i> Curve	346
	The <i>LM</i> Curve	348
	The Aggregate Demand Curve	349
	► <b>CASE STUDY</b> <i>The Effectiveness of Monetary and Fiscal Policy</i>	349
<b>Chapter 12</b>	<b>The Open Economy Revisited: The Mundell-Fleming Model and the Exchange-Rate Regime</b>	<b>351</b>
<b>12-1</b>	<b>The Mundell-Fleming Model</b>	<b>352</b>
	The Key Assumption: Small Open Economy with Perfect Capital Mobility	353
	The Goods Market and the <i>IS*</i> Curve	353
	The Money Market and the <i>LM*</i> Curve	354
	Putting the Pieces Together	355
<b>12-2</b>	<b>The Small Open Economy under Floating Exchange Rates</b>	<b>357</b>
	Fiscal Policy	357
	Monetary Policy	359
	Trade Policy	360
<b>12-3</b>	<b>The Small Open Economy under Fixed Exchange Rates</b>	<b>362</b>
	How a Fixed-Exchange-Rate System Works	362
	► <b>CASE STUDY</b> <i>The International Gold Standard</i>	364
	Fiscal Policy	364
	Monetary Policy	365
	► <b>CASE STUDY</b> <i>Devaluation and European Recovery from the Great Depression</i>	366
	Trade Policy	367
	Policy in the Mundell-Fleming Model: A Summary	368
<b>12-4</b>	<b>Interest-Rate Differentials</b>	<b>368</b>
	Country Risk and Exchange-Rate Expectations	368
	Differentials in the Mundell-Fleming Model	369
	► <b>CASE STUDY</b> <i>International Financial Crisis: Mexico 1994–1995</i>	371
	► <b>CASE STUDY</b> <i>International Financial Crisis: East Asia 1997–1998</i>	372





- 12-5 Should Exchange Rates Be Floating or Fixed? 373
  - Pros and Cons of Different Exchange-Rate Systems 373
  - Speculative Attacks, Currency Boards, 'Dollarization' and 'Euroization' 374
  - **CASE STUDY** *International Financial Crisis: The Speculative Attack on the European Exchange Rate Mechanism, 1992* 376
  - The Policy Trilemma 377
  - **CASE STUDY** *European Monetary Union: Squaring the Triangle?* 378
  - **CASE STUDY** *The Chinese Currency Controversy* 379
- 12-6 From the Short Run to the Long Run: The Mundell-Fleming Model with a Changing Price Level 380
- 12-7 Conclusion 383

## **Chapter 13 Aggregate Supply and the Short-Run Trade-Off between Inflation and Unemployment 386**

- 13-1 Three Models of Aggregate Supply 387
  - The Sticky-Price Model 388
  - The Sticky-Wage Model 390
  - **CASE STUDY** *The Cyclical Behaviour of the Real Wage* 392
  - The Imperfect-Information Model 393
  - **CASE STUDY** *International Differences in the Aggregate Supply Curve* 395
  - Summary and Implications 396
- 13-2 Inflation, Unemployment and the Phillips Curve 398
  - Deriving the Phillips Curve from the Aggregate Supply Curve 398
  - **FYI** *The History of the Modern Phillips Curve* 400
  - Adaptive Expectations and Inflation Inertia 400
  - Two Causes of Rising and Falling Inflation 401
  - **CASE STUDY** *Inflation and Unemployment in the United Kingdom* 402
  - The Short-Run Trade-Off between Inflation and Unemployment 403
  - **FYI** *How Precise Are Estimates of the Natural Rate of Unemployment?* 405
  - Disinflation and the Sacrifice Ratio 405
  - Rational Expectations and the Possibility of Painless Disinflation 406
  - **CASE STUDY** *The Sacrifice Ratio in Practice: The Thatcher Disinflation* 408
  - Hysteresis and the Challenge to the Natural-Rate Hypothesis 409
- 13-3 Conclusion 410
  - Appendix: A Big, Comprehensive Model 414

## **part V Macroeconomic Policy Debates**

### **Chapter 14 Stabilization Policy 418**

- 14-1 Should Policy Be Active or Passive? 419
  - Lags in the Implementation and Effects of Policies 419

- The Difficult Job of Economic Forecasting 421
- Ignorance, Expectations and the Lucas Critique 421
- The Historical Record 422
- **CASE STUDY** *The Remarkable Stability of the Modern Economy* 423
- 14-2 Should Policy Be Conducted by Rule or by Discretion?** 425
  - Distrust of Policy Makers and the Political Process 425
  - The Time Inconsistency of Discretionary Policy 426
  - Rules for Monetary Policy 427
  - The Taylor Rule of Monetary Policy 428
- 14-3 Inflation Targeting: Rule or Constrained Discretion?** 429
  - The Taylor Rule and Inflation Targeting 430
- 14-4 Central Bank Independence** 432
- 14-5 Inflation Targeting and Central Bank Independence** 433
  - The European Central Bank 433
  - The Bank of England 434
  - The Riksbank 435
  - The Norges Bank 436
  - The US Federal Reserve System 436
- 14-6 Conclusion: Making Policy in an Uncertain World** 437
  - Appendix: Time Inconsistency and the Trade-Off between Inflation and Unemployment 440

## **Chapter 15 Government Debt 443**

- 15-1 The Size of the Government Debt** 444
- 15-2 Problems in Measurement** 446
  - Measurement Problem 1: Inflation 447
  - Measurement Problem 2: Capital Assets 447
  - Measurement Problem 3: Uncounted Liabilities 448
  - Measurement Problem 4: The Business Cycle 449
  - Summing Up 449
  - **FYI** *Measuring National Indebtedness: General Government Gross Debt or Public Sector Net Debt?* 450
- 15-3 The Traditional View of Government Debt** 451
  - **FYI** *Taxes and Incentives* 453
  - **CASE STUDY** *The Laffer Curve and Supply-Side Economics* 454
- 15-4 The Ricardian View of Government Debt** 456
  - The Basic Logic of Ricardian Equivalence 456
  - Consumers and Future Taxes 457
  - **CASE STUDY** *Why Do Parents Leave Bequests?* 459
  - Making a Choice 460
  - **FYI** *Ricardo on Ricardian Equivalence* 461

**15-5 Other Perspectives on Government Debt 461**

Balanced Budgets versus Optimal Fiscal Policy 462

Fiscal Effects on Monetary Policy 463

International Dimensions 463

► **CASE STUDY** *Indexed Bonds* 464**15-6 Fiscal Sustainability, Budget Deficits  
and the Debt-to-GDP Ratio 466**► **CASE STUDY** *The Stability and Growth Pact: A Sneak Preview* 470► **CASE STUDY** *The 'Golden Rule' of UK Public Finance* 471► **FYI** *Ponzi Finance* 472**15-7 Conclusion 472****Chapter 16 Common Currency Areas and European  
Economic and Monetary Union 475****16-1 Common Currency Areas 476****16-2 The Benefits of a Single Currency 477**

Reduction in Transactions Costs in Trade 477

Reduction in Price Discrimination 477

Reduction in Foreign-Exchange-Rate Variability 478

**16-3 The Costs of a Single Currency 478****16-4 The Theory of Optimum Currency Areas 482**

Characteristics that Reduce the Costs of a Single Currency 483

Characteristics that Increase the Benefits of a Single Currency 487

**16-5 Is Europe an Optimum Currency Area? 487**

Summing Up: Is Europe an Optimum Currency Area? 492

**16-6 Fiscal Policy and Common Currency Areas 494**

Fiscal Federalism 494

National Fiscal Policies in a Currency Union: The Free-Rider Problem 495

The Stability and Growth Pact 497

► **CASE STUDY** *Should the United Kingdom Join the European Economic and Monetary Union?* 499**16-7 Conclusion 503****part VI More on the Microeconomics  
behind Macroeconomics****Chapter 17 Consumption 508****17-1 John Maynard Keynes and the Consumption Function 509**

Keynes's Conjectures 509

The Early Empirical Successes 511

Secular Stagnation, Simon Kuznets and the Consumption Puzzle 511

- 17-2 Irving Fischer and Inter-Temporal Choice 513**  
 The Inter-Temporal Budget Constraint 513  
 Consumer Preferences 515  
 ► **FYI** *Present Value, or Why European Lottery Prizes Are Worth More than US Lottery Prizes* 516  
 Optimization 518  
 How Changes in Income Affect Consumption 519  
 How Changes in the Real Interest Rate Affect Consumption 520  
 Constraints on Borrowing 521  
 ► **CASE STUDY** *The High Japanese Saving Rate* 523
- 17-3 Franco Modigliani and the Life-Cycle Hypothesis 525**  
 The Hypothesis 525  
 Implications 526  
 ► **CASE STUDY** *The Consumption and Saving of the Elderly* 528
- 17-4 Milton Friedman and the Permanent-Income Hypothesis 529**  
 The Hypothesis 529  
 Implications 530  
 ► **CASE STUDY** *The Contrasting Effects of Permanent and Temporary Tax Changes* 531
- 17-5 Robert Hall and the Random-Walk Hypothesis 532**  
 The Hypothesis 532  
 Implications 533  
 ► **CASE STUDY** *Do Predictable Changes in Income Lead to Predictable Changes in Consumption?* 533
- 17-6 David Laibson and the Pull of Instant Gratification 534**  
 ► **CASE STUDY** *How to Encourage People to Save More: A Proposal from the Field of Behavioural Economics* 535
- 17-7 Conclusion 536**

## **Chapter 18 Investment 540**

- 18-1 Business Fixed Investment 541**  
 The Rental Price of Capital 541  
 The Cost of Capital 543  
 The Determinants of Investment 544  
 Taxes and Investment 546  
 The Stock Market and Tobin's  $q$  548  
 ► **CASE STUDY** *The Stock Market as an Economic Indicator* 549  
 Alternative Views of the Stock Market: The Efficient Markets Hypothesis versus Keynes's Beauty Contest 551  
 Financing Constraints 552  
 ► **CASE STUDY** *Banking Crises and Credit Crunches* 553
- 18-2 Residential Investment 554**  
 The Stock Equilibrium and the Flow Supply 554  
 Changes in Housing Demand 555

**18-3 Inventory Investment 556**

Reasons for Holding Inventories 556

The Accelerator Model of Inventories 557

Inventories and the Real Interest Rate 558

**18-4 Conclusion 558****Chapter 19 Money Supply and Money Demand 562****19-1 Money Supply 562**

100-Per-Cent-Reserve Banking 563

Fractional-Reserve Banking 563

A Model of the Money Supply 566

The Three Instruments of Monetary Policy 567

Problems in Controlling the Money Supply 570

► **CASE STUDY** *US Bank Failures, the Money Supply and the Great Depression* 570**19-2 Money Demand 572**

Portfolio Theories of Money Demand 572

► **CASE STUDY** *Currency and the Black Economy* 574

Transactions Theories of Money Demand 575

The Baumol-Tobin Model of Cash Management 575

► **CASE STUDY** *Empirical Studies of Money Demand* 578

Financial Innovation, Near Money and the Demise of the Monetary Aggregates 579

**19-3 Conclusion 580****Chapter 20 Advances in Business Cycle Theory 583****20-1 The Theory of Real Business Cycles 584**

The Economics of Robinson Crusoe 584

The Interpretation of the Labour Market 586

► **CASE STUDY** *Looking for Inter-Temporal Substitution* 587

The Importance of Technology Shocks 588

► **CASE STUDY** *The Solow Residual and the Business Cycle* 588

The Neutrality of Money 591

The Flexibility of Wages and Prices 591

**20-2 New Keynesian Economics 592**

Small Menu Costs and Aggregate-Demand Externalities 592

Recessions as Coordination Failure 593

The Staggering of Wages and Prices 594

Implicit Contracts 595

► **CASE STUDY** *Sticky Prices in the Euro Area and the US* 596**20-3 Conclusion 598**

**Epilogue What We Know, What We Don't 602****The Four Most Important Lessons of Macroeconomics 602**

Lesson 1: In the long run, a country's capacity to produce goods and services determines the standard of living of its residents. 603

Lesson 2: In the short run, aggregate demand influences the amount of goods and services that a country produces. 603

Lesson 3: In the long run, the rate of money growth determines the rate of inflation, but it does not affect the rate of unemployment. 604

Lesson 4: In the short run, policy makers who control monetary and fiscal policy face a trade-off between inflation and unemployment. 605

**The Four Most Important Unresolved Questions of Macroeconomics 605**

Question 1: How should policy makers try to promote growth in the economy's natural level of output? 605

Question 2: Should policy makers try to stabilize the economy? 606

Question 3: How costly is inflation, and how costly is reducing inflation? 607

Question 4: How big a problem are government budget deficits? 608

**Conclusion 609****Glossary 610****Index 620**