## CONTENTS

Preface xxxi

### PART ONE  INTRODUCTION  1

#### CHAPTER 1  The Nature and Scope of Managerial Economics  3

1-1  The Scope of Managerial Economics  4  
- Definition of Managerial Economics  4  
- Relationship to Economic Theory  6  
- Relationship to the Decision Sciences  6  
- Relationship to the Functional Areas of Business Administration Studies  7

1-2  The Basic Process of Decision Making  7  
- CASE STUDY 1-1  Peter Drucker—The Man Who Invented Management  9  
- CASE STUDY 1-2  The Management Revolution  10

1-3  The Theory of the Firm  10  
- Reasons for the Existence of Firms and Their Functions  11  
- The Objective and Value of the Firm  12  
- Constraints on the Operation of the Firm  13  
- Limitations of the Theory of the Firm  14

1-4  The Nature and Function of Profits  15  
- Business versus Economic Profit  15  
- Theories of Profit  16  
- Function of Profit  17

1-5  Business Ethics  18  
- CASE STUDY 1-3  The Global Financial Crisis  20

1-6  The International Framework of Managerial Economics  20  
- CASE STUDY 1-4  The Rise of the Global Corporation  21

1-7  Managerial Economics in a More Risky, Crisis-Prone, and Sluggish Global Economy  22  
- CASE STUDY 1-5  The Global Business Leader  23  
- CASE STUDY 1-6  Global Most Admired Companies  24
CHAPTER 1 Managerial Economics and the Internet 26

CASE STUDY 1-7 The Most Important Internet Site Addresses
for Managerial Economics 27

Summary • Problems

Appendix to Chapter 1 The Basics of Demand, Supply, and Equilibrium 30

The Demand Side of the Market 30
The Supply Side of the Market 31
The Equilibrium Price 31
Shift in the Demand Curve and Equilibrium 32
Shift in the Supply Curve and Equilibrium 32

Appendix Problems • Supplementary Readings

CHAPTER 2 Optimization Techniques and New Management Tools 35

2-1 Methods of Expressing Economic Relationships 37

2-2 Total, Average, and Marginal Relationships 38

Total, Average, and Marginal Cost 38
Geometric Derivation of the Average- and Marginal-Cost Curves 40

2-3 Optimization Analysis 41

Profit Maximization by the Total-Revenue and Total-Cost Approach 41
Optimization by Marginal Analysis 41
CASE STUDY 2-1 Optimal Pollution Control 43

2-4 Constrained Optimization 44

2-5 New Management Tools for Optimization 44

Benchmarking 44
CASE STUDY 2-2 Pursuing Multiple Objectives under Constraints
by Global Corporations 45
CASE STUDY 2-3 Benchmarking at Xerox, Ford, and Mobil 46
Total Quality Management 47
CASE STUDY 2-4 Total Quality Management at Johnson & Johnson, Motorola,
General Electric, and Ford 48
Reengineering 49
CASE STUDY 2-5 Reengineering at GE 50
The Learning Organization 50
CASE STUDY 2-6 Applying Learning-Organization Principles at Ford
and Southwest Airlines 51
PART TWO  DEMAND ANALYSIS  81

CHAPTER 3  Demand Theory  83

3-1  The Demand for a Commodity  85

An Individual's Demand for a Commodity  85
From Individual to Market Demand  88
CASE STUDY 3-1  The Demand for Big Macs  90
The Demand Faced by a Firm  91

3-2  Price Elasticity of Demand  93
Point Price Elasticity of Demand  94
Arc Price Elasticity of Demand  96
Price Elasticity, Total Revenue, and Marginal Revenue  97
Factors Affecting the Price Elasticity of Demand  101

3-3  Income Elasticity of Demand  101
CASE STUDY 3-2  Price Elasticities of Demand in the Real World  102
CASE STUDY 3-3  Income Elasticities of Demand in the Real World  104

3-4  Cross-Price Elasticity of Demand  105

3-5  Using Elasticities in Managerial Decision Making  107
CASE STUDY 3-4  Cross-Price Elasticities of Demand in the Real World  108
CASE STUDY 3-5  Substitution between Domestic and Foreign Goods  109
BOX 2  Managerial Economics at Work: Decision Time at the Aromatic Coffee Company  110

3-6  International Convergence of Tastes  111
CASE STUDY 3-6  Gillette Introduces Space-Technology Global Razors  112
CASE STUDY 3-7  Ford’s World Car(s)  113

3-7  Electronic Commerce  114
CASE STUDY 3-8  E-Commerce at Amazon.com  116
CASE STUDY 3-9  Amazon Puts an End to eBay Star Performance  118

Summary • Problems • Spreadsheet Problems

Appendix to Chapter 3  Behind the Market Demand Curve—
The Theory of Consumer Choice  122
The Consumer’s Tastes: Indifference Curves  123
The Consumer’s Constraints: The Budget Line  124
The Consumer’s Equilibrium  124
Derivation of the Consumer’s Demand Curve  125
Income and Substitution Effects of a Price Change  125
The Theory of Consumer Choice Mathematically  127

Appendix Problems • Supplementary Readings
CHAPTER 4  Demand Estimation  129

4-1  The Identification Problem  131

4-2  Marketing Research Approaches to Demand Estimation  133

Consumer Surveys and Observational Research  133

CASE STUDY 4-1  Micromarketing: Marketers Zero in on Their Customers  134

Consumer Clinics  135

Market Experiments  136

CASE STUDY 4-2  Estimation of the Demand for Oranges by Market Experiment  137

Virtual Shopping and Virtual Management  137

CASE STUDY 4-3  Reaching Consumers in the Vanishing Mass Market  139

4-3  Introduction to Regression Analysis  140

4-4  Simple Regression Analysis  143

The Ordinary Least-Squares Method  143

Tests of Significance of Parameter Estimates  145

Other Aspects of Significance Tests and Confidence Intervals  147

Test of Goodness of Fit and Correlation  148

4-5  Multiple Regression Analysis  152

The Multiple Regression Model  152

The Coefficient of Determination and Adjusted \( R^2 \)  154

Analysis of Variance  155

Point and Interval Estimates  156

4-6  Problems in Regression Analysis  157

Multicollinearity  157

Heteroscedasticity  157

Autocorrelation  159

4-7  Demand Estimation by Regression Analysis  160

Model Specification  160

Collecting Data on the Variables  161

Specifying the Form of the Demand Equation  161

Testing the Econometric Results  163

4-8  Estimating the Demand for U.S. Imports and Exports  163

CASE STUDY 4-4  Estimation of the Demand for Air Travel over the North Atlantic  164

CASE STUDY 4-5  Price and Income Elasticities of Imports and Exports in the Real World  165

BOX 3  Managerial Economics at Work: BlackBerry Crumbles  166
CHAPTER 5  Demand Forecasting  177

5-1  Qualitative Forecasts  179
    Survey Techniques  179
    Opinion Polls  180
    Soliciting a Foreign Perspective  181
    CASE STUDY 5-1  Forecasting the Number of
        McDonald's Restaurants Worldwide  181

5-2  Time-Series Analysis  182
    Reasons for Fluctuations in Time-Series Data  183
    Trend Projection  184
    Seasonal Variations  187
    CASE STUDY 5-2  Forecasting New-Housing Starts
        with Time-Series Analysis  189

5-3  Smoothing Techniques  190
    Moving Averages  190
    Exponential Smoothing  192
    CASE STUDY 5-3  Forecasting Lumber Sales
        with Smoothing Techniques  194

5-4  Barometric Methods  195
    CASE STUDY 5-4  Forecasting the Level of Economic Activity
        with Composite and Diffusion Indexes  199
    CASE STUDY 5-5  The Index of Leading Indicators Goes Global  199

5-5  Econometric Models  200
    Single-Equation Models  200
    CASE STUDY 5-6  Forecasting the Demand for Air Travel
        over the North Atlantic  201
    Multiple-Equation Models  202
    CASE STUDY 5-7  Economic Forecasts with Large
        Econometric Models  204
CONTENTS  xix

BOX 4 Managerial Economics at Work:
Risks in Demand Forecasting  205

5-6 Input-Output Forecasting  206

Summary • Problems

Appendix to Chapter 5 Forecasting Fluctuations in Time-Series
Analysis Using Excel  211

Forecasting New-Housing Starts with Regression Analysis  211
Adjusting the Trend Forecasts of New-Housing Starts for Seasonal Variations by the Ratio-to-Trend Method  213
Adjusting the Trend Forecasts of New-Housing Starts for Seasonal Variations by Using Seasonal Dummies  215

Appendix Problems • Supplementary Readings

INTEGRATING CASE STUDY 2 Ford’s Bet: It’s a Small World After All  219
Ford in the U.S. Automobile Industry  219
Staking Ford’s Future  220
Epilogue  220

INTEGRATING CASE STUDY 3 Estimating and Forecasting the U.S. Demand for Electricity  222

PART THREE PRODUCTION AND COST ANALYSIS  225

CHAPTER 6 Production Theory and Estimation  227

6-1 The Organization of Production and the Production Function  229
The Organization of Production  229
The Production Function  230

6-2 The Production Function with One Variable Input  233
Total, Average, and Marginal Product  233
The Law of Diminishing Returns and Stages of Production  235

6-3 Optimal Use of the Variable Input  237

6-4 The Production Function with Two Variable Inputs  239
Production Isoquants  239
Economic Region of Production  241
Marginal Rate of Technical Substitution  242
Perfect Substitutes and Complementary Inputs  243
6-5 Optimal Combination of Inputs 245
   Isocost Lines 245
   Optimal Input Combination for Minimizing Costs or Maximizing Output 246
   Profit Maximization 248
   Effect of Change in Input Prices 249
   CASE STUDY 6-1 Substitutability between Gasoline Consumption
   and Driving Time 250

6-6 Returns to Scale 251
   CASE STUDY 6-2 General Motors Decides Smaller Is Better 253

6-7 Empirical Production Functions 254
   CASE STUDY 6-3 Output Elasticities in U.S. Manufacturing Industries 255

6-8 The Innovation Process 256
   Meaning and Importance of Innovations 256
   CASE STUDY 6-4 How Do Firms Get New Technology? 258
   How Innovative Is Your Company's Culture? 258
   The Open Innovation Model 259
   CASE STUDY 6-5 Open Innovations at Procter & Gamble 260
   The Next Step in Open Innovation 261

6-9 Innovation and Global Competitiveness 262
   Innovations and the International Competitiveness of U.S. Firms 262
   BOX 5 Managerial Economics at Work: How Xerox Lost
   and Regained International Competitiveness and Became a Leader
   in Information Technology 263
   The New Computer-Aided Production Revolution, 3-D Printing,
   and the International Competitiveness of U.S. Firms 264
   CASE STUDY 6-6 The Euro and the International
   Competitiveness of European Firms 265

Summary • Problems • Spreadsheet Problems

Appendix to Chapter 6 Production Analysis with Calculus 270
   Constrained Output Maximization 270
   Constrained Cost Minimization 271
   Profit Maximization 272

Appendix Problems • Supplementary Readings
CHAPTER 7  Cost Theory and Estimation  274

7-1  The Nature of Costs  276

7-2  Short-Run Cost Functions  277
   Short-Run Total and Per-Unit Cost Functions  277
   Short-Run Total and Per-Unit Cost Curves  278

7-3  Long-Run Cost Curves  281
   Long-Run Total Cost Curves  281
   Long-Run Average and Marginal Cost Curves  283
   CASE STUDY 7-1  The Long-Run Average Cost Curve in Electricity Generation  285

7-4  Plant Size and Economies of Scale  286
   CASE STUDY 7-2  The Shape of the Long-Run Average Cost Curves in Various Industries  288

7-5  Learning Curves  289
   CASE STUDY 7-3  To Reduce Costs, Firms Often Look Far Afield  291

7-6  Minimizing Costs Internationally—The New Economies of Scale  292
   International Trade in Inputs  292
   The New International Economies of Scale  293
   Immigration of Skilled Labor  294

7-7  Logistics or Supply-Chain Management  295
   CASE STUDY 7-4  Logistics at National Semiconductors, Saturn, and Compaq  296

7-8  Cost–Volume–Profit Analysis and Operating Leverage  297
   Cost–Volume–Profit Analysis  297
   Operating Leverage  299
   CASE STUDY 7-5  Breakeven Analysis for Lockheed's Tri-Star and Europe's Airbus Industrie  301

7-9  Empirical Estimation of Cost Functions  302
   Data and Measurement Problems in Estimating Short-Run Cost Functions  302
   The Functional Form of Short-Run Cost Functions  304
   CASE STUDY 7-6  Estimates of Short-Run and Long-Run Cost Functions  305
   Estimating Long-Run Cost Functions with Cross-Sectional Regression Analysis  306
   Estimating Long-Run Cost Functions with Engineering and Survival Techniques  308
8-5 Monopolistic Competition 352
  Meaning and Importance of Monopolistic Competition 352
  CASE STUDY 8-5 The Monopolistically Competitive
            Restaurant Market 353
  Short-Run Price and Output Determination under
            Monopolistic Competition 353
  Long-Run Price and Output Determination under
            Monopolistic Competition 354
  Product Variation and Selling Expenses under Monopolistic Competition 356
  CASE STUDY 8-6 Advertisers Are Taking on Competitors
            by Name . . . and Being Sued 356

Summary • Problems • Spreadsheet Problems

Appendix to Chapter 8 Profit Maximization with Calculus 362

Appendix Problems • Supplementary Readings

CHAPTER 9 Oligopoly and Firm Architecture 366

9-1 Oligopoly and Market Concentration 367
  Oligopoly: Meaning and Sources 367
  CASE STUDY 9-1 Brands: Thrive or Die 369
  Concentration Ratios, the Herfindahl Index, and Contestable Markets 370
  CASE STUDY 9-2 Industrial Concentration in the United States 371

9-2 Oligopoly Models 372
  The Cournot Model 372
  The Kinked Demand Curve Model 374
  Cartel Arrangements 376
  CASE STUDY 9-3 The Organization of Petroleum
            Exporting Countries (OPEC) Cartel 377
  Price Leadership 378

9-3 Profitability and Efficiency Implications of Oligopoly 380
  Porter's Strategic Framework 380
  Efficiency Implications of Oligopoly 381
  CASE STUDY 9-4 Firm Size and Profitability 382
  CASE STUDY 9-5 Measuring the Pure Efficiency of Operating Units 383

9-4 The Sales Maximization Model 384
10-4 Price and Nonprice Competition, Cartel Cheating, and Prisoners' Dilemma 421
   Price Competition and the Prisoners' Dilemma 421
   Nonprice Competition, Cartel Cheating, and the Prisoners' Dilemma 422
10-5 Repeated Games and Tit-for-Tat Strategy 422
10-6 Strategic Moves 423
   Threat, Commitments, and Credibility 423
   Entry Deterrence 424
   CASE STUDY 10-3 Wal-Mart's Preemptive Expansion Marketing Strategy 425
10-7 Strategic Behavior and International Competitiveness 426
   BOX 8 Managerial Economics at Work: Companies' Strategic Mistakes and Failures 428
10-8 Sequential Games and Decision Trees 429
   CASE STUDY 10-4 Airbus's Decision to Build the A380 and Boeing's Sonic Cruiser Response and the 747–8 431

Summary • Problems • Spreadsheet Problems • Supplementary Readings

CHAPTER 11 Pricing Practices 437
11-1 Pricing of Multiple Products 438
   Pricing of Products with Interrelated Demands 439
   Plant Capacity Utilization and Optimal Product Pricing 440
   Optimal Pricing of Joint Products Produced in Fixed Proportions 442
   Optimal Pricing and Output of Joint Products Produced in Variable Proportions 443
   CASE STUDY 11-1 Optimal Pricing and Output by Gillette 445
11-2 Price Discrimination 446
   Meaning of and Conditions for Price Discrimination 446
   First- and Second-Degree Price Discrimination 448
   Third-Degree Price Discrimination Graphically 449
   CASE STUDY 11-2 Price Discrimination by Con Edison 451
   Third-Degree Price Discrimination Algebraically 452
11-3 International Price Discrimination and Dumping 454
11-4 Transfer Pricing 455
   Meaning and Nature of Transfer Pricing 455
   Transfer Pricing with No External Market for the Intermediate Product 456
Transfer Pricing with a Perfectly Competitive Market for the Intermediate Product 457
Transfer Pricing with an Imperfectly Competitive Market for the Intermediate Product 459
CASE STUDY 11-3 Transfer Pricing by Multinationals Operating in Emerging Markets 461
CASE STUDY 11-4 Transfer Pricing in Advanced Countries 462

11-5 Pricing in Practice 462
Cost-Plus Pricing 463
Evaluation of Cost-Plus Pricing 463
Incremental Analysis in Pricing 465
CASE STUDY 11-5 Incremental Pricing at Continental Airlines 466
Peak-Load Pricing, Two-Part Tariff, Tying, and Bundling 467
Other Pricing Practices 468
CASE STUDY 11-6 Bundling in the Leasing of Movies 469
CASE STUDY 11-7 No-Haggling Value Pricing in Car Buying 471
CASE STUDY 11-8 Name Your Price at Priceline 471

Summary • Problems • Spreadsheet Problems

Appendix to Chapter 11 Third-Degree Price Discrimination with Calculus 476

Appendix Problems • Supplementary Readings

INTEGRATING CASE STUDY 7 eBay and Competition on the Internet 481
No Safe Havens 481
Customers Behind the Wheel 482

INTEGRATING CASE STUDY 8 Has Apple Peaked and Are Its Best Days Behind It? 483

INTEGRATING CASE STUDY 9 Pricing on the Internet 485

PART FIVE REGULATION, RISK ANALYSIS, AND CAPITAL BUDGETING 487

CHAPTER 12 Regulation and Antitrust: The Role of Government in the Economy 489

12-1 Government Regulation to Support Business and to Protect Consumers, Workers, and the Environment 491
Government Regulations That Restrict Competition 491
Government Regulations to Protect Consumers, Workers, and the Environment 492
CASE STUDY 12-1 Regulation Greatly Reduced Air Pollution 494
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-2</td>
<td>Externalities and Regulation</td>
<td>495</td>
</tr>
<tr>
<td></td>
<td>The Meaning and Importance of Externalities</td>
<td>495</td>
</tr>
<tr>
<td></td>
<td>Policies to Deal with Externalities</td>
<td>497</td>
</tr>
<tr>
<td>12-3</td>
<td>Public Utility Regulation</td>
<td>499</td>
</tr>
<tr>
<td></td>
<td>Public Utilities as Natural Monopolies</td>
<td>499</td>
</tr>
<tr>
<td></td>
<td><strong>CASE STUDY 12-2</strong> The Market for Dumping Rights</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>Difficulties in Public Utility Regulation</td>
<td>502</td>
</tr>
<tr>
<td>12-4</td>
<td>Antitrust: Government Regulation of Market Structure and Conduct</td>
<td>503</td>
</tr>
<tr>
<td></td>
<td>Sherman Act (1890)</td>
<td>504</td>
</tr>
<tr>
<td></td>
<td>Clayton Act (1914)</td>
<td>504</td>
</tr>
<tr>
<td></td>
<td>Federal Trade Commission Act (1914)</td>
<td>505</td>
</tr>
<tr>
<td></td>
<td>Robinson–Patman Act (1936)</td>
<td>505</td>
</tr>
<tr>
<td></td>
<td>Wheeler–Lea Act (1938)</td>
<td>505</td>
</tr>
<tr>
<td></td>
<td>Celler–Kefauver Antimerger Act (1950)</td>
<td>505</td>
</tr>
<tr>
<td>12-5</td>
<td>Enforcement of Antitrust Laws and the Deregulation Movement</td>
<td>505</td>
</tr>
<tr>
<td></td>
<td>Enforcement of Antitrust Laws: Some General Observations</td>
<td>506</td>
</tr>
<tr>
<td></td>
<td>Enforcement of Antitrust Laws: Structure</td>
<td>506</td>
</tr>
<tr>
<td></td>
<td><strong>CASE STUDY 12-3</strong> The IBM and AT&amp;T Cases</td>
<td>507</td>
</tr>
<tr>
<td></td>
<td><strong>CASE STUDY 12-4</strong> Antitrust and the New Merger Boom</td>
<td>509</td>
</tr>
<tr>
<td></td>
<td>Enforcement of Antitrust Laws: Conduct</td>
<td>510</td>
</tr>
<tr>
<td></td>
<td><strong>CASE STUDY 12-5</strong> The Microsoft Antitrust Case</td>
<td>511</td>
</tr>
<tr>
<td></td>
<td>The Deregulation Movement</td>
<td>512</td>
</tr>
<tr>
<td></td>
<td><strong>CASE STUDY 12-6</strong> Deregulation of the Airline Industry: An Assessment</td>
<td>514</td>
</tr>
<tr>
<td>12-6</td>
<td>Regulation of International Competition</td>
<td>515</td>
</tr>
<tr>
<td></td>
<td><strong>CASE STUDY 12-7</strong> Voluntary Export Restraints on Japanese Automobiles to the United States</td>
<td>517</td>
</tr>
<tr>
<td>12-7</td>
<td>The Effect of Taxation on Business Decisions</td>
<td>517</td>
</tr>
<tr>
<td></td>
<td><strong>BOX 9</strong> Managerial Economics at Work: Corporate Tax Rates around the World and Multinationals' Behavior</td>
<td>518</td>
</tr>
<tr>
<td>Summary</td>
<td>Problems • Spreadsheet Problems • Supplementary Readings</td>
<td></td>
</tr>
</tbody>
</table>

**CHAPTER 13** Risk Analysis | 525

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-1</td>
<td>Risk and Uncertainty in Managerial Decision Making</td>
<td>527</td>
</tr>
<tr>
<td></td>
<td><strong>CASE STUDY 13-1</strong> The Risk Faced by Coca-Cola in Changing Its Secret Formula</td>
<td>528</td>
</tr>
</tbody>
</table>
13-2 Measuring Risk with Probability Distributions  528
    Probability Distributions  529
    An Absolute Measure of Risk: The Standard Deviation  531
    Measuring Probabilities with the Normal Distribution  533
    A Relative Measure of Risk: The Coefficient of Variation  534
    CASE STUDY 13-2 RiskMetrics: A Method of Measuring Value at Risk  535

13-3 Utility Theory and Risk Aversion  536
    CASE STUDY 13-3 The Purchase of Insurance and Gambling by the Same Individual—A Seeming Contradiction  539

13-4 Adjusting the Valuation Model for Risk  540
    Risk-Adjusted Discount Rates  541
    Certainty-Equivalent Approach  543
    CASE STUDY 13-4 Adjusting the Valuation Model for Risk in the Real World  545

13-5 Other Techniques for Incorporating Risk into Decision Making  546
    Decision Trees  546
    Simulation  548

13-6 Decision Making under Uncertainty  549
    The Maximin Criterion  549
    The Minimax Regret Criterion  550
    Other Methods of Dealing with Uncertainty  551
    CASE STUDY 13-5 Spreading Risks in the Choice of a Portfolio  552

13-7 Foreign-Exchange Risks and Hedging  553
    CASE STUDY 13-6 Information, Risk, and the Collapse of Long-Term Capital Management  555

13-8 Information and Risk  556
    Asymmetric Information and the Market for Lemons  556
    The Insurance Market and Adverse Selection  557
    The Problem of Moral Hazard  557
    The Principal-Agent Problem  558
    CASE STUDY 13-7 Do Golden Parachutes Reward Failure?  559
    Auctions  560
    CASE STUDY 13-8 Auctioning of the Airwaves  561

Summary • Problems • Spreadsheet Problems • Supplementary Readings
CHAPTER 14  Long-Run Investment Decisions: Capital Budgeting  570

14-1 Capital Budgeting: An Overview  571
   Meaning and Importance of Capital Budgeting  571
   Overview of the Capital Budgeting Process  573
   CASE STUDY 14-1 Cost-Benefit Analysis and the SST  575

14-2 The Capital Budgeting Process  575
   Projecting Cash Flows  575
   CASE STUDY 14-2 The Eurotunnel: Another Bad French–British
         Investment?  576
   Net Present Value (NPV)  578
   Internal Rate of Return (IRR)  579
   Comparison of NPV and IRR  579
   CASE STUDY 14-3 Pennzoil’s $3 Billion Capital Budgeting Challenge  580
   CASE STUDY 14-4 Capital Budgeting for Investments in
         Human Capital  581
   BOX 10 Managerial Economics at Work: Is a College
         Education Still Worth It?  582

14-3 Capital Rationing and the Profitability Index  583

14-4 The Cost of Capital  585
   The Cost of Debt  585
   The Cost of Equity Capital: The Risk-Free Rate Plus Premium  585
   The Cost of Equity Capital: The Dividend Valuation Model  586
   The Cost of Equity Capital: The Capital Asset Pricing
         Model (CAPM)  587
   The Weighted Cost of Capital  589

14-5 Reviewing Investment Projects After Implementation  589
   CASE STUDY 14-5 The Choice between Equity and Debt  590

14-6 The Cost of Capital and International Competitiveness  591

Summary  •  Problems  •  Spreadsheet Problems  •  Supplementary Readings

INTEGRATING CASE STUDY 10 How Silicon Valley
   Conquered the Carriers  597

INTEGRATING CASE STUDY 11 Technology Giants at War  599
   The Iron Phone  599
   Search Engines and Siege Engines  599
   Content-Maesters  600
   Stark Realities  601
APPENDIX A COMPOUNDING, DISCOUNTING, AND PRESENT VALUE  605
  A-1 Future Value and Compounding  605
  A-2 Present Value and Discounting  607
  A-3 Future Value of an Annuity  607
  A-4 Present Value of an Annuity  608
  A-5 Compounding and Discounting Periods  608
  A-6 Determining the Interest Rate  609
  A-7 Perpetuities  609

APPENDIX B INTEREST FACTOR TABLES  611
  TABLE B-1 Compound Value of $1  612
  TABLE B-2 Present Value of $1  613
  TABLE B-3 Future Value of an Annuity of $1 for n Periods  614
  TABLE B-4 Present Value of an Annuity of $1 for n Periods  615

APPENDIX C STATISTICAL TABLES  616
  TABLE C-1 Areas under the Standard Normal Distribution  617
  TABLE C-2 Areas in the Tails of the t Distribution  618
  TABLE C-3 F Distribution for 5 Percent and 1 Percent Significance  619
  TABLE C-4 Durbin–Watson Statistic for 5 Percent and 1 Percent Significance
     Points of dL and dU  621

APPENDIX D ANSWERS TO SELECTED (ASTERISKED) PROBLEMS  623

Glossary  653
Index  667