Contents

Preface

Part I Introduction to International Finance

Chapter 1 Introduction

1.1 From War to Depression and Back to War
   1.1.1 The vision of the Bretton Woods delegates
   1.1.2 1 July 1944
   1.1.3 The accomplishments of Bretton Woods
   1.1.4 The legacy of Bretton Woods

1.2 The Bigger Picture
   1.2.1 The gains from dealing with strangers
   1.2.2 The three benefits of human interaction are intertwined
   1.2.3 Dependence on strangers is inherently problematic
   1.2.4 The crucial role of institutions
   1.2.5 The importance of learning

1.3 How Humans Advance Knowledge
   1.3.1 The scientific method
   1.3.2 The scientific method and absolute truth
   1.3.3 Economic models and the scientific method
   1.3.4 Holism
1.3.5 Economics and holism
1.3.6 Holism and science
1.4 The Field of International Finance
1.4.1 Defining the field
1.4.2 The topics to be covered
1.5 Back to Bretton Woods: Some Additional Introductory Comments
1.5.1 Is talking to foreigners treason?
1.5.2 Do we need another Bretton Woods conference?
1.6 Summary and Conclusions
Appendix
References

Chapter 2 The Balance of Payments and the Macroeconomy

2.1 Introduction
2.1.1 Some observations on macroeconomics
2.1.2 The legacy of Keynes
2.2 The Circular Flow Diagram
2.2.1 The simple circular flow between consumers and producers
2.2.2 The financial sector
2.2.3 Government
2.2.4 The circular flow and economic interdependence
2.3 Opening Up the Economy
2.3.1 Extending the circular flow across the border
2.3.2 Exports and imports
2.3.3 Outsourcing, vertical specialization, and international trade
2.3.4 International transfers
2.3.5 Asset trade
2.3.6 Summarizing Foreign Transactions
2.4 The BoP
  2.4.1 History of the BoP accounts 65
  2.4.2 The split between the current account and the financial account 67
2.5 The BoP of the United States 68
  2.5.1 The current account 70
  2.5.2 The financial account 71
  2.5.3 The capital account 73
  2.5.4 Statistical discrepancies 74
2.6 Evaluating the Recent Trends in the US BoP 76
  2.6.1 What happened in the 1980s? 76
  2.6.2 How long can the United States run large current account deficits? 78
  2.6.3 Updating the BoP 81
2.7 The International Investment Position 81
  2.7.1 The international investment position of the United States 81
  2.7.2 The BoP and the net investment position 84
  2.7.3 The effect of growing foreign debt on the current account 84
  2.7.4 Dark matter 85
2.8 Summary and Conclusions 87
References 91

Part II The Foreign Exchange Market 93

Chapter 3 The Foreign Exchange Market 95

3.1 Overview of Foreign Exchange Markets 96
  3.1.1 The basics of exchange rates 97
  3.1.2 Why foreign exchange markets matter 100
3.2 The Evolution of the Foreign Exchange Market 102
  3.2.1 The early moneychangers 103
  3.2.2 The development of banking 104
  3.2.3 Fiat money and exchange rates 105
3.3  Foreign Exchange Markets Today 107
  3.3.1  The over-the-counter market 108
  3.3.2  A 24-h worldwide market 109
  3.3.3  Arbitrage 111
  3.3.4  Geographic arbitrage in the foreign exchange market 114
  3.3.5  The shift to online trading 115
3.4  A Supply and Demand Model of Foreign Exchange 117
3.5  Triangular Arbitrage 119
  3.5.1  How many foreign exchange rates are there? 120
  3.5.2  Triangular arbitrage 121
  3.5.3  Where to find exchange rates 123
3.6  Effective Exchange Rates 123
  3.6.1  The effective value of a currency 124
  3.6.2  Recent behavior of effective exchange rates 124
3.7  Summary and Conclusions 127
References 130

Chapter 4  The Interest Parity Condition 131
4.1  Intertemporal Arbitrage 132
  4.1.1  A simple example of intertemporal arbitrage 133
  4.1.2  The covered interest parity condition 135
  4.1.3  A more general form of the interest parity condition 137
  4.1.4  A simplified version of the interest parity condition 139
  4.1.5  An exercise in interest parity 140
4.2  Extending the Basic Interest Parity Model 143
  4.2.1  The risk premium 143
  4.2.2  There are many future exchange rates 145
  4.2.3  Foreign exchange swaps 148
  4.2.4  Exchange rate futures 148
4.3  Predicting Changes in the Exchange Rate 149
  4.3.1  The path of expected future exchange rates 149
  4.3.2  Rational expectations 151
4.3.3 Expectations as weighted averages of possible outcomes 152
4.3.4 Future changes in exchange rates are unpredictable 153
4.3.5 Testing the “news” model 153
4.3.6 Directly testing the interest parity condition 155
4.3.7 Summarizing the evidence 157
4.4 Reassessing Rational Expectations 159
4.4.1 Risk and uncertainty 159
4.4.2 The tenuous nature of expectations 161
4.4.3 A modern case study of expectations: the carry trade 163
4.5 Conclusions 165
References 168

Chapter 5 Dealing with Exchange Rate Volatility: Hedging Foreign Exchange Exposure 171

5.1 Exchange Rate Exposure 172
5.1.1 The forms of exchange rate exposure 173
5.1.2 Exchange rate volatility vs. exchange rate exposure 174
5.1.3 Hedging strategies 175
5.2 Hedging in the Forward Market 177
5.2.1 An example 177
5.2.2 Hedging with foreign exchange futures 179
5.3 Hedging in the Money Market 180
5.3.1 An example 180
5.3.2 Comparing the forward and money market hedges 181
5.4 Hedging with Options 183
5.4.1 Options contracts 184
5.4.2 An example 186
5.4.3 The advantages of an option 187
5.4.4 Comparing the three hedges 189
5.5 Currency Swaps 189
5.5.1 A first simple example of a currency swap 190
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5.2 A more sophisticated example of a currency swap</td>
<td>191</td>
</tr>
<tr>
<td>5.5.3 Difficulties associated with currency swaps</td>
<td>195</td>
</tr>
<tr>
<td>5.6 Net Exposure Versus Total Exposure</td>
<td>197</td>
</tr>
<tr>
<td>5.6.1 Only net exposure needs to be hedged</td>
<td>197</td>
</tr>
<tr>
<td>5.6.2 Managing cash flows in different currencies</td>
<td>199</td>
</tr>
<tr>
<td>5.7 Hedging and Exchange Rate Pass-Through</td>
<td>199</td>
</tr>
<tr>
<td>5.7.1 Exchange rate pass-through is often low</td>
<td>200</td>
</tr>
<tr>
<td>5.7.2 Hedging and exchange rate volatility</td>
<td>201</td>
</tr>
<tr>
<td>5.8 Summary and Conclusions</td>
<td>202</td>
</tr>
<tr>
<td>References</td>
<td>207</td>
</tr>
</tbody>
</table>

**Chapter 6 The Microstructure of Foreign Exchange Markets**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 Overview of Today's Foreign Exchange Market</td>
<td>210</td>
</tr>
<tr>
<td>6.1.1 Geographic concentration is increasing</td>
<td>211</td>
</tr>
<tr>
<td>6.1.2 Dominance of the US dollar</td>
<td>212</td>
</tr>
<tr>
<td>6.1.3 A 24-h worldwide market</td>
<td>214</td>
</tr>
<tr>
<td>6.2 The Evolving Foreign Exchange Market</td>
<td>216</td>
</tr>
<tr>
<td>6.2.1 Recent evolution of the market</td>
<td>216</td>
</tr>
<tr>
<td>6.2.2 Rankings of dealer institutions</td>
<td>218</td>
</tr>
<tr>
<td>6.2.3 Foreign exchange brokers</td>
<td>220</td>
</tr>
<tr>
<td>6.3 Electronic Trading</td>
<td>221</td>
</tr>
<tr>
<td>6.3.1 The introduction of electronic communications</td>
<td>221</td>
</tr>
<tr>
<td>6.3.2 Electronic dealer-to-customer platforms</td>
<td>222</td>
</tr>
<tr>
<td>6.3.3 Retail currency exchange</td>
<td>223</td>
</tr>
<tr>
<td>6.4 The Changing Microstructure of the Over-the-Counter Market</td>
<td>226</td>
</tr>
<tr>
<td>6.4.1 Centralization of the market</td>
<td>226</td>
</tr>
<tr>
<td>6.4.2 Do electronic systems imply more transparency and efficiency?</td>
<td>227</td>
</tr>
<tr>
<td>6.5 Explaining the $3 Trillion Per Day Volume</td>
<td>228</td>
</tr>
<tr>
<td>6.5.1 Arbitrage</td>
<td>229</td>
</tr>
<tr>
<td>6.5.2 Hot potato process</td>
<td>230</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>6.5.3</td>
<td>Speculation</td>
</tr>
<tr>
<td>6.5.4</td>
<td>Why is the foreign exchange market volume so large?</td>
</tr>
<tr>
<td>6.6</td>
<td>Corruption in the Foreign Exchange Market</td>
</tr>
<tr>
<td>6.6.1</td>
<td>Allied Irish banks lost $750 million in 2002</td>
</tr>
<tr>
<td>6.6.2</td>
<td>Fraud in New York in 2003</td>
</tr>
<tr>
<td>6.7</td>
<td>Technical Analysis vs. Fundamentals</td>
</tr>
<tr>
<td>6.7.1</td>
<td>How prominent is technical analysis in the foreign exchange market?</td>
</tr>
<tr>
<td>6.7.2</td>
<td>Some macroeconomic implications of technical analysis</td>
</tr>
<tr>
<td>6.8</td>
<td>Further Observations on the Efficiency of the Foreign Exchange Market</td>
</tr>
<tr>
<td>6.8.1</td>
<td>Purchasing power parity</td>
</tr>
<tr>
<td>6.8.2</td>
<td>The dynamics of financial markets</td>
</tr>
<tr>
<td>6.9</td>
<td>Summary and Conclusions</td>
</tr>
</tbody>
</table>

References 249

Part III Open-Economy Macroeconomics 251

Chapter 7 The Mundell-Fleming Open-Economy Model 253

7.1 Keynes’ Revolutionary Macroeconomic Model 254
7.1.1 Walras’ general equilibrium model 255
7.1.2 The great depression and Keynes’ more holistic model 256

7.2 The Basic Keynesian Macroeconomic Model 256
7.2.1 Basic elements of the closed economy Keynesian model 257
7.2.2 The consumption function 258
7.2.3 The I and G functions 258

7.3 Opening the Product Market to International Trade 261

7.4 The Mundell-Fleming Open-Economy Keynesian Model 263
7.4.1 The product market and the IS curve 264
7.4.2 The money market and the LM curve 267
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.4.3</td>
<td>The financial account balance</td>
<td>270</td>
</tr>
<tr>
<td>7.4.4</td>
<td>The current account balance</td>
<td>272</td>
</tr>
<tr>
<td>7.4.5</td>
<td>The BOP curve</td>
<td>273</td>
</tr>
<tr>
<td>7.5</td>
<td>The Complete Mundell–Fleming Model</td>
<td>278</td>
</tr>
<tr>
<td>7.5.1</td>
<td>The adjustment process</td>
<td>280</td>
</tr>
<tr>
<td>7.5.2</td>
<td>Adjustment with pegged exchange rates</td>
<td>281</td>
</tr>
<tr>
<td>7.6</td>
<td>Fiscal and Monetary Policies in an Open Economy</td>
<td>283</td>
</tr>
<tr>
<td>7.6.1</td>
<td>Foreign exchange market intervention</td>
<td>283</td>
</tr>
<tr>
<td>7.6.2</td>
<td>The equivalence of monetary policy and exchange market intervention</td>
<td>286</td>
</tr>
<tr>
<td>7.6.3</td>
<td>Monetary policy while pegging the exchange rates</td>
<td>287</td>
</tr>
<tr>
<td>7.6.4</td>
<td>Fiscal policy with pegged exchange rates</td>
<td>288</td>
</tr>
<tr>
<td>7.6.5</td>
<td>Monetary policy with floating exchange rates</td>
<td>290</td>
</tr>
<tr>
<td>7.6.6</td>
<td>Fiscal policy with floating exchange rates</td>
<td>292</td>
</tr>
<tr>
<td>7.6.7</td>
<td>Comparing macroeconomic policy in closed and open economies</td>
<td>293</td>
</tr>
<tr>
<td>7.7</td>
<td>Does a Depreciation Improve the Trade Balance?</td>
<td>295</td>
</tr>
<tr>
<td>7.7.1</td>
<td>The Marshall–Lerner condition</td>
<td>295</td>
</tr>
<tr>
<td>7.7.2</td>
<td>Evidence on the Marshall–Lerner condition</td>
<td>296</td>
</tr>
<tr>
<td>7.7.3</td>
<td>Why the Marshall–Lerner condition is inaccurate</td>
<td>297</td>
</tr>
<tr>
<td>7.8</td>
<td>Summary and Conclusions</td>
<td>299</td>
</tr>
<tr>
<td></td>
<td>The Fatal Equilibrium</td>
<td>303</td>
</tr>
<tr>
<td></td>
<td>References</td>
<td>309</td>
</tr>
</tbody>
</table>

Chapter 8 The Supply Side of the Economy

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>Introduction to the Supply Side of the Economy</td>
<td>312</td>
</tr>
<tr>
<td>8.1.1</td>
<td>The microfoundations of aggregate supply</td>
<td>313</td>
</tr>
<tr>
<td>8.1.2</td>
<td>The ‘sticky’ labor market</td>
<td>314</td>
</tr>
<tr>
<td>8.1.3</td>
<td>Wage rigidity</td>
<td>315</td>
</tr>
<tr>
<td>8.1.4</td>
<td>Economic growth and aggregate supply</td>
<td>317</td>
</tr>
<tr>
<td>8.2</td>
<td>The Solow Growth Model</td>
<td>318</td>
</tr>
<tr>
<td>8.2.1</td>
<td>Technological progress and factor accumulation</td>
<td>318</td>
</tr>
<tr>
<td>8.2.2</td>
<td>Increased investment causes only temporary growth in output</td>
<td>323</td>
</tr>
</tbody>
</table>
8.2.3 How can an economy achieve permanent growth? 324
8.2.4 Technological progress 324
8.3 Technological Progress as Creative Destruction 327
  8.3.1 Joseph Schumpeter's creative destruction 328
  8.3.2 Generalizing Schumpeter's ideas 330
  8.3.3 Recent 'Schumpeterian' models of technological progress 332
  8.3.4 The cost of innovation 333
  8.3.5 The expected gains from innovation 334
  8.3.6 The equilibrium level of innovative activity 336
  8.3.7 Summarizing the effects of growth on aggregate supply 337
8.4 Globalization and Economic Growth 338
  8.4.1 Economic openness and economic growth 339
  8.4.2 The robustness of the trade-growth relationship 340
  8.4.3 International trade and the Schumpeter model 342
  8.4.4 Immigration and economic growth 345
  8.4.5 Globalization, competition, and creative destruction 347
  8.4.6 Globalization, economic growth, and international finance 348
8.5 Summary and Conclusions 349
References 353

Chapter 9 The Aggregate Demand/Aggregate Supply Model 355
9.1 The Critics of the Keynesian Model 358
  9.1.1 The dissent of the monetarists 358
  9.1.2 Deceptive microfoundations 360
  9.1.3 Rational expectations 362
  9.1.4 Keynes’ deeper understanding of expectations 364
9.2 Generalizing Keynes’ Demand Side of the Economy 367
  9.2.1 The consumption function 368
  9.2.2 Investment demand 370
10.1.6 Capital movements during the 1950–1980 period 420

10.2 The 1982 Debt Crisis 421
10.2.1 Oil prices and international lending 422
10.2.2 The macroeconomics of international investment flows 424
10.2.3 Petrodollar recycling crashes in 1982 426

10.3 Solving the 1982 Debt Crisis 430
10.3.1 Default by sovereign governments 431
10.3.2 Solving the debt crisis 432
10.3.3 The Brady plan 434
10.3.4 The controversial role of the IMF 435
10.3.5 The countries that escaped the 1982 crisis: East Asia 437
10.3.6 Did fixed exchange rates play a role? 438

10.4 The Economics of Currency Crises 439
10.4.1 It is difficult to fix the exchange rates 439
10.4.2 Intervention is not a long-run tool 440
10.4.3 Fixed exchange rates and economic crises 442
10.4.4 If policy independence is the main objective 443
10.4.5 Two dilemmas equal one trilemma 444
10.4.6 Exchange rate stability and domestic political priorities 445

10.5 Summary and Conclusions 446
References 450

Chapter 11 More Exchange Rate Crises 453

11.1 The Post-1982 Period 454
11.2 Recent Foreign Exchange Crises 457
11.2.1 The Mexican peso crisis of 1994 457
11.2.2 The Asian crisis of 1997 460
11.2.3 The Korean chaebol 462
11.2.4 The lesson that Asia should have learned from Chile’s 1982 crisis 464
11.2.5 The collapse of Argentina's currency board in 2001 466
11.2.6 Common threads to the Mexican, Asian, and Argentine crises 470
11.2.7 Why the currency crises were so costly 471
11.2.8 The recoveries 474
11.3 Brazil's 2004 Tightrope Walk 475
11.3.1 A high government debt burden 475
11.3.2 Debt dynamics 476
11.4 The Russian Crisis 479
11.4.1 The Russian economy before 1990 480
11.4.2 Transition 481
11.4.3 Signs of hope in 1997 482
11.4.4 Explaining the Russian crisis 483
11.5 Three Generations of Crisis Models 484
11.5.1 First generation models 485
11.5.2 Second generation models 486
11.5.3 Third generation crisis models 488
11.5.4 Which generation of models is most useful? 489
11.6 To Fix or to Float? 489
11.6.1 Advantages of floating 490
11.6.2 Advantages of fixed exchange rates 491
11.6.3 The advantage goes to... 492
11.7 Can Large Reserves Defeat the Trilemma? 493
11.7.1 Large reserves discourage speculation 493
11.7.2 Reserve accumulation may destabilize the global economy 494
11.8 Summary and Conclusions 495
References 497

12.1 Comparing International Monetary Arrangements 504
12.1.1 The rules of the game 504
Contents

12.1.2 A framework for judging the international monetary system 505
12.2 International Finance Before the Gold Standard 506
  12.2.1 The origin of money 507
  12.2.2 Ancient financial arrangements 508
  12.2.3 The growing complexity of international finance 509
  12.2.4 Fiat money 511
12.3 The Origins of the Gold Standard 512
  12.3.1 Why Britain established a gold standard and not a silver standard 513
  12.3.2 The emergence of the International Gold Standard 513
12.4 The International Gold Standard: 1880–1914 515
  12.4.1 The order of the Gold Standard 515
  12.4.2 The Gold Standard and exchange rates 517
  12.4.3 Hume’s specie-flow mechanism 519
  12.4.4 How the Gold Standard actually worked 520
  12.4.5 In the long term, the rules were followed 523
  12.4.6 Evaluating the international Gold Standard 525
  12.4.7 International investment in the late 19th century 527
  12.4.8 Around the world with British pounds 529
12.5 The United States and the International Gold Standard 530
12.6 The Suspension of the International Gold Standard 535
References 538
Appendix 539

Chapter 13 The Tumultuous Interwar Period: 1918–1940 547

13.1 Back to Normal After World War I? 549
  13.1.1 The costs of the war 550
  13.1.2 Reviving the gold standard under changed circumstances 552
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.1.3</td>
<td>The Treaty of Versailles</td>
<td>554</td>
</tr>
<tr>
<td>13.1.4</td>
<td>Isolationism in the United States</td>
<td>557</td>
</tr>
<tr>
<td>13.1.5</td>
<td>Senator Reed Smoot, the proud protectionist</td>
<td>559</td>
</tr>
<tr>
<td>13.2</td>
<td>The Gold Standard and the Great Depression</td>
<td>560</td>
</tr>
<tr>
<td>13.2.1</td>
<td>Economic recovery under the rules of the game</td>
<td>560</td>
</tr>
<tr>
<td>13.2.2</td>
<td>The importance of US international lending</td>
<td>562</td>
</tr>
<tr>
<td>13.2.3</td>
<td>Spreading the economic misery</td>
<td>562</td>
</tr>
<tr>
<td>13.2.4</td>
<td>The consequences of the economics</td>
<td>564</td>
</tr>
<tr>
<td>13.2.5</td>
<td>The Gold Standard mentalité as cause of the Great Depression</td>
<td>565</td>
</tr>
<tr>
<td>13.2.6</td>
<td>The end of gold</td>
<td>567</td>
</tr>
<tr>
<td>13.3</td>
<td>A New Order</td>
<td>568</td>
</tr>
<tr>
<td>13.3.1</td>
<td>Brazil's unintended &quot;Keynesian&quot; recovery</td>
<td>569</td>
</tr>
<tr>
<td>13.3.2</td>
<td>Reversing the financial chaos</td>
<td>571</td>
</tr>
<tr>
<td>13.3.3</td>
<td>Individual country actions to restore order</td>
<td>572</td>
</tr>
<tr>
<td>13.3.4</td>
<td>International cooperation: the Tripartite Agreement</td>
<td>574</td>
</tr>
<tr>
<td>13.4</td>
<td>Assessing the Gold Standard During the Interwar Period</td>
<td>575</td>
</tr>
<tr>
<td>13.4.1</td>
<td>The trilemma between the wars</td>
<td>576</td>
</tr>
</tbody>
</table>

Chapter 14  Bretton Woods to the Present

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1</td>
<td>The Extraordinary Bretton Woods Conference</td>
<td>584</td>
</tr>
<tr>
<td>14.1.1</td>
<td>The motivation for Bretton Woods</td>
<td>585</td>
</tr>
<tr>
<td>14.1.2</td>
<td>Designing the institutions to shape the world economy</td>
<td>586</td>
</tr>
<tr>
<td>14.1.3</td>
<td>The details of the Bretton Woods order</td>
<td>588</td>
</tr>
<tr>
<td>14.1.4</td>
<td>Capital controls</td>
<td>591</td>
</tr>
<tr>
<td>14.2</td>
<td>The Early Years of Bretton Woods</td>
<td>592</td>
</tr>
<tr>
<td>14.2.1</td>
<td>The Marshall Plan</td>
<td>593</td>
</tr>
<tr>
<td>14.2.2</td>
<td>The Marshall Plan in Germany</td>
<td>594</td>
</tr>
<tr>
<td>14.2.3</td>
<td>The US dollar assumes a special role</td>
<td>596</td>
</tr>
</tbody>
</table>
14.2.4 The performance of the Bretton Woods system 597
14.2.5 The world economy outgrows the Bretton Woods system 598
14.2.6 The collapse of the Bretton Woods system 601
14.2.7 Evaluating the Bretton Woods system 603
14.3 After Bretton Woods 604
14.3.1 Meetings, but no agreement 604
14.3.2 Surprising volatility 605
14.3.3 The Plaza and Louvre Accords 606
14.3.4 Do floating exchange rates decrease international trade? 609
14.3.5 Evaluating the post-Bretton Woods period 609
14.4 The Bretton Woods Institutions 612
14.5 Summary and Conclusions 614
References 620
Appendix 622

Chapter 15 The Euro and the European Union 627
15.1 Seeking Exchange Rate Stability After Bretton Woods 628
15.1.1 The snake in the tunnel 629
15.1.2 The EMS: a mini-Bretton Woods 629
15.1.3 The incompatibility of economic policies, again 630
15.1.4 Seeking a more durable alternative to the EMS 633
15.1.5 Establishing the monetary union 633
15.2 History of the European Union 635
15.2.1 The early stages of European economic integration 636
15.2.2 The growth and maturization of the EEC 640
15.2.3 Recent expansion 642
15.2.4 A European constitution 644
15.3 Optimum Currency Areas 645
15.3.1 Mundell’s examples 646
17.3 The Economic Role of the Financial Sector 729
  17.3.1 Failure is a constant in the financial sector 730
  17.3.2 A model of the financial sector 731
  17.3.3 Extending the analysis to the whole economy 733
17.4 Market Failures in the Financial Sector 734
  17.4.1 Default 735
  17.4.2 Case study: contract enforcement in Taiwan 735
  17.4.3 Enforceable contracts do not solve all market failures 737
  17.4.4 Asymmetric information and adverse selection 738
  17.4.5 One more problem: Moral hazard 740
  17.4.6 Government regulation to solve the information problem 741
  17.4.7 Collateral: another role for government 742
  17.4.8 Financial intermediaries also have bad incentives 744
17.5 Portfolio Investment 744
  17.5.1 Defining portfolio investment 745
  17.5.2 International equity markets 746
  17.5.3 ADRs make foreign stock look like a domestic asset 747
  17.5.4 The globalization of over-the-counter financial markets 748
  17.5.5 Then, in 2008, a global collapse! 749
17.6 Changing Institutions: The Growth of Islamic Finance 751
  17.6.1 What is Islamic finance? 751
  17.6.2 Sharing risk under sharia law 752
  17.6.3 The future of Islamic finance 754
17.7 Summary and Conclusions 755
References 759

18.1 A Picture of the 2008 Crisis 762
18.2 Deregulation and Innovation 767