

third edition

international economics

ROBERT C. FEENSTRA
ALAN M. TAYLOR

4 The Eurozone in Crisis, 2008–2013

For almost 10 years, Eurozone policy making focused on two main macroeconomic goals: the ECB's monetary policy credibility and inflation target, seen as a success given low and stable inflation outcomes; and the Eurozone government's fiscal responsibility, seen as a failure given the general disregard for the SGP. However, policy makers (like their counterparts all over the world) failed to spot macroeconomic and financial developments that were to plunge the Eurozone into crisis in 2008 and beyond.

Boom and Bust: Causes and Consequences of an Asymmetrical Crisis With a fanatical devotion to inflation targeting, the ECB (and its constituent central banks) paid insufficient attention to what was historically a primary responsibility of central banks, namely, financial stability. Within some parts of the Eurozone (as elsewhere) borrowers in the private sector were engaged in a credit-fueled boom. In other parts of the Eurozone, savers and banks funneled ever more loans toward those borrowers. The creditors were core Northern European countries like Germany and the Netherlands; the debtors were fast-growing *peripheral* nations such as Greece, Ireland, Portugal, and Spain (so called because they are located geographically on the periphery of Europe).

In Greece, much of the borrowing was by a fiscally irresponsible government that was later found to be falsifying its accounts. In the other peripheral nations, however, the flow of loans funded rapid investment and consumption surges, including a residential construction boom that in places (e.g., Dublin and Barcelona) rivaled the property bubble in parts of the United States. In Ireland and Spain, even as this boom took place, the governments had maintained a fiscal position close to balance, or even surplus; the asymmetric boom helped them at that time. The trouble was to come when the boom gave way to a severe asymmetric bust.

A MODERN BOOK FOR A MODERN AUDIENCE

Feenstra and Taylor's text incorporates fresh perspectives, current topics, and up-to-date empirical research. It expands the study of international economics to encompass the latest theories and world events.

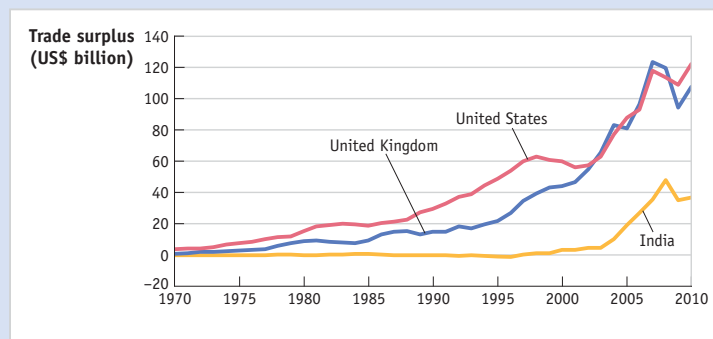
The chapter on the euro covers the dramatic developments since 2010, including the Greek debt restructuring; assistance programs in Spain, Ireland and Portugal; and the Cyprus banking crisis.

page 843

THEORY TESTED AND REFINED

Feenstra and Taylor's text covers many empirical studies that prove or refute existing theories, revealing important new lessons about the determinants of trade, factor flows, exchange rates, and crises.

FIGURE 7-14



Trade Surplus in Business Services This figure shows the combined trade surplus in computer and information services, insurance, and financial services for the United States, the United Kingdom, and India from 1970 to 2010. The U.S. surplus in these categories of services has been growing since about 1985, with an occasional dip, and exceeded the trade surplus of the

United Kingdom, its chief competitor, up until about 2000. Since then the surpluses of the United Kingdom and of the United States have been similar. India's surplus began growing around 2000 and is based entirely on its exports of computer and information services.

Source: World Bank World Development Indicators.

3 The Politics and Future of Offshoring

Offshoring is controversial and is often the topic of political debate. In February 2004 the first quote at the beginning of this chapter appeared in the *Economic Report of the President* by Paul D. Miller, a Harvard economist

page 222

In March 2012, the United States, the European Union, and Japan filed another WTO case against China charging that it applied unfair export restrictions on its rare earth minerals, as well as tungsten and molybdenum. The first step in such a case is for the parties involved (the United States, Europe, and Japan on one side; China on the other) to see whether the charges can be resolved through consultations at the WTO. Those consultations failed to satisfy either side, and in September 2012, the case went to a dispute settlement panel at the WTO. The Chinese government appealed to Article XX of the GATT, which allows for an exception to GATT rules in cases “relating to the conservation of exhaustible natural resources.” But the WTO ruled against China, who is expected to appeal.

Regardless of the ultimate outcome of that case, it appears that China has already changed its policies on rare earth minerals. By the end of 2012, China realized that its policy of export quotas for rare earth minerals was not having the desired effect of maintaining high world prices. It therefore shifted away from a strict reliance on export quotas, and introduced subsidies to help producers who were losing money. These new policies are described in **Headlines: China Signals Support for Rare Earths**. The new subsidy policy might also lead to objections from the United States, the European Union, and Japan. But as we have seen earlier in this chapter, it is more difficult for the WTO to control subsidies (which are commonly used in agriculture) than to control export quotas.

A final feature of international trade in rare earth minerals is important to recognize: the mining and processing of these minerals poses an environmental risk, because rare earth minerals are frequently found with radioactive ores like thorium or uranium. Processing these minerals therefore leads to low-grade radioactive waste as a by-product. That aspect of rare earth minerals leads to protests against the establishment of new mines. The Lynas Corporation mine in Australia, mentioned in the Headlines article, processes the minerals obtained there in Malaysia. That processing facility was targeted by protesters in Malaysia, led by a retired math teacher named Tan Bun Teet. Although Mr. Tan and the other protestors did not succeed in preventing the processing facility from being opened, they did delay it and also put pressure on the company to ensure that the radioactive waste would be exported from Malaysia, in accordance with that country’s laws. But where will this waste go? This environmental dilemma arises because of the exploding worldwide demand for high-tech products (including your own cell phone), whose manufacturing involves environmental risks. This case illustrates the potential interaction between international trade and the environment, a topic we examine in more detail in the next chapter. ■

7 High-Technology Export Subsidies

We turn now to consider high-technology final products. This sector of an economy also receives substantial assistance from government, with examples including subsidies to the aircraft industries in both the United States and Europe. In the United States, subsidies take the form of low-interest loans provided by the Export-Import

MODERN TOPICS

Feenstra and Taylor’s text shows why trade and capital flows have been liberalized and allowed to grow. The text focuses more attention on emerging markets and developing countries—regions that now carry substantial weight in the global economy.



Protesters from the Save Malaysia Stop Lynas group demonstrating outside a hotel in Sydney, Australia.

APPLICATION

China and the Multifibre Arrangement

One of the founding principles of GATT was that countries should not use quotas to restrict imports (see Article XI of **Side Bar: Key Provisions of the GATT**). The Multifibre Arrangement (MFA), organized under the auspices of the GATT in 1973, was a major exception to that principle and allowed the industrial countries to restrict imports of textile and apparel products from the developing countries. Importing countries could join the MFA and arrange quotas bilaterally (i.e., after negotiating with exporters) or unilaterally (on their own). In practice, the import quotas established under the MFA were very detailed and specified the amount of each textile and apparel product that each developing country could sell to countries including Canada, Europe, and the United States.

page 269

APPLICATIONS

Applications illuminate real-world policies, events, and empirical evidence.

HEADLINES

Economic Crisis in Iceland

International macroeconomics can often seem like a dry and abstract subject, but it must be remembered that societies and individuals can be profoundly shaken by the issues we will study. This article was written just after the start of the severe economic crisis that engulfed Iceland in 2008, following the collapse of its exchange rate, a financial crisis, and a government fiscal crisis. Real output per person shrank by more than 10%, and unemployment rose from 1% to 9%. Five years later a recovery was just beginning to take shape.

page 417

HEADLINES

Headlines boxes offer insights into the global economy from international media sources.

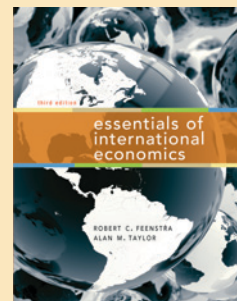
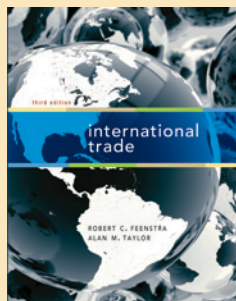
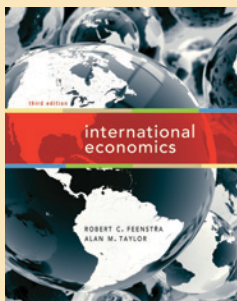


Protesters outside the Icelandic parliament in Reykjavik demand that the government do more to improve conditions for the recently poor.

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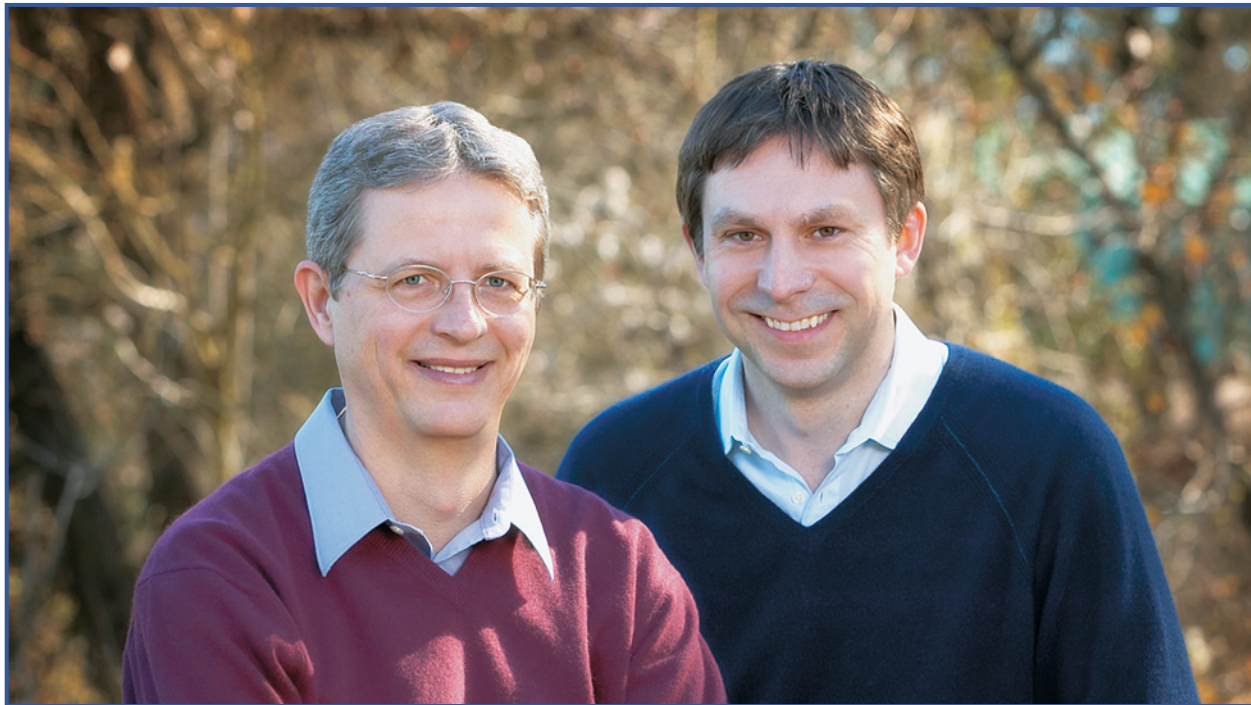
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Robert C. Feenstra and **Alan M. Taylor** are Professors of Economics at the University of California, Davis. They each began their studies abroad: Feenstra received his B.A. in 1977 from the University of British Columbia, Canada, and Taylor received his B.A. in 1987 from King's College, Cambridge, U.K. They trained as professional economists in the United States, where Feenstra earned his Ph.D. in economics from the Massachusetts Institute of Technology in 1981 and Taylor earned his Ph.D. in economics from Harvard University in 1992. Feenstra has been teaching international trade at the undergraduate and graduate levels at UC Davis since 1986, where he holds the C. Bryan Cameron Distinguished Chair in International Economics. Taylor teaches international macroeconomics, growth, and economic history at UC Davis, where he also holds appointments as Director of the Center for the Evolution of the Global Economy and Professor of Finance in the Graduate School of Management.

Both Feenstra and Taylor are active in research and policy discussions in international economics. They are

research associates of the National Bureau of Economic Research, where Feenstra directs the International Trade and Investment research program. They have both published graduate level books in international economics: *Offshoring in the Global Economy* and *Product Variety and the Gains from Trade* (MIT Press, 2010), by Robert C. Feenstra, and *Global Capital Markets: Integration, Crisis and Growth* (Cambridge University Press, 2004), by Maurice Obstfeld and Alan M. Taylor. Feenstra received the Bernhard Harms Prize from the Institute for World Economics, Kiel, Germany, in 2006, and delivered the Ohlin Lectures at the Stockholm School of Economics in 2008. Taylor was awarded a Guggenheim Fellowship in 2004 and was awarded a Houlblon-Norman/George Fellowship by the Bank of England in 2009–10.

Feenstra lives in Davis, California, with his wife, Gail, and has two grown children: Heather, who is a genetics counselor; and Evan, who is a musician and entrepreneur. Taylor also lives in Davis, with his wife, Claire, and has two young children, Olivia and Sebastian.

To our parents

Brief Contents

PART 1 Introduction to International Trade

Chapter 1 Trade in the Global Economy 1

PART 2 Patterns of International Trade

Chapter 2 Trade and Technology: The Ricardian Model 27

Chapter 3 Gains and Losses from Trade in the Specific-Factors Model 59

Chapter 4 Trade and Resources: The Heckscher-Ohlin Model 87

Chapter 5 Movement of Labor and Capital between Countries 123

PART 3 New Explanations for International Trade

Chapter 6 Increasing Returns to Scale and Monopolistic Competition 165

Chapter 7 Offshoring of Goods and Services 197

PART 4 International Trade Policies

Chapter 8 Import Tariffs and Quotas Under Perfect Competition 233

Chapter 9 Import Tariffs and Quotas Under Imperfect Competition 279

Chapter 10 Export Subsidies in Agriculture and High-Technology Industries 327

Chapter 11 International Agreements: Trade, Labor, and the Environment 367

PART 5 Introduction to International Macroeconomics

Chapter 12 The Global Macroeconomy 411

PART 6 Exchange Rates

Chapter 13 Introduction to Exchange Rates and the Foreign Exchange Market 435

Chapter 14 Exchange Rates I: The Monetary Approach in the Long Run 473

Chapter 15 Exchange Rates II: The Asset Approach in the Short Run 521

PART 7 The Balance of Payments

Chapter 16 National and International Accounts: Income, Wealth, and the Balance of Payments 567

Chapter 17 Balance of Payments I: The Gains from Financial Globalization 609

Chapter 18 Balance of Payments II: Output, Exchange Rates, and Macroeconomic Policies in the Short Run 663

PART 8 Applications and Policy Issues

Chapter 19 Fixed Versus Floating: International Monetary Experience 715

Chapter 20 Exchange Rate Crises: How Pegs Work and How They Break 757

Chapter 21 The Euro 811

Chapter 22 Topics in International Macroeconomics 859

Index I-1

Contents

Preface xxvi

PART 1

Introduction to
International Trade

CHAPTER 1 Trade in the Global Economy 1

1 International Trade 3

The Basics of World Trade 3

HEADLINES Sum of iPhone Parts: Trade Distortion 5

APPLICATION Is Trade Today Different from the Past? 5

Map of World Trade 7

Trade Compared with GDP 11

Barriers to Trade 12

“First Golden Age” of Trade 12

“Second Golden Age” of Trade 14

HEADLINES A Sea Change in Shipping 50 Years Ago 15

2 Migration and Foreign Direct Investment 16

Map of Migration 16

Map of Foreign Direct Investment 19

3 Conclusions 23

Key Points, Key Terms, and Problems

CHAPTER 2 Trade and Technology: The Ricardian Model 27

1 Reasons for Trade 29

Proximity 29

Resources 30

Absolute Advantage 30

SIDE BAR Can Comparative Advantage Be Created? The Case
of “Icewine” 31

Comparative Advantage 32

SIDE BAR David Ricardo and Mercantilism 32

2 Ricardian Model 33

The Home Country 33

The Foreign Country 37

PART 2

Patterns of
International Trade

APPLICATION Comparative Advantage in Apparel, Textiles, and Wheat 38

3 **Determining the Pattern of International Trade 40**

International Trade Equilibrium 41

APPLICATION Labor Productivity and Wages 46

4 **Solving for International Prices 47**

Home Export Supply Curve 47

International Trade Equilibrium 51

APPLICATION The Terms of Trade for Primary Commodities 52

5 **Conclusions 53**

Key Points, Key Terms, and Problems

CHAPTER 3 Gains and Losses from Trade in the Specific-Factors Model 59

1 **Specific-Factors Model 61**

The Home Country 61

The Foreign Country 64

Overall Gains from Trade 64

APPLICATION How Large Are the Gains from Trade? 65

2 **Earnings of Labor 66**

Determination of Wages 66

Change in Relative Price of Manufactures 68

APPLICATION Manufacturing and Services in the United States: Employment and Wages across Sectors 71

APPLICATION Trade Adjustment Assistance Programs: Financing the Adjustment Costs of Trade 73

3 **Earnings of Capital and Land 74**

Determining the Payments to Capital and Land 74

HEADLINES Services Workers Are Now Eligible for Trade Adjustment Assistance 75

Numerical Example 77

What It All Means 80

APPLICATION Prices in Agriculture 80

4 **Conclusions 82**

HEADLINES Rise in Coffee Prices—Great for Farmers, Tough on Co-ops 83

Key Points, Key Terms, and Problems

CHAPTER 4 Trade and Resources: The Heckscher-Ohlin Model 87

1 Heckscher-Ohlin Model 88

Assumptions of the Heckscher-Ohlin Model 89

APPLICATION Are Factor Intensities the Same Across Countries? 91

No-Trade Equilibrium 92

Free-Trade Equilibrium 94

2 Testing the Heckscher-Ohlin Model 98

Leontief's Paradox 99

Factor Endowments in 2010 100

Differing Productivities across Countries 102

HEADLINES China Drawing High-Tech Research from U.S. 105

Leontief's Paradox Once Again 107

3 Effects of Trade on Factor Prices 110

Effect of Trade on the Wage and Rental of Home 110

Determination of the Real Wage and Real Rental 113

Changes in the Real Wage and Rental: A Numerical Example 115

APPLICATION Opinions toward Free Trade 117

4 Conclusions 119

Key Points, Key Terms, and Problems

CHAPTER 5 Movement of Labor and Capital Between Countries 123

1 Movement of Labor between Countries: Migration 125

Effects of Immigration in the Short Run: Specific-Factors Model 125

APPLICATION Immigration to the New World 128

APPLICATION Immigration to the United States and Europe Today 129

HEADLINES Call for Return of Border Controls in Europe 130

HEADLINES The Economic Windfall of Immigration Reform 131

Other Effects of Immigration in the Short Run 133

Effects of Immigration in the Long Run 134

Rybczynski Theorem 139

Factor Price Insensitivity Theorem 140

APPLICATION The Effects of the Mariel Boat Lift on Industry Output in Miami 140

APPLICATION Immigration and U.S. Wages, 1990–2006 142

2 Movement of Capital between Countries: Foreign Direct Investment 144

Greenfield Investment 145

FDI in the Short Run: Specific-Factors Model 145

FDI in the Long Run 147

APPLICATION The Effect of FDI on Rentals and Wages in Singapore 149

3 Gains from Labor and Capital Flows 151

HEADLINES The Myth of Asia's Miracle 151

Gains from Immigration 152

SIDE BAR Immigrants and Their Remittances 155

APPLICATION Gains from Migration 156

Gains from Foreign Direct Investment 159

4 Conclusions 160

Key Points, Key Terms, and Problems

CHAPTER 6 Increasing Returns to Scale and Monopolistic Competition 165

1 Basics of Imperfect Competition 168

Monopoly Equilibrium 168

Demand with Duopoly 169

2 Trade Under Monopolistic Competition 170

Equilibrium without Trade 172

Equilibrium with Free Trade 174

3 The North American Free Trade Agreement 178

Gains and Adjustment Costs for Canada Under NAFTA 178

HEADLINES The Long and the Short of the Canada-U.S. Free Trade Agreement 179

Gains and Adjustment Costs for Mexico Under NAFTA 179

HEADLINES NAFTA Turns 15, Bravo! 180

HEADLINES Nearly 20 Years After NAFTA, First Mexican Truck Arrives In U.S. Interior 181

Gains and Adjustment Costs for the United States Under NAFTA 184

4 Intra-Industry Trade and the Gravity Equation 187

Index of Intra-Industry Trade 188

The Gravity Equation 189

APPLICATION The Gravity Equation for Canada and the United States 190

5 Conclusions 193

Key Points, Key Terms, and Problems

PART 3 New Explanations for International Trade

.....

CHAPTER 7 Offshoring of Goods and Services 197

SIDE BAR "Foreign Outsourcing" Versus "Offshoring" 199

1 A Model of Offshoring 200

Value Chain of Activities 200

Changing the Costs of Trade 203

APPLICATION Change in Relative Wages Across Countries 205

Change in Relative Wages in the United States 206

Change in Relative Wages in Mexico 211

2 The Gains from Offshoring 212

Simplified Offshoring Model 213

Production in the Absence of Offshoring 213

Terms of Trade 216

APPLICATION U.S. Terms of Trade and Service Exports 219

3 The Politics and Future of Offshoring 222

HEADLINES How to Destroy American Jobs 224

HEADLINES Caterpillar Joins "Onshoring" Trend 225

The Future of U.S. Comparative Advantage 225

4 Conclusions 226

Key Points, Key Terms, and Problems

PART 4

International Trade Policies
.....

CHAPTER 8 Import Tariffs and Quotas Under Perfect Competition 233

1 A Brief History of the World Trade Organization 235

2 The Gains from Trade 236

Consumer and Producer Surplus 236

SIDE BAR Key Provisions of the GATT 237

Home Welfare 239

Home Import Demand Curve 241

3 Import Tariffs for a Small Country 242

Free Trade for a Small Country 242

Effect of the Tariff 242

Why and How Are Tariffs Applied? 246

SIDE BAR Safeguard Tariffs 247

APPLICATION U.S. Tariffs on Steel and Tires 248

4 Import Tariffs for a Large Country 256

Foreign Export Supply 256

Effect of the Tariff 257

APPLICATION U.S. Tariffs on Steel Once Again 261

5 Import Quotas 263

Import Quota in a Small Country 263

HEADLINES Banana Wars 265

HEADLINES Sugar Could Sweeten U.S. Australia Trans-Pacific Trade Talks 266

APPLICATION China and the Multifibre Arrangement 269

6 Conclusions 272

Key Points, Key Terms, and Problems

CHAPTER 9 Import Tariffs and Quotas Under Imperfect Competition 279

1 Tariffs and Quotas with Home Monopoly 281

No-Trade Equilibrium 282

Free-Trade Equilibrium 283

Effect of a Home Tariff 284

Effect of a Home Quota 286

APPLICATION U.S. Imports of Japanese Automobiles 288

2 Tariffs with Foreign Monopoly 291

Foreign Monopoly 291

APPLICATION Import Tariffs on Japanese Trucks 293

HEADLINES The Chickens Have Come Home to Roost 295

3 Dumping 296

Numerical Example of Dumping 298

4 Policy Response to Dumping 298

Antidumping Duties 299

APPLICATION United States Imports of Solar Panels from China 299

APPLICATION Antidumping Duties Versus Safeguard Tariffs 302

5 Infant Industry Protection 304

Free-Trade Equilibrium 306

Tariff Equilibrium 306

APPLICATION Examples of Infant Industry Protection 308

Government Policies in the Solar Panel Industry 308

U.S. Tariff on Heavyweight Motorcycles 310

HEADLINES Solar Flares 310

Computers in Brazil 314

Protecting the Automobile Industry in China 316

HEADLINES Milestone for China Car Output 316

HEADLINES Shanghai Tie-Up Drives Profits for GM 318

6 Conclusions 320

Key Points, Key Terms, and Problems

CHAPTER 10 Export Subsidies in Agriculture and High-Technology Industries 327

1 WTO Goals on Agricultural Export Subsidies 329

Agricultural Export Subsidies 329

Other Matters from the Hong Kong WTO Meeting 330

2 Export Subsidies in a Small Home Country 331

Impact of an Export Subsidy 332

3 Export Subsidies in a Large Home Country 334

Effect of the Subsidy 334

APPLICATION Who Gains and Who Loses? 336

HEADLINES G8 Shifts Focus from Food Aid to Farming 339

HEADLINES Hunger and Food Security Back on Political Agenda 340

4 Production Subsidies 340

Effect of a Production Subsidy in a Small Home Country 341

Effect of the Production Subsidy in a Large Home Country 343

5 Export Tariffs 343

Impact of an Export Tariff in a Small Country 344

Impact of an Export Tariff in a Large Country 345

6 Export Quotas 347

APPLICATION Chinese Export Policies in Mineral Products 349

7 High-Technology Export Subsidies 351

HEADLINES China Signals Support for Rare Earths 352

“Strategic” Use of High-Tech Export Subsidies 352

Effect of a Subsidy to Airbus 355

Subsidy with Cost Advantage for Boeing 357

APPLICATION Subsidies to Commercial Aircraft 358

8 Conclusions 361

HEADLINES EU Seeks \$12 billion from US over Boeing Aid 362

Key Points, Key Terms, and Problems

CHAPTER 11 International Agreements: Trade, Labor, and the Environment 367

1 International Trade Agreements 370

The Logic of Multilateral Trade Agreements 370

Regional Trade Agreements 373

Trade Creation and Trade Diversion 375

Numerical Example of Trade Creation and Diversion 375

HEADLINES China-ASEAN Treaty Threatens Indian Exporters 376

Trade Diversion in a Graph 377

APPLICATION Trade Creation and Diversion for Canada 380

2 International Agreements on Labor Issues 380

Labor Side Agreement Under NAFTA 381

Other Labor Agreements 382

HEADLINES Wal-Mart Orders Chinese Suppliers to Lift Standards 384

HEADLINES American Tariffs, Bangladeshi Deaths 386

HEADLINES U.S. Suspends Bangladesh's Preferential Trade Status 387

3 International Agreements on the Environment 388

Environmental Issues in the GATT and WTO 388

Does Trade Help or Harm the Environment? 391

Examples of the Environmental Impact of Trade 394

The Tragedy of the Commons 396

International Agreements on Pollution 400

APPLICATION The Kyoto Protocol and the Copenhagen Accord 402

4 Conclusions 404

HEADLINES Dismal Outcome at Copenhagen Fiasco 405

Key Points, Key Terms, and Problems

CHAPTER 12 The Global Macroeconomy 411

1 Foreign Exchange: Currencies and Crises 412

How Exchange Rates Behave 413

Why Exchange Rates Matter 414

When Exchange Rates Misbehave 415

Summary and Plan of Study 416

HEADLINES Economic Crisis in Iceland 417

2 Globalization of Finance: Debts and Deficits 418

Deficits and Surpluses: The Balance of Payments 418

Debtors and Creditors: External Wealth 421

PART 5

Introduction to
International

Macroeconomics

Darlings and Deadbeats: Defaults and Other Risks 422
 Summary and Plan of Study 423

3 Government and Institutions: Policies and Performance 424

Integration and Capital Controls: The Regulation of International Finance 424
 Independence and Monetary Policy: The Choice of Exchange Rate Regimes 426
 Institutions and Economic Performance: The Quality of Governance 427
 Summary and Plan of Study 429

HEADLINES The Wealth of Nations 429

4 Conclusions 431

Key Points, Key Terms, and Problems

PART 6
 Exchange Rates

CHAPTER 13 Introduction to Exchange Rates and the Foreign Exchange Market 435

1 Exchange Rate Essentials 436

Defining the Exchange Rate 436
 Appreciations and Depreciations 438
 Multilateral Exchange Rates 440
 Example: Using Exchange Rates to Compare Prices in a Common Currency 441

2 Exchange Rates in Practice 443

Exchange Rate Regimes: Fixed Versus Floating 443
APPLICATION Recent Exchange Rate Experiences 444

3 The Market for Foreign Exchange 449

The Spot Contract 449
 Transaction Costs 450
 Derivatives 450
APPLICATION Foreign Exchange Derivatives 451
 Private Actors 452
 Government Actions 452

4 Arbitrage and Spot Exchange Rates 453

Arbitrage with Two Currencies 454
 Arbitrage with Three Currencies 455
 Cross Rates and Vehicle Currencies 456

5 Arbitrage and Interest Rates 457

Riskless Arbitrage: Covered Interest Parity 457
APPLICATION Evidence on Covered Interest Parity 459
 Risky Arbitrage: Uncovered Interest Parity 460

SIDE BAR Assets and Their Attributes 461

APPLICATION Evidence on Uncovered Interest Parity 463

Uncovered Interest Parity: A Useful Approximation 464

Summary 466

6 Conclusions 466

Key Points, Key Terms, and Problems

CHAPTER 14 Exchange Rates I: The Monetary Approach in the Long Run 473

1 Exchange Rates and Prices in the Long Run: Purchasing Power Parity and Goods Market Equilibrium 474

The Law of One Price 475

Purchasing Power Parity 476

The Real Exchange Rate 477

Absolute PPP and the Real Exchange Rate 477

Absolute PPP, Prices, and the Nominal Exchange Rate 478

Relative PPP, Inflation, and Exchange Rate Depreciation 478

Summary 480

APPLICATION Evidence for PPP in the Long Run and Short Run 480

How Slow Is Convergence to PPP? 481

What Explains Deviations from PPP? 482

SIDE BAR Forecasting When the Real Exchange Rate Is Undervalued or Overvalued 483

HEADLINES The Big Mac Index 484

2 Money, Prices, and Exchange Rates in the Long Run: Money Market Equilibrium in a Simple Model 486

What Is Money? 486

The Measurement of Money 486

The Supply of Money 487

The Demand for Money: A Simple Model 488

Equilibrium in the Money Market 489

A Simple Monetary Model of Prices 489

A Simple Monetary Model of the Exchange Rate 490

Money Growth, Inflation, and Depreciation 491

3 The Monetary Approach: Implications and Evidence 492

Exchange Rate Forecasts Using the Simple Model 492

APPLICATION Evidence for the Monetary Approach 495

APPLICATION Hyperinflations 496

SIDE BAR Currency Reform 497

**4 Money, Interest Rates, and Prices in the Long Run:
A General Model 499**

HEADLINES The First Hyperinflation of the Twenty-First Century 500

The Demand for Money: The General Model 500

Long-Run Equilibrium in the Money Market 501

Inflation and Interest Rates in the Long Run 502

The Fisher Effect 503

Real Interest Parity 504

APPLICATION Evidence on the Fisher Effect 505

The Fundamental Equation Under the General Model 506

Exchange Rate Forecasts Using the General Model 507

5 Monetary Regimes and Exchange Rate Regimes 509

The Long Run: The Nominal Anchor 510

APPLICATION Nominal Anchors in Theory and Practice 512

6 Conclusions 514

Key Points, Key Terms, and Problems

CHAPTER 15 Exchange Rates II: The Asset Approach in the Short Run 521

**1 Exchange Rates and Interest Rates in the Short Run:
UIP and FX Market Equilibrium 522**

Risky Arbitrage 522

Equilibrium in the FX Market: An Example 524

Adjustment to Forex Market Equilibrium 525

Changes in Domestic and Foreign Returns and FX Market Equilibrium 526

Summary 528

2 Interest Rates in the Short Run: Money Market Equilibrium 528

Money Market Equilibrium in the Short Run: How Nominal Interest Rates Are Determined 528

Money Market Equilibrium in the Short Run: Graphical Solution 530

Adjustment to Money Market Equilibrium in the Short Run 530

Another Building Block: Short-Run Money Market Equilibrium 531

Changes in Money Supply and the Nominal Interest Rate 531

APPLICATION Can Central Banks Always Control the Interest Rate?

A Lesson from the Crisis of 2008–2009 533

Changes in Real Income and the Nominal Interest Rate 534

The Monetary Model: The Short Run Versus the Long Run 534

3 The Asset Approach: Applications and Evidence 535

The Asset Approach to Exchange Rates: Graphical Solution 535

Short-Run Policy Analysis 537

APPLICATION The Rise and Fall of the Dollar, 1999–2004 540

4 A Complete Theory: Unifying the Monetary and Asset Approaches 541

Long-Run Policy Analysis 542

SIDE BAR Confessions of a Foreign Exchange Trader 544

Overshooting 548

SIDE BAR Overshooting in Practice 550

5 Fixed Exchange Rates and the Trilemma 551

What Is a Fixed Exchange Rate Regime? 551

Pegging Sacrifices Monetary Policy Autonomy in the Short Run:
Example 551

Pegging Sacrifices Monetary Policy Autonomy in the Long Run:
Example 553

The Trilemma 554

SIDE BAR Intermediate Regimes 556

APPLICATION The Trilemma in Europe 557

6 Conclusions 558

APPLICATION News and the Foreign Exchange Market in
Wartime 558

Key Points, Key Terms, and Problems

CHAPTER 16 National and International Accounts: Income, Wealth, and the Balance of Payments 567

1 Measuring Macroeconomic Activity: An Overview 568

The Flow of Payments in a Closed Economy: Introducing the National
Income and Product Accounts 568

The Flow of Payments in an Open Economy: Incorporating the Balance of
Payments Accounts 570

2 Income, Product, and Expenditure 573

Three Approaches to Measuring Economic Activity 573

From GNE to GDP: Accounting for Trade in Goods and Services 573

From GDP to GNI: Accounting for Trade in Factor Services 574

APPLICATION Celtic Tiger or Tortoise? 575

From GNI to GNDI: Accounting for Transfers of Income 577

What the National Economic Aggregates Tell Us 578

HEADLINES Are Rich Countries “Stingy” with Foreign
Aid? 579

Understanding the Data for the National Economic Aggregates 580

What the Current Account Tells Us 582

PART 7

The Balance of
Payments

APPLICATION Global Imbalances 583

3 The Balance of Payments 588

Accounting for Asset Transactions: The Financial Account 588

Accounting for Asset Transactions: The Capital Account 588

Accounting for Home and Foreign Assets 589

How the Balance of Payments Accounts Work: A Macroeconomic View 590

How the Balance of Payments Accounts Work: A Microeconomic View 591

SIDE BAR The Double-Entry Principle in the Balance of Payments 592

Understanding the Data for the Balance of Payments Account 593

What the Balance of Payments Account Tells Us 595

4 External Wealth 596

The Level of External Wealth 597

Changes in External Wealth 597

Understanding the Data on External Wealth 599

What External Wealth Tells Us 601

5 Conclusions 601

SIDE BAR Beware of Greeks Bearing Statistics 601

Key Points, Key Terms, and Problems

Appendix to Chapter 16 607

CHAPTER 17 Balance of Payments I: The Gains from Financial Globalization 609

1 The Limits on How Much a Country Can Borrow: The Long-Run Budget Constraint 611

How The Long-Run Budget Constraint Is Determined 612

The Budget Constraint in a Two-Period Example 613

A Long-Run Example: The Perpetual Loan 615

Implications of the LRBC for Gross National Expenditure and Gross Domestic Product 616

Summary 617

APPLICATION The Favorable Situation of the United States 617

APPLICATION The Difficult Situation of the Emerging Markets 620

2 Gains from Consumption Smoothing 622

The Basic Model 623

Consumption Smoothing: A Numerical Example and Generalization 623

Summary: Save for a Rainy Day 627

SIDE BAR Wars and the Current Account 627

APPLICATION Consumption Volatility and Financial Openness 628

APPLICATION Precautionary Saving, Reserves, and Sovereign Wealth Funds 629

3 Gains from Efficient Investment 630

The Basic Model 630

HEADLINES Copper-Bottomed Insurance 631

Efficient Investment: A Numerical Example and Generalization 632

Summary: Make Hay While the Sun Shines 635

APPLICATION Delinking Saving from Investment 635

Can Poor Countries Gain from Financial Globalization? 637

APPLICATION A Versus k 641

SIDE BAR What Does the World Bank Do? 645

HEADLINES A Brief History of Foreign Aid 645

4 Gains from Diversification of Risk 646

Diversification: A Numerical Example and Generalization 647

APPLICATION The Home Bias Puzzle 652

Summary: Don't Put All Your Eggs in One Basket 654

5 Conclusions 655

Key Points, Key Terms, and Problems

Appendix to Chapter 17 661

CHAPTER 18 Balance of Payments II: Output, Exchange Rates, and Macroeconomic Policies in the Short Run 663

1 Demand in the Open Economy 664

Preliminaries and Assumptions 664

Consumption 665

Investment 666

The Government 666

The Trade Balance 667

HEADLINES Oh! What a Lovely Currency War 669

HEADLINES The Curry Trade 670

APPLICATION The Trade Balance and the Real Exchange Rate 671

SIDE BAR Barriers to Expenditure Switching: Pass-Through and the J Curve 673

Exogenous Changes in Demand 675

2 Goods Market Equilibrium: The Keynesian Cross 676

Supply and Demand 676

Determinants of Demand 677
 Factors That Shift the Demand Curve 677
 Summary 679

3 Goods and Forex Market Equilibria: Deriving the IS Curve 680

Equilibrium in Two Markets 680
 Forex Market Recap 680
 Deriving the IS Curve 682
 Factors That Shift the IS Curve 683
 Summing Up the IS Curve 685

4 Money Market Equilibrium: Deriving the LM Curve 686

Money Market Recap 686
 Deriving the LM Curve 686
 Factors That Shift the LM Curve 687
 Summing Up the LM Curve 688

5 The Short-Run IS-LM-FX Model of an Open Economy 689

Macroeconomic Policies in the Short Run 689
 Monetary Policy Under Floating Exchange Rates 691
 Monetary Policy Under Fixed Exchange Rates 692
 Fiscal Policy Under Floating Exchange Rates 693
 Fiscal Policy Under Fixed Exchange Rates 694
 Summary 696

6 Stabilization Policy 697

APPLICATION The Right Time for Austerity? 697
 Problems in Policy Design and Implementation 699
APPLICATION Poland Is Not Latvia 700
APPLICATION Macroeconomic Policies in the Liquidity Trap 702

7 Conclusions 706

Key Points, Key Terms, and Problems

Appendix 1 to Chapter 18 711

Appendix 2 to Chapter 18 713

PART 8
 Applications and
 Policy Issues

**CHAPTER 19 Fixed Versus Floating: International Monetary
 Experience 715**

1 Exchange Rate Regime Choice: Key Issues 717

APPLICATION Britain and Europe: The Big Issues 717
 Key Factors in Exchange Rate Regime Choice: Integration and
 Similarity 722
 Economic Integration and the Gains in Efficiency 722

- Economic Similarity and the Costs of Asymmetric Shocks 723
- Simple Criteria for a Fixed Exchange Rate 724
- APPLICATION** Do Fixed Exchange Rates Promote Trade? 725
- APPLICATION** Do Fixed Exchange Rates Diminish Monetary
Autonomy and Stability? 727

2 Other Benefits of Fixing 730

- Fiscal Discipline, Seigniorage, and Inflation 730
- SIDE BAR** The Inflation Tax 731
- Liability Dollarization, National Wealth, and Contractionary
Depreciations 733
- Summary 739

3 Fixed Exchange Rate Systems 740

- Cooperative and Noncooperative Adjustments to Interest Rates 740
- Cooperative and Noncooperative Adjustments to Exchange Rates 743
- APPLICATION** The Gold Standard 745

4 International Monetary Experience 747

- The Rise and Fall of the Gold Standard 747
- Bretton Woods to the Present 750

5 Conclusions 753

- Key Points, Key Terms, and Problems

CHAPTER 20 Exchange Rate Crises: How Pegs Work and How They Break 757

1 Facts About Exchange Rate Crises 758

- What Is an Exchange Rate Crisis? 758
- How Costly Are Exchange Rate Crises? 758
- SIDE BAR** The Political Costs of Crises 761
- Summary 762

2 How Pegs Work: The Mechanics of a Fixed Exchange Rate 764

- Preliminaries and Assumptions 764
- The Central Bank Balance Sheet 765
- Fixing, Floating, and the Role of Reserves 766
- How Reserves Adjust to Maintain the Peg 767
- Graphical Analysis of the Central Bank Balance Sheet 767
- Defending the Peg I: Changes in the Level of Money Demand 769
- APPLICATION** Risk Premiums in Advanced and Emerging
Markets 772
- APPLICATION** The Argentine Convertibility Plan Before the Tequila
Crisis 775
- Defending the Peg II: Changes in the Composition of Money Supply 777

APPLICATION The Argentine Convertibility Plan After the Tequila Crisis 782

The Central Bank Balance Sheet and the Financial System 784

SIDE BAR The Great Reserve Accumulation in Emerging Markets 786

Summary 788

3 How Pegs Break I: Inconsistent Fiscal Policies 789

The Basic Problem: Fiscal Dominance 789

A Simple Model 789

APPLICATION The Peruvian Crisis of 1986 792

Summary 796

4 How Pegs Break II: Contingent Monetary Policies 797

The Basic Problem: Contingent Commitment 797

A Simple Model 798

APPLICATION The Man Who Broke the Bank of England 803

Summary 804

5 Conclusions 804

Can We Prevent Crises? 804

Key Points, Key Terms, and Problems

CHAPTER 21 The Euro 811

1 The Economics of the Euro 814

The Theory of Optimum Currency Areas 814

Simple Optimum Currency Area Criteria 815

What's the Difference Between a Fix and a Currency Union? 816

Other Optimum Currency Area Criteria 817

APPLICATION Optimum Currency Areas: Europe Versus the United States 819

Are the OCA Criteria Self-Fulfilling? 822

Summary 824

HEADLINES Currency Unions and Trade 825

2 The History and Politics of the Euro 826

A Brief History of Europe 826

Summary 832

3 Eurozone Tensions in Tranquil Times, 1999–2007 833

The European Central Bank 834

The Rules of the Club 838

Sticking to the Rules 842

4 The Eurozone in Crisis, 2008–2013 843

5 Conclusions: Assessing the Euro 851**HEADLINES** A Bad Marriage? 852

Key Points, Key Terms, and Problems

CHAPTER 22 Topics in International Macroeconomics 859**1 Exchange Rates in the Long Run: Deviations from Purchasing Power Parity 860**

Limits to Arbitrage 860

APPLICATION It's Not Just the Burgers That Are Cheap 863

Nontraded Goods and the Balassa-Samuelson Model 865

Overvaluations, Undervaluations, and the Productivity Growth: Forecasting Implications for Real and Nominal Exchange Rates 867

APPLICATION Real Exchange Rates in Emerging Markets 869

Conclusion 871

2 Exchange Rates in the Short Run: Deviations from Uncovered Interest Parity 871**APPLICATION** The Carry Trade 871**APPLICATION** Peso Problems 874**HEADLINES** Mrs. Watanabe's Hedge Fund 875

The Efficient Markets Hypothesis 878

Limits to Arbitrage 880

Conclusion 884

3 Debt and Default 884

A Few Peculiar Facts About Sovereign Debt 885

A Model of Default, Part One: The Probability of Default 886

APPLICATION Is There Profit in Lending to Developing Countries? 891

A Model of Default, Part Two: Loan Supply and Demand 893

APPLICATION The Costs of Default 896

Conclusion 899

APPLICATION The Argentina Crisis of 2001–2002 900**4 The Global Macroeconomy and the 2007–2013 Crisis 903**

Backdrop to the Crisis 903

HEADLINES Is the IMF "Pathetic"? 904

Panic and the Great Recession 910

Conclusion: Lessons for Macroeconomics 921

Key Points, Key Terms, and Problems

Index I-1

Preface

The twenty-first century is an age of unprecedented globalization. In looking at existing texts, we saw that the dramatic economic developments of recent years had not been incorporated into a newly written undergraduate text, and felt the time was ripe to incorporate fresh perspectives, current topics, and up-to-date approaches into the study of international economics. With this book, we have expanded the vision of international economics to encompass the latest theories and events in the world today.

In decades past, international economics was taught differently. There was a much greater emphasis on theory and a strong focus on advanced countries. Policy analysis reflected the concerns of the time, whether strategic trade policy or the Bretton Woods system. Today, the concerns are not the same. In addition to new theoretical developments, there is a much greater emphasis on empirical studies. A wave of applied research in recent years has proved (or refuted) existing theories and taught us important new lessons about the determinants of trade, factor flows, exchange rates, and crises. Trade and capital flows have been liberalized and allowed to grow, and more attention is now devoted to emerging markets and developing countries, regions that now carry substantial weight in the global economy.

Covering new and expanding ground is part of the challenge and excitement of teaching and learning the international economics of the twenty-first century. Our goal is to provide new material that is rigorous enough to meet the challenge yet approachable enough to nurture the excitement. Many of the new topics stand apart from conventional textbook treatments and in the past had been bypassed in lectures or taught through supplementary readings. In our view they deserve a more prominent place in today's curriculum.

We have taught the chapters of this book ourselves several times, and have benefited from the feedback of professors at colleges and universities in the United States and throughout the world. Like us, they have been enthusiastic about the response from students to our fresh, accessible, and up-to-the-minute approach, and we hope that you will enjoy the book, too.

Features

Each chapter includes several features that bring the material alive for the students:

- ❑ **Applications**, which are integrated into the main text and use material that has been covered to illuminate real-world policies, events, and evidence.
- ❑ **Headlines**, which show how topics in the main text relate directly to media coverage of the global economy.
- ❑ **Side Bars**, which include topics that, although not essential, are nonetheless of interest.
- ❑ **Net Work boxes**, located at the end of the chapters with homework problems, provide an opportunity for the students to explore chapter concepts on the Internet.

The book is issued in a variety of formats that allows instructors greater flexibility in tailoring the content to their needs, and may help keep costs down for students.

- a combined edition (*International Economics*);
- two split editions (*International Trade* and *International Macroeconomics*); and
- a brief, combined edition with select chapters that cover international trade and macroeconomics, suitable for a one-semester course (*Essentials of International Economics*).

New in the Third Edition

In this third edition we have thoroughly updated the text, to include new data and Applications, as well as many new Headline features to reflect the rapid changes in international economic news during the last three years. (Chapter numbers in this section refer to the combined book; see later for details on the other editions.) We begin the volume with news of the opening of a Northern Sea route for international trade flows, made possible by the melting of ice in the Arctic Circle. The Northern Sea route reduces the shipping distance between Asia and Europe by about 4,000 nautical miles, as compared with the existing route through the Suez Canal. When this route becomes passable for much of the year, it will likely substantially alter international trade flows. Another item of news has been the migration of refugees from Africa to the Italian island of Lampedusa, covered in Chapter 5, which has created a humanitarian crisis there. In Chapter 8, we discuss the recently expired U.S. tariff against imports of Chinese tires, and argue that the structure of these tariffs led to substantial welfare losses before they expired. Trade policies adopted by the Chinese government receive increased attention, including: export subsidies to solar panels and the resulting antidumping tariffs in the United States (Chapter 9), and Chinese quotas on the export of “rare earth” minerals (Chapter 10). In international macroeconomics, we begin Chapter 12 with news and discussion focusing on the economic crisis in Iceland in 2008. Chapters 13 to 16 include updates to all key macroeconomic data and other revisions to streamline and simplify the presentation. Chapter 18 adds news from recent global macro policy issues (such as the “currency war” debate), retains an application on fiscal stimulus in the United States, and looks at Eurozone issues with news and analysis comparing Poland and Latvia’s divergent paths since 2008. Chapter 21 on the euro has been rewritten and expanded to cover the dramatic developments since 2010, including the Greek debt restructuring, assistance programs in Spain, Ireland and Portugal, the Cyprus banking crisis, and the ongoing battle to avert the threats to the very existence of the currency union project.

Finally, in response to the needs and feedback of those instructors who teach a one-semester course that combines international trade and macroeconomics, our text comes in a shorter one-semester *Essentials* version. Again, we have learned from the experiences of faculty teaching this course, and we include 16 chapters most relevant to teaching the one-semester course. The third edition of *Essentials* now includes the chapter on the euro. There is more information on this one-semester version later in the Preface.

Topics and Approaches

Reviewers and class testers have been enthusiastically supportive of the topics we have included in our presentation. Topics covered in *International Economics* and *International Trade* include the offshoring of goods and services (Chapter 7); tariffs and quotas under imperfect competition (Chapter 9); and international agreements on trade, labor, and the environment (Chapter 11). These topics are in addition to core chapters on the Ricardian model (Chapter 2), the specific-factors model (Chapter 3), the Heckscher-Ohlin model (Chapter 4), trade with increasing returns to scale and imperfect competition (Chapter 6), import tariffs and quotas under perfect competition (Chapter 8), and export subsidies (Chapter 10).

Chapters in *International Economics* and *International Macroeconomics* include the gains from financial globalization (Chapter 17 in the combined edition, or Chapter 6 in the *International Macroeconomics* split edition), fixed versus floating regimes (Chapter 19/Chapter 8), exchange-rate crises (Chapter 20/Chapter 9), and the euro (Chapter 21/Chapter 10). These topics are in addition to core chapters on foreign exchange markets and exchange rates in the short run and the long run (Chapters 13–15/Chapters 2–4), the national and international accounts (Chapter 16/Chapter 5), the open economy IS-LM model (Chapter 18/Chapter 7), and a chapter on various applied topics of current interest (Chapter 22/Chapter 11).

In writing our chapters we have made every effort to link them analytically. For example, although immigration and foreign direct investment are sometimes treated as an afterthought in international economics books, we integrate these topics into the discussion of the trade models by covering the movement of labor and capital between countries in Chapter 5. Specifically, we analyze the movement of labor and capital between countries in the short run using the specific-factors model, and explore the long-run implications using the Heckscher-Ohlin model. Chapter 5 therefore builds on the models that the student has learned in Chapters 3 and 4, and applies them to issues at the forefront of policy discussion.

In the macroeconomics section from *International Economics* or *International Macroeconomics*, this analytical linking is seen in the parallel development of fixed and floating exchange rate regimes from the opening introductory tour in Chapter 12 (Chapter 1 in the split edition), through the workings of exchange rates in Chapters 13–15 (Chapters 2–4), the discussion of policy in the IS-LM model of Chapter 18 (Chapter 7), to the discussion of regime choice in Chapter 19 (Chapter 8). Many textbooks discuss fixed and floating regimes separately, with fixed regimes often treated as an afterthought. But given the widespread use of fixed rates in many countries, the rising macro weight of fixed regimes, and the collapse of fixed rates during crises, we think it is more helpful for the student to grapple with the different workings and cost-benefit trade-offs of the two regimes by studying them side by side. This approach also allows us to address numerous policy issues, such as the implications of the trilemma and the optimal choice of exchange rate regime.

In addition to expanding our coverage to include up-to-date theory and policy applications, our other major goal is to present all the material—both new and old—in the most teachable way. To do this, we ensure that all of the material presented rests on firm and up-to-the-minute empirical evidence. We believe this approach is the right way to study economics, and it is our experience, shared with many instructors, that teaching is more effective and more enlivened when students can see not just an elegant derivation in theory but, right next to it, some persuasive evidence of the economic mechanisms under investigation.

The Arrangement of Topics: International Trade

Part 1: Introduction to International Trade

The opening chapter sets the stage by discussing global flows of goods and services through international trade, of people through migration, and of capital through foreign direct investment. The chapter includes maps depicting these flows, so the student can get a feel for which countries have the greatest flows in each case. Historical examples of trade and barriers to trade are also provided. This chapter can serve as a full introductory lecture.

Part 2: Patterns of International Trade

The core models of international trade are presented here: the Ricardian model (Chapter 2), the specific-factors model (Chapter 3), and the Heckscher-Ohlin model (Chapter 4). Some of the topics conventionally included in the specific-factors and Heckscher-Ohlin model, like the effects of changing the endowments of labor or capital, are not covered in those chapters but are instead examined in Chapter 5, which deals with the movement of labor and capital between countries. For example, the “factor price insensitivity” result is deferred to Chapter 5, as is the Rybczynski theorem. By discussing those two results in Chapter 5, we keep the discussion of the Heckscher-Ohlin model more manageable in Chapter 4, which focuses on the Heckscher-Ohlin theorem, the Stolper-Samuelson theorem, and empirical testing of the model. In summary, the ordering of topics among Chapters 3, 4, and 5, and many applications, are new, and these chapters are linked together tightly in their pedagogical approach.

Part 3: New Explanations for International Trade

In this section we cover two relatively new explanations for international trade: increasing returns to scale (Chapter 6), and offshoring (Chapter 7).

Formal models of trade with increasing returns to scale and monopolistic competition have been popular since the early 1980s, but there is no standardized method for presenting this topic in undergraduate textbooks. In Chapter 6, we use the original, graphical discussion from Edward Chamberlin, who introduced the DD and dd curves (which we label in Chapter 6 as simply D and d). The D curve represents the share of the market going to each firm and traces out demand if all firms charge the same prices. In contrast, the d curve is the demand facing a firm when other firms keep their prices constant. The distinction between these two demands is crucial when analyzing the impact of trade liberalization: the d curve clearly shows the incentive for each individual firm to lower its price after trade liberalization, but the steeper D curve shows that when all firms lower prices, then losses occur and some firms must exit.

Chapter 7 is devoted to offshoring, and we have found that students enjoy learning and readily understand this new material. The model we use illustrates a piece of intuition that students grasp easily: the movement of one student from, say, a physics class to an economics class can raise the average grade in *both* classes. Likewise, offshoring can raise the relative wage of skilled workers in both countries. The chapter deals with Paul Samuelson’s 2004 critique that offshoring to China or India might be harmful to the United States. That argument is shown to depend on how offshoring affects the U.S. terms of trade: if the terms of trade fall, the United States is worse off, though it still gains overall from international trade. In fact, we argue that the U.S. terms of trade have been rising in recent years, not falling, so Samuelson’s argument is hypothetical so far.

Part 4: International Trade Policies

The concluding part of the trade portion of the book is devoted to trade policy: tariffs and quotas under perfect competition (Chapter 8), under imperfect competition (Chapter 9), export subsidies (Chapter 10), and a discussion of international agreements on trade, labor, and the environment (Chapter 11). Our goal is to present this material in a more systematic fashion than found elsewhere, using both very recent and historical applications.

Chapter 8, dealing with tariffs and quotas under perfect competition, is the “bread and butter” of trade policy. We adopt the partial-equilibrium approach, using import demand and export supply curves, along with consumer and producer surplus. Our experience is that students feel very comfortable with this approach from their microeconomics training (so they can usually label the consumer surplus region, for example, in each diagram before the labels are shown). The chapter uses the tariffs applied by President George W. Bush on U.S. steel imports and by President Barack Obama on imported tires from China as motivating cases, which we analyze from both a “small country” and a “large country” perspective.

Chapters 9 and 10 bring in some of the insights from the literature on the strategic role of trade policy, which was developed in the later 1980s and 1990s. Whereas that literature focused on oligopoly interactions between firms, we simplify the analysis in Chapter 9 by focusing on home or foreign monopoly cases. Chapter 10 then presents the duopoly case in the analysis of export subsidies. Most of the theory in these chapters is familiar, but the organization is new, as are many of the applications, including infant industry protection in Chapter 9 and a detailed discussion of export policies in high-technology and resource industries, including rare earth minerals in China, in Chapter 10.

Chapter 11 begins by drawing upon tariffs under perfect competition (from Chapter 8), and showing that large countries have a natural incentive to apply tariffs to move the terms of trade to their advantage. That creates a prisoner’s dilemma situation that is overcome by rules in the World Trade Organization. The chapter then moves on to discuss international rules governing labor issues and the environment. Students are especially interested in the environmental applications.

The Arrangement of Topics: International Macroeconomics

Part 5 (Part 1 in *International Macroeconomics*): Introduction to International Macroeconomics

This part consists of Chapter 12 (Chapter 1 in the split edition), which sets the stage by explaining the field and major items of interest with a survey of the three main parts of the book: money and exchange rates, the balance of payments, and the role of policy.

Part 6 (Part 2): Exchange Rates

We depart from the traditional presentation by presenting exchange rates before balance of payments, an approach that we and our students find more logical and appealing. We begin the core macro material with exchange rates because (for macroeconomics) the exchange rate is the key difference between a closed economy and a world of open economies. Our approach, supported by our own experience and that

of our reviewers and users, first treats all price topics together in one part, and then moves on to quantity topics.

Chapter 13 (Chapter 2) introduces the basics of exchange rates and the foreign exchange (forex) market (including the principles of arbitrage) and exposes students to real-world data on exchange rate behavior. It describes how the forex market is structured and explains the principles of arbitrage in forex markets. It ends with interest parity conditions, which are then covered in more detail in Chapter 15 (Chapter 4).

Chapter 14 (Chapter 3) presents the monetary approach to the determination of exchange rates in the long run. We cover the long run before the short run because long-run expectations are assumed to be known in the short-run model. Topics include goods market arbitrage, the law of one price, and purchasing power parity. We first develop a simple monetary model (the quantity theory) and then look at the standard monetary model, the Fisher effect, and real interest parity. The chapter ends with discussion of nominal anchors and their relationship to monetary and exchange rate regimes.

Chapter 15 (Chapter 4) presents the asset approach to the determination of exchange rates in the short run. Uncovered interest parity, first introduced in Chapter 13 (Chapter 2), is the centerpiece of the asset approach, and the expected future exchange rate is assumed to be given by the long-run model. Short-run interest rates are explained using a money market model. We show how all the building blocks from the monetary and asset approaches fit together for a complete theory of exchange rate determination. Finally, we explain how the complete theory works for fixed as well as floating regimes, and demonstrate the trilemma.

Part 7 (Part 3): The Balance of Payments

Chapter 16 (Chapter 5 in the split edition) introduces the key macroeconomic quantities: the national and international accounts and the balance of payments (BOP). The BOP is explained as the need for balancing trade on goods, services, and assets (with allowances for transfers). We also introduce external wealth and valuation effects, which are of increasing importance in the world economy.

Chapter 17 (Chapter 6) links the balance of payments to the key question of the costs and benefits of financial globalization, an increasingly important topic. The chapter begins by explaining the significance of the long-run budget constraint and then examines the three key potential benefits of financial globalization: consumptions smoothing, efficient investment, and risk sharing. This chapter allows instructors to present a clear, simplified treatment of the real macroeconomic efficiency gains arising from international trade and payments, a subject often omitted from textbooks.

Chapter 18 (Chapter 7) presents the short-run open economy Keynesian model, which links the balance of payments to output, exchange rates, and macroeconomic policies. We use IS-LM and forex market diagrams, with the interest rate on a common axis. With this presentation, we use tools (IS-LM) that many students have already seen, and avoid inventing new ways to present the same model with new and challenging notation. In this chapter we also discuss fixed and floating rate regimes side by side, not in different chapters. We think it helpful throughout the book to study these regimes in parallel and at this point this presentation leads naturally to the next chapter.

The ordering of Part 7 (Part 3) echoes that of Part 6 (Part 2): we start with definitions, then cover long-run topics (the gains from financial globalization), then move

to short-run topics (IS-LM). This ordering of topics allows a smooth transition from some key definitions in Chapter 16 (Chapter 5) to their application at the start of Chapter 17 (Chapter 6), a link that would be impossible if the balance of payments chapter were placed before the coverage of exchange rates.

Part 8 (Part 4) Applications and Policy Issues

Chapter 19 (Chapter 8 in the split edition) confronts one of the major policy issues in international macroeconomics, the choice of fixed versus floating exchange rates. The analysis begins with the two classic criteria for two regions to adopt a fixed exchange rate—high levels of integration and symmetry of economic shocks. The chapter then goes on to consider other factors that could make a fixed exchange rate desirable, especially in developing countries—a need for a credible nominal anchor and the “fear of floating” that results from significant liability dollarization. Empirical evidence is provided for all of these influences. A brief section summarizes the debate over the desirability and possibility of coordination in larger exchange rate systems. Finally, a historical survey uses the tools at hand to understand the evolution of international monetary arrangements since the nineteenth century.

Chapter 20 (Chapter 9) studies exchange rate crises. Before explaining how pegs break, we spend some time studying how pegs work. We begin by focusing on reserve management and the central bank balance sheet, when an economy faces shocks to output, interest rates, and risk premiums. We then extend the framework to consider lender of last resort actions, a structure that allows for more realism. This presentation allows us to discuss recent controversies over reserve accumulation in China and other emerging markets, and also suggests how pegs can fail. The chapter concludes by looking at two models of crises: a first-generation model with ongoing monetized deficits with fixed output and flexible prices, applying the logic of the flexible-price model of Chapter 14 (Chapter 3); and a second-generation model featuring an adverse shock with flexible output and fixed prices, applying the IS-LM-FX model of Chapter 18 (Chapter 7).

Chapter 21 (Chapter 10) discusses common currencies, with particular focus on the euro. We develop the basic optimum currency area (OCA) criteria as an extension of the fixed versus floating analysis of Chapter 19 (Chapter 8). This framework allows us to consider additional economic and political reasons why countries might join a common currency area. We then present empirical evidence to show the differences between the United States and the Eurozone with respect to the OCA criteria and to explain why so many economists believe that the Eurozone currently is not an OCA. A complete explanation of the euro project requires an examination of other forces, which are considered in the remainder of the chapter: the possible endogeneity of the OCA criteria and the role of noneconomic factors. Thus, we examine the essential history, politics, and institutional details of the euro.

Chapter 22 (Chapter 11) is a collection of four “mini chapters” that tackle important topics in macroeconomics. In this edition, these topics are the failure of uncovered interest parity and exchange rate puzzles in the short run (including the carry trade and limits to arbitrage); the failure of purchasing power parity and exchange rates in the long run (including transaction costs and the Balassa-Samuelson effect); the debate over global imbalances (including the savings glut hypothesis and the role of exchange rate adjustments); the problem of default (including a simple model of default as insurance and a discussion of triple crises). We present each of these topics in a self-contained

block that can be taught as is or in conjunction with earlier material. The UIP material could be covered with Chapter 13 or 15 (Chapter 2 or 4). The PPP material would nicely augment Chapter 14 (Chapter 3). The global imbalances material could be presented with Chapter 16, 17, or 18 (Chapter 5, 6, or 7). The default topic could be paired with the discussion of currency crises in Chapter 20 (Chapter 9).

Alternative Routes through the Text

Because this book is available as a combined edition and as split volumes, it can be used for several types of courses, as summarized below and in the accompanying table.

A semester-length course in international trade (say, 15 weeks) would start at Chapter 1, but for a shorter, quarter-length course (say, 10 weeks), we suggest skipping Chapter 1 and going straight to the Ricardian model (Chapter 2). Chapters 2, 3 (the specific-factors model), and 4 (the Heckscher-Ohlin model) form the core of trade theory. The movement of labor and capital between countries (Chapter 5) builds on these chapters theoretically, and summarizes the empirical evidence on immigration and foreign direct investment.

The new approaches to international trade covered in Chapters 6 (economies of scale and imperfect competition) and 7 (offshoring) can be taught independently of each other. (A quarter course in international trade may not have time for both chapters.) The final four chapters in international trade deal with trade policy. Chapter 8 (tariffs and quotas under perfect competition) should be discussed in any course regardless of its length. Tariffs and quotas under imperfect competition (Chapter 9) dig more deeply into the effects of trade policy, and are followed by a discussion of export subsidies (Chapter 10). Some or all topics in the final chapter on international agreements can be covered as time permits.

A semester course in international macroeconomics (say, 15 weeks) would start at Chapter 12 in the combined edition (Chapter 1 in the *International Macroeconomics* split edition), but for a shorter quarter-length course (say, 10 weeks), we recommend skipping Chapter 12 (Chapter 1) and going straight to the foreign exchange market presented in Chapter 13 (Chapter 2). Core material on exchange rate theory then follows, with the long run in Chapter 14 (Chapter 3) followed by the short run in Chapter 15 (Chapter 4). Next, come the core definitions of the national and international accounts and the balance of payments, presented in Chapter 16 (Chapter 5). After this point a course with a macro emphasis would cover the costs and benefits of globalization in Chapter 17 (Chapter 6) and IS-LM in Chapter 18 (Chapter 7). To allow time to cover the analysis of crises in Chapter 20 (Chapter 9), the treatment of regime choice in Chapter 19 (Chapter 8) might be combined with a discussion of the euro in Chapter 21 (Chapter 10). Topics from Chapter 22 (Chapter 11) can be selected as time permits: a more finance-oriented course might focus on the first two exchange rate topics; a more macro-oriented course might focus on global imbalances and default. In a semester-length course, there should be time for almost all the topics to be covered.

We recognize that many schools also offer a combined one-semester course in international trade and macroeconomics, sometimes to students outside the economics major. Because of its wealth of applications, this book will serve those students very well. The one-semester *Essentials of International Economics* edition brings together the chapters that are the most important for such a course. The one-semester edition has an introduction in Chapter 1 that incorporates both international trade and

SUGGESTED COURSE OUTLINES	Course Type and Length			
	Trade or Macroeconomics in one term		International Economics in two terms	International Economics in one term
Chapter Titles	Chapter numbers from <i>International Trade</i> version		Chapter numbers from <i>International Economics</i>	Chapter numbers from <i>Essentials of International Economics</i>
	10 week quarter	13–15 week semester		
Trade in the Global Economy (<i>Essentials</i> : The Global Economy)	—	1	1	1 (introduces trade and macroeconomics)
Trade and Technology: The Ricardian Model	2	2	2	2
Gains and Losses from Trade in the Specific-Factors Model	3	3	3	3
Trade and Resources: The Heckscher-Ohlin Model	4	4	4	4
Movement of Labor and Capital between Countries	Choose two from 5, 6, 7	5	5	5
Increasing Returns to Scale and Monopolistic Competition		6	6	6
Offshoring of Goods and Services		7	7	—
Import Tariffs and Quotas under Perfect Competition	8	8	8	7
Import Tariffs and Quotas under Imperfect Competition	9	9	9	8
Export Subsidies in Agriculture and High-Technology Industries	10	10	10	—
International Agreements: Trade, Labor, and the Environment	As time permits	11	11	9
	Chapter numbers from <i>International Macroeconomics</i> version			
	10 week quarter	13–15 week semester		
The Global Macroeconomy	—	1	12	—
Introduction to Exchange Rates and the Foreign Exchange Market	2	2	13	10
Exchange Rates I: The Monetary Approach in the Long Run	3	3	14	11
Exchange Rates II: The Asset Approach in the Short Run	4	4	15	12
National and International Accounts: Income, Wealth, and the Balance of Payments	5	5	16	13
The Balance of Payments I: The Gains from Financial Globalization	6	6	17	—
The Balance of Payments II: Output, Exchange Rates, and Macroeconomic Policies in the Short Run	7	7	18	14
Fixed Versus Floating: International Monetary Experience	Combine with Chapter 8	8	19	15
Exchange Rate Crises: How Pegs Work and How They Break	9	9	20	—
The Euro	Combine with Chapter 10	10	21	16
Topics in International Macroeconomics	1 or 2 topics (as time permits)	3 or 4 topics (as time permits)	22	—

macroeconomic issues. It then moves to Chapters 2–6 the basic trade chapters, followed by two chapters on tariffs and quotas under perfect competition and under imperfect competition. The international trade section concludes with the chapter on trade agreements and the environment. Those eight chapters (plus the introduction) offer the students a solid perspective on international trade and trade policy. These chapters are followed in the one-semester edition by seven chapters dealing with the core concepts and models in international macroeconomics: the foreign exchange market, the monetary and asset approach to exchange rates, national income accounting, macroeconomic policy, fixed and floating exchange rates, and the euro. This coverage will give students a basic grounding in international macroeconomics.

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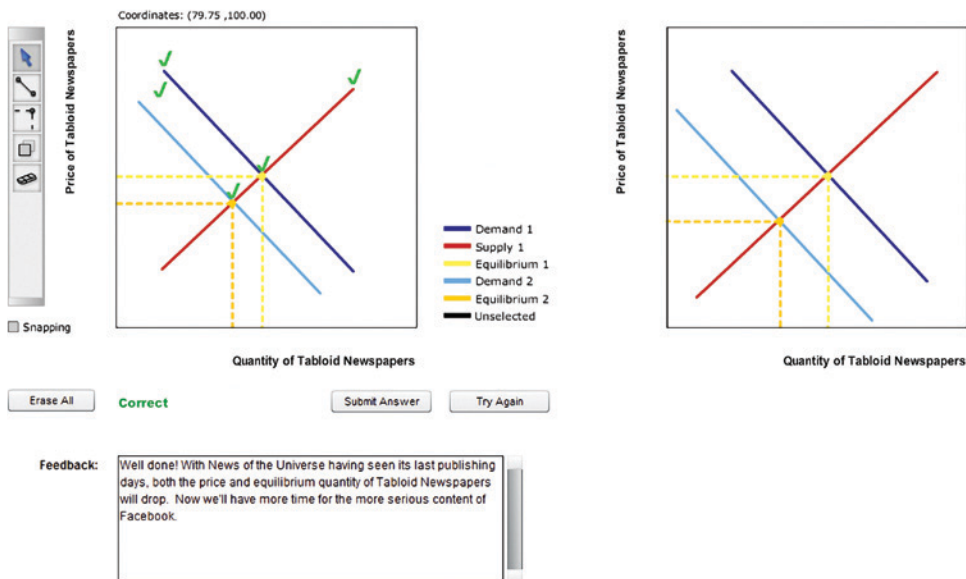
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Part 3: With the Line tool, draw a new downward-sloping line that is to the LEFT of "Demand 1". Label it "Demand 2". Use the Double Drop Line tool to show the new equilibrium price and quantity in the global market for this Alien Bigfoot journalism. Label this point "Equilibrium 2."
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Finally, you will see an accompanying picture of children in Ciudad Darío, Nicaragua, with their teacher, in the classroom of a small schoolhouse that was built for them by Seeds of Learning (www.seedsoflearning.org), a nonprofit organization dedicated to improving educational opportunities in rural Latin America. A portion of the royalties from this book go toward supporting the work of Seeds of Learning.



ROBERT C. FEENSTRA



ALAN M. TAYLOR

Davis, California
December 2013



James Hall

Sixth-grade class with their teacher in La Carreta #2 school in Ciudad Darío, Nicaragua.

third edition

international economics

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Trade in the Global Economy

The emergence of China, India, and the former communist-bloc countries implies that the greater part of the earth's population is now engaged, at least potentially, in the global economy. There are no historical antecedents for this development.

Ben Bernanke, chairman of the U.S. Federal Reserve, 2006

The main losers in today's very unequal world are not those who are too much exposed to globalization. They are those who have been left out.

Kofi Annan, former secretary general of the United Nations, 2000

- 1 International Trade
- 2 Migration and Foreign Direct Investment
- 3 Conclusions

In August 2009, the ships *Beluga Fraternity* and *Beluga Foresight* made a historic voyage through the Northern Sea Route of the Arctic Ocean, accompanied by a Russian nuclear icebreaker. These ships carried power-plant components from South Korea, around the top of Russia, to the Siberian port of Novy, where the cargo was unloaded. The ships continued westward to the city of Rotterdam in the Netherlands. This was one of the first times that commercial ships had successfully navigated this northern route through the Arctic Circle, and it was made possible by the shrinkage of Arctic ice in recent years. It is believed that global warming is causing the Arctic ice to melt, which will open up new shipping lanes through the Arctic Ocean.

In this historical milestone, we see that global climate change can have important consequences for **international trade**, by which we mean the movement of goods (such as cargo) and services (such as the shipping of the cargo) across borders. To move goods from South Korea (or elsewhere in Asia) to Europe would normally involve a trip through the Suez Canal (in the Middle East) at much greater cost. The Northern Sea Route is shorter than the Suez Canal route by about 4,000 nautical miles. If the Northern Sea Route becomes passable for much of the year, then we would expect that the amount of trade from Asia to Europe will increase.

In this book, we will study international trade in goods and services and will learn the economic forces that determine what that trade looks like: what products are traded; who trades them; at what quantities and prices they are traded; and what the