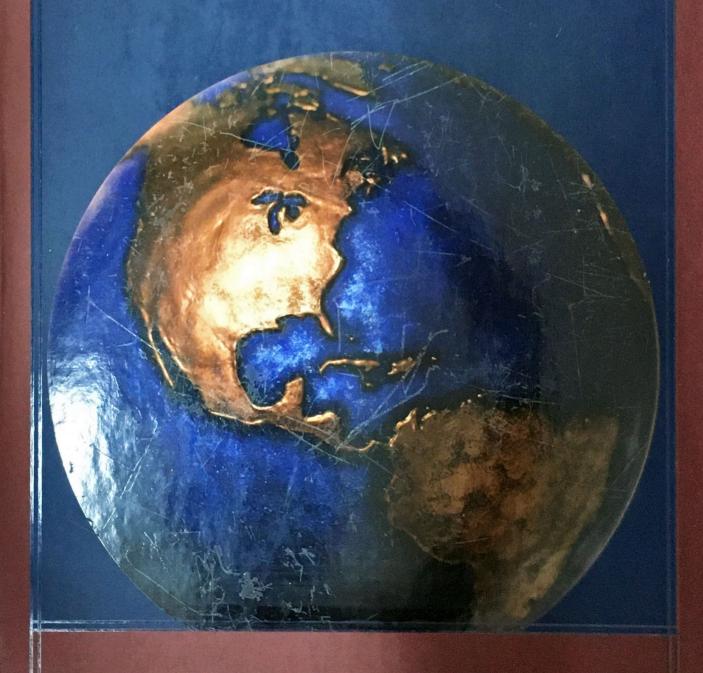
BREALEY MYERS

PRINCIPLES OF CORPORATE FINANCE



# SOME USEFUL WEBSITES

At the end of each part in the book we list a sample of relevant websites. Here are some sites that you should find generally useful.

Good sources for financial news:

www.cfonews.com

www.dowjones.com

www.economist.com (The Economist)

www.ft.com (The Financial Times)

www.wsj.com (The Wall Street Journal-partly rostri

www.brint.com (cross-references to press comment on busines) and financial issues)

Web addresses for some other journals that are read by financial managers:

www.businessweek.com

www.cfo.com

www.corporatefinancemag.com

www.euromoney.com (free access on registration)

www.forbes.com

www.fortune.com

www.institutionalinvestoronline.com (free access on registration)

www.Risk.net

Some useful sites with market commentary and data on individual firms and stocks:

www.bloomberg.com

www.corporateinformation.com (a good international site on company information)

http://finance.yahoo.com (an outstanding source of stock price and company information)

www.hoovers.com

www.reportgallery.com (easy access to annual reports)

Some home pages with a variety of useful data, calculators, etc.:

www.duke.edu/~charvey (Campbell Harvey's home page)

www.equity.stern.nyu.edu/~adamodar (Aswath Damodoran's home page)

http://aida.econ.yale.edu (Robert Shiller's home page)

http://welch.som.yale.edu (Ivo Welch's home page)

#### Links to other finance sites:

www.afponline.org

www.ceoexpress.com

www.cob.ohio-state.edu/fin/journal/jofsites.htm (very good site maintained by Ohio State College of

Business)

www.corpfinet.com

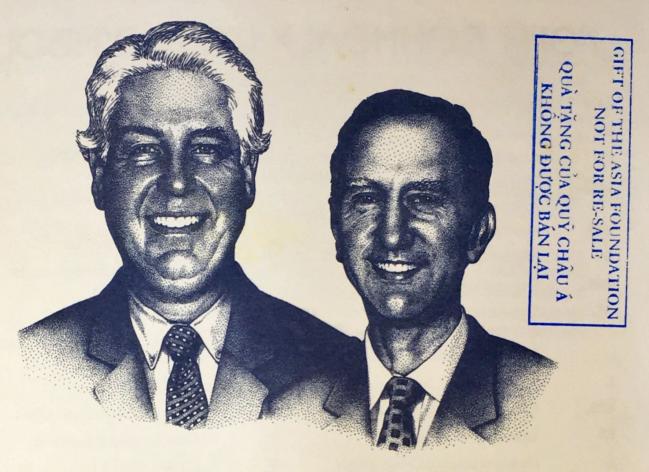
www.courses.dsu.edu/finance

www.financewise.com

www.finpipe.com

GIFT OF THE ASIA FOUNDATION NOT FOR RE-SALE

QUÀ TẶNG CỦA QUÝ CHÂU Á KHÔNG ĐƯỢC BÁN LẠI



Stewart C. Myers

Richard A. Brealey

elcome to the 7th edition of *Principles of Corporate Finance*. We are proud of the success of previous editions, and we have done our best to make this edition better.

This book may be your first view of the world of modern finance. If so, you will read first for new ideas, for an understanding of how finance theory translates to practice, and occasionally, we hope, for entertainment. But eventually you will be in a position to make financial decisions, not just study them. At that point you can turn to this book as a reference and guide.

Of course finance will not stand still. Basic concepts will not change, but markets, institutions, and applications will. At some point you will want something more up-to-date on your bookshelf. We suggest the 8th and subsequent editions of this book.

McGraw-Hill/Irwin has agreed to sell the next edition of this book at half price to purchasers of this Career Edition. The only requirement is that you buy a new copy of the book and send in the enclosed card to register in the Brealey/Myers *Principles of Corporate Finance* database. You will be informed when the next edition appears and can then trade in your book for the new model.

Many purchasers of *Principles of Corporate Finance* are not new students of finance, but practicing financial managers. They too can register and receive the next edition at half price. Regardless of the reader's experience and responsibilities in finance, we are confident that this book will be a positive-NPV investment.

# JOME COMMONLY UJED JYMBOLS

APV	Adjusted present value	$\tilde{r}_t$	Uncertain actual rate of return in period <i>t</i>
BV	Book value		
$C_t$	Cash flow at time t	$r_D$	Expected rate of return on firm's debt
$CEQ_t$	Certainty-equivalent cash flow at time $t$	$r_E$	Expected rate of return on firm's equity
$DIV_t$	Dividend payment at time t	$r_f$	Risk-free interest rate
D	Market value of firm's debt	$r_m$	Expected rate of return on the
$DEP_t$	Depreciation in year t	· m	market portfolio
$DF_t$	Discount factor for cash flow	r <sub>\$</sub>	Dollar rate of interest
e	in period <i>t</i> 2.718 (base for natural logarithms)	SSFr/\$	Spot rate of exchange between Swiss francs and dollars
E	Market value of firm's equity	t	Time
		$T_c$	Rate of corporate income tax
EPS <sub>t</sub>	Earnings per share in year t		
EX	Exercise price of option	$T_p$	Rate of personal income tax
f <sub>t</sub>	Expected return on a one-period forward loan maturing at time <i>t</i> Forward rate of exchange between dollars and pounds	V	Market value of firm: $V = D + E$
		y	Yield to maturity
		β	Beta: A measure of market risk
	Growth rate	δ	Delta: Hedge ratio
8		ρ <sub>12</sub>	Rho: Correlation coefficient between
$i_t$	Expected inflation in year t		investments 1 and 2
IRR	Internal rate of return	σ	Sigma: Standard deviation
$LCF_t$	Lease's cash outflow in year t  Net present value	$\sigma_{12}$	Covariance of investment 1 with investment 2
NPV			
$P_t$	Price at time <i>t</i>	$\sigma^2$	Sigma squared: Variance
PV	Present value	Σ	Capital sigma: "The sum of"
PVGO	Present value of growth opportunities		
$r_t$	Expected rate of return (or cost of capital) in period $t$ . We omit the subscript where the expected return is identical in each period. Sometimes we use a <i>second</i> subscript to define the date at which the investment is made. Thus, $t-1$ $t$ is the (spot) rate of return on an investment made at		

t-1 and paying off at time t.

# **Dear Student:**

he book you now hold serves two major purposes: first, it is meant to be read. Reading it will give you an understanding of the principles of modern corporate finance. Hundreds of thousands of finance students have gone before you to learn finance from the most esteemed corporate finance text available Brealey & Myers: Principles of Corporate Finance. Second, if you are like most finance professionals, you will want to keep it in a dignified spot on your shelf next to several other important reference works. The problem with the second purpose has always been that eventually, your book will grow older, and in some sense, out of date. Wouldn't you like to keep an updated copy of the most respected corporate finance text available throughout your career? Of course you would.

So we are going to make it easy. If you send the attached card to the McGraw-Hill/Irwin office, we will make certain you are kept abreast when future editions of Brealey & Myers are published. And better yet, as a special thank you from the authors, we will provide these future editions at significant discounts! So you will keep up to date and save money too! We will contact you when a new edition becomes available. Please fill out the card below to participate.

Good luck!

& Myers: Principles of	and permanent address into the Brealey f Corporate Finance database so that are editions and their publication dates.		
Name			
Permanent Address	Apt#		
City	State Zip		
Phone	Graduation Date		
E-Mail			
Course	Professor Name		
School			

The information above must be completed in its entirety.



Part One

# VALUE

1

Finance and the Financial Manager 2

2

Present Value and the Opportunity Cost of Capital 12

3

How to Calculate Present Values 32

1

The Value of Common Stocks 58

5

Why Net Present Value Leads to Better Investment
Decisions than Other Criteria 90

6

Making Investment Decisions with the Net Present Value Rule 118

Part Two

# RI/K 151

7

Introduction to Risk, Return, and the Opportunity
Cost of Capital 152

8

Risk and Return 186

9

Capital Budgeting and Risk 220

Part Three

# PRACTICAL PROBLEM/ I/N CAPITAL BUDGETI/NG 253

10

A Project Is Not a Black Box 254

11

Where Positive Net Present Value Comes from 286

12

Making Sure Managers Maximize NPV 310

Part Four

# FINANCING DECITIONS AND MARKET EFFICIENCY 343

13

Corporate Financing and the Six Lessons of Market Efficiency 344

1/

An Overview of Corporate Financing 376

15

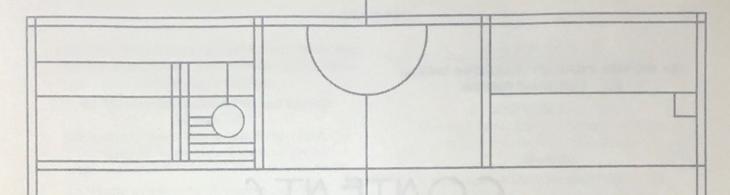
How Corporations Issue Securities 400

Part Five

# DIVIDEND POLICY AND CAPITAL TRUCTURE 451

16

The Dividend Controversy 432



17

Does Debt Policy Matter? 464

18

How Much Should a Firm Borrow? 488

19

Financing and Valuation 522

Part Six

OPTION/ 561

20

Understanding Options 562

21

Valuing Options 590

22

Real Options 616

23

Warrants and Convertibles 642

Part ∫even

DEBT FINANCING 665

24

Valuing Debt 666

25

The Many Different Kinds of Debt 700

26

Leasing 728

Part Eight

RI/K MA/IAGEME/IT 753

27

Managing Risk 754

28

Managing International Risks 786

Part Nine

FINANCIAL PLANNING AND
HORT-TERM MANAGEMENT 81

29

Financial Analysis and Planning 816

30

Short-Term Financial Planning 850

31

Cash Management 880

32

Credit Management 908

Part Ten

MERGER/, CORPORATE CONTROL, AND GOVERNANCE 927

33

Mergers 928

34

Control, Governance, and Financial Architecture 962

Part Eleven

CONCLUTION 993

35

Conclusion: What We Do and Do Not Know about Finance 994

# CONTENTS

Part One

# VALUE

Chapter 1

# FINANCE AND THE FINANCIAL MANAGER 2

1.1 What Is a Corporation? 3

1.2 The Role of the Financial Manager 5

1.3 Who Is the Financial Manager? 6

1.4 Separation of Ownership and Management 7

1.5 Topics Covered in this Book 9

Summary 10

Further Reading 11

Quiz 11

Chapter 2

# PRESENT VALUE AND THE OPPORTUNITY COST OF CAPITAL 12

2.1 Introduction to Present Value 14

Calculating Present Value / Net Present Value / A Comment on Risk and Present Value / Present Values and Rates of Return / The Opportunity Cost of Capital / A Source of Confusion

2.2 Foundations of the Net Present Value Rule 18 How Capital Markets Reconcile Preferences for Current vs. Future Consumption

> 2.3 A Fundamental Result 22 Other Corporate Goals

2.4 Do Managers Really Look after the Interests of Shareholders? 23

2.5 Should Managers Look after the Interests of Shareholders? 23

Summary 25

Further Reading 26

Quiz 26

Practice Questions 27

Challenge Questions 29

Chapter 3

# HOW TO CALCULATE PRESENT VALUES 32

3.1 Valuing Long-Lived Assets 33

Valuing Cash Flows in Several Periods / Why the Discount Factor Declines as Futurity Increases—And a Digression on Money Machines

3.2 Looking for Shortcuts—Perpetuities and
Annuities 37

How to Value Growing Perpetuities / How to Value Annuities

3.3 Compound Interest and Present Values 40
A Note on Compounding Intervals

3.4 Nominal and Real Rates of Interest 45

3.5 Using Present Value Formulas to Value Bonds 47
What Happens When Interest Rates Change? / Compounding
Intervals and Bond Prices

Summary 49

Further Reading 50

Quiz 50

Practice Questions 51

Challenge Questions 55

Mini-case: The Jones Family, Incorporated 55

Chapter 4

#### THE VALUE OF COMMON STOCKS 58

- 4.1 How Common Stocks Are Traded 59
- 4.2 How Common Stocks Are Valued 60
  Today's Price / But What Determines
  Next Year's Price?
- 4.3 A Simple Way to Estimate the Capitalization Rate 64

CONTENT/ xvii

Using the DCF Model to Set Gas and Electricity Prices / Some Warnings about Constant-Growth Formulas / DCF Valuation with Varying Growth Rates

# 4.4 The Link between Stock Price and Earnings per Share 70

Calculating the Present Value of Growth Opportunities for Fledgling Electronics / Some Examples of Growth Opportunities? / What Do Price-Earnings Ratios Mean?

4.5 Valuing a Business by Discounted Cash Flow 75
Valuing the Concatenator Business / Valuation Format /
Estimating Horizon Value / A Further Reality Check /
How Much Is the Concatenator Business Worth
per Share?

Summary 81

Further Reading 82

Quiz 83

Practice Questions 84

Challenge Questions 86

Mini-case: Reeby Sports 87

Chapter 5

# WHY NET PRESENT VALUE LEADS TO BETTER INVESTMENT DECISIONS THAN OTHER CRITERIA 90

5.1 A Review of the Basics 91

Net Present Value's Competitors / Three Points to Remember about NPV / NPV Depends on Cash Flow, Not Accounting Income

> 5.2 Payback 94 The Payback Rule

# 5.3 Internal (or Discounted-Cash-Flow) Rate of Return 96

Pitfall 1—Lending or Borrowing? / Pitfall 2—Multiple Rates of Return / Pitfall 3—Mutually Exclusive Projects / Pitfall 4— What Happens When We Can't Finesse the Term Structure of Interest Rates? / The Verdict on IRR

### 5.4 Choosing Capital Investments When Resources Are Limited 105

An Easy Problem in Capital Rationing / Some More Elaborate Capital Rationing Models / Uses of Capital Rationing Models

Summary 109

Further Reading 111

Quiz 111

**Practice Questions** 113

Challenge Questions 115

Mini-case: Vegetron's CFO Calls Again 116

## Chapter 6

# MAKING INVESTMENT DECISIONS WITH THE NET PRESENT VALUE RULE 118

6.1 What to Discount 119

Only Cash Flow is Relevant / Estimate Cash Flows on an Incremental Basis / Treat Inflation Consistently

6.2 Example—IM&C'S Fertilizer Project 124

Separating Investment and Financing Decisions /
A Further Note on Estimating Cash Flow / A Further
Note on Depreciation / A Final Comment on Taxes / Project
Analysis / Calculating NPV in Other Countries and
Currencies

### 6.3 Equivalent Annual Costs 131

Investing to Produce Reformulated Gasoline at California Refineries / Choosing between Long- and Short-Lived Equipment / Deciding When to Replace an Existing Machine / Cost of Excess Capacity

6.4 Project Interactions 136

Case 1: Optimal Timing of Investment / Case 2: Fluctuating Load Factors

Summary 139

Further Reading 140

Quiz 140

**Practice Questions 142** 

Challenge Questions 146

Mini-case: New Economy Transport 147

Part One Related Websites 150

Part Two

RI/K 151

Chapter 7

# INTRODUCTION TO RISK, RETURN, AND THE OPPORTUNITY COST OF CAPITAL 152

7.1 Seventy-Five Years of Capital Market History in One Easy Lesson 153

Arithmetic Averages and Compound Annual Returns / Using Historical Evidence to Evaluate Today's Cost of Capital

7.2 Measuring Portfolio Risk 160

Variance and Standard Deviation / Measuring Variability / How Diversification Reduces Risk

7.3 Calculating Portfolio Risk 169

General Formula for Computing Portfolio Risk / Limits to Diversification

7.4 How Individual Securities Affect Portfolio Risk 172

xviii CONTENT/

Market Risk Is Measured by Beta / Why Security Betas Determine Portfolio Risk

7.5 Diversification and Value Additivity 177

Summary 178

Further Reading 179

Quiz 179

**Practice Questions** 181

Challenge Questions 184

# Chapter 8

## RISK AND RETURN 186

8.1 Harry Markowitz and the Birth of Portfolio Theory 187

Combining Stocks into Portfolios / We Introduce Borrowing and Lending

8.2 The Relationship between Risk and Return 194
Some Estimates of Expected Returns / Review of the Capital
Asset Pricing Model / What If a Stock Did Not Lie on the
Security Market Line?

8.3 Validity and Role of the Capital Asset Pricing Model 198

Tests of the Capital Asset Pricing Model / Assumptions behind the Capital Asset Pricing Model

8.4 Some Alternative Theories 203

Consumption Betas versus Market Betas / Arbitrage Pricing Theory / A Comparison of the Capital Asset Pricing Model and Arbitrage Pricing Theory / APT Example / The Three-Factor Model

Summary 210

Further Reading 211

Quiz 212

**Practice Questions 214** 

Challenge Questions 218

#### Chapter 9

#### CAPITAL BUDGETING AND RISK 220

9.1 Company and Project Costs of Capital 222

Perfect Pitch and the Cost of Capital

9.2 Measuring the Cost of Equity 224

The Expected Return on Union Pacific Corporation's

Common Stock

9.3 Capital Structure and the Company Cost of Capital 227

How Changing Capital Structure Affects Beta / Capital Structure and Discount Rates / Back to Union Pacific's Cost of Capital 9.4 Discount Rates for International Projects 232
Foreign Investments Are Not Always Riskier / Foreign
Investment in the United States / Do Some Countries Have a
Lower Cost of Capital?

9.5 Setting Discount Rates When You Can't Calculate Beta 234

Avoid Fudge Factors in Discount Rates / What Determines Asset Betas? / Searching for Clues

9.6 Another Look at Risk and Discounted Cash Flow 239

When to Use a Single Risk-Adjusted Discount Rate for Long-Lived Assets / A Common Mistake / When You Cannot Use a Single Risk-Adjusted Discount Rate for Long-Lived Assets

Summary 243

Further Reading 244

Ouiz 245

Practice Questions 246

Challenge Questions 249

Mini-case: Holiport Corporation 250

Part Two Related Websites 252

# Part Three

# PRACTICAL PROBLEM/ IN CAPITAL BUDGETING 253

# Chapter 10

# A PROJECT IS NOT A BLACK BOX 254

10.1 Sensitivity Analysis 255

Value of Information / Limits to Sensitivity Analysis/Scenario
Analysis / Break-Even Analysis / Operating Leverage and
Break-Even Points

10.2 Monte Carlo Simulation 263
Simulating the Electric Scooter Project / Simulation of
Pharmaceutical Research and Development

10.3 Real Options and Decision Trees 268
The Option to Expand / The Option to Abandon / And Two
Other Real Options / More on Decision Trees / An Example:
Magna Charter / Pro and Con Decision Trees / Decision Trees
and Monte Carlo Simulation

Summary 278

Further Reading 279

Quiz 279

Practice Questions 280

Challenge Questions 282

Mini-case: Waldo County 283

## Chapter 11

### WHERE POSITIVE NET PRESENT VALUES COME FROM 286

11.1 Look First to Market Values 287
The Cadillac and the Movie Star / Example: Investing in a New Department Store / Another Example: Opening a Gold Mine

11.2 Forecasting Economic Rents 292 How One Company Avoided a \$100 Million Mistake

11.3 Example: Marvin Enterprises Decides to Exploit a New Technology 295

Forecasting Prices of Gargle Blasters / The Value of Marvin's New Expansion / Alternative Expansion Plans / The Value of Marvin Stock / The Lessons of Marvin Enterprises

> Summary 303 Further Reading 304 Quiz 304

Practice Questions 305 Challenge Questions 307

Mini-case: Ecsy-Cola 309

## Chapter 12

### MAKING SURE MANAGERS MAXIMIZE NPV 310

12.1 The Capital Investment Process 311
Project Authorizations / Some Investments May Not Show Up
in the Capital Budget / Postaudits

12.2 Decision Makers Need Good Information 314
Establishing Consistent Forecasts / Reducing Forecast Bias /
Getting Senior Management the Information That It Needs /
Eliminating Conflicts of Interest

12.3 Incentives 316

Overview: Agency Problems in Capital Budgeting / Monitoring Compensation

12.4 Measuring and Rewarding Performance: Residual Income and EVA 321

Pros and Cons of EVA / Applying EVA to Companies

12.5 Biases in Accounting Measures of Performance 326
Biases in Accounting Rates of Return / Measuring the
Profitability of the Nodhead Supermarket—Another Example

12.6 Measuring Economic Profitability 329

Do the Biases Wash Out in the Long Run? / What Can We Do about Biases in Accounting Profitability Measures? / Do Managers Worry Too Much about Book Profitability?

Summary 334
Further Reading 335
Quiz 336
Practice Questions 337
Challenge Questions 339

Part Three Related Websites 342

Part Four

xix

# FINANCING DECISIONS AND MARKET EFFICIENCY 343

### Chapter 13

# CORPORATE FINANCING AND THE SIX LESSONS OF MARKET EFFICIENCY 344

13.1 We Always Come Back to NPV 346 Differences between Investment and Financing Decisions

13.2 What Is an Efficient Market? 347 A Startling Discovery: Price Changes Are Random / Three Forms of Market Efficiency / Efficient Markets: The Evidence

13.3 Puzzles and Anomalies—What Do They Mean for the Financial Manager? 356

Do Investors Respond Slowly to New Information? / Stock Market Anomalies and Behavioral Finance / Professional Investors, Irrational Exuberance, and the Dot.com Bubble / The Crash of 1987 and Relative Efficiency / Market Anomalies and the Financial Manager

13.4 The Six Lessons of Market Efficiency 363 Lesson 1: Markets Have No Memory / Lesson 2: Trust Market Prices / Lesson 3: Read the Entrails / Lesson 4: There Are No Financial Illusions / Lesson 5: The Do-It-Yourself Alternative / Lesson 6: Seen One Stock, Seen Them All

Summary 370
Further Reading 371
Quiz 371
Practice Questions 372

Challenge Questions 375

# Chapter 14

#### AN OVERVIEW OF CORPORATE FINANCING 376

14.1 Patterns of Corporate Financing 377

Do Firms Rely Too Much on Internal Funds? / Has Capital

Structure Changed?

14.2 Common Stock 383

Ownership of the Corporation / Voting Procedures and the Value of Votes / Equity in Disguise / Preferred Stock

14.3 Debt 389
Debt Comes in Many Forms / Variety's the Very
Spice of Life

14.4 Financial Markets and Institutions 392
Financial Institutions

Summary 395

Further Reading 396

Quiz 397

Practice Questions 398
Challenge Questions 399

## Chapter 15

# HOW CORPORATIONS ISSUE SECURITIES 400

15.1 Venture Capital 401 The Venture Capital Market

15.2 The Initial Public Offering 405

Arranging an Initial Public Offering / The Sale of Marvin Stock / The Underwriters / Costs of a New Issue / Underpricing of IPOs / Winner's Curse

15.3 Other New-Issue Procedures 412
Types of Auctions

15.4 Security Sales by Public Companies 414
General Cash Offers / International Security Issues / The Costs
of a General Cash Offer / Market Reaction to Stock Issues

15.5 Private Placements and Public Issues 419

Summary 420

Appendix A: The Privileged Subscription or Rights Issue 421

Appendix B: Marvin's New-Issue Prospectus 422

Further Reading 425

Quiz 426

Practice Questions 428

Challenge Questions 429

Part Four Related Websites 430

## Part Five

# DIVIDEND POLICY AND CAPITAL TRUCTURE 431

# Chapter 16

#### THE DIVIDEND CONTROVERSY 432

16.1 How Dividends are Paid 433

Dividends Come in Different Forms / Dividend Payers and

Nonpayers / Share Repurchase

16.2 How Do Companies Decide on Dividend
Payments? 437
Lintner's Model

16.3 The Information in Dividends and Stock Repurchases 438

The Information Content of Share Repurchase

16.4 The Dividend Controversy 441

Dividend Policy Is Irrelevant in Perfect Capital Markets / Dividend Irrelevance—An Illustration / Calculating Share Price / Share Repurchase / Stock Repurchase and Valuation

16.5 The Rightists 447

Market Imperfections / Dividends, Investment Policy, and Management Incentives

16.6 Taxes and the Radical Left 448

Why Pay Any Dividends at All? / Empirical Evidence on Dividends and Taxes / The Taxation of Dividends and Capital Gains

16.7 The Middle-of-the-Roaders 452
Alternative Tax Systems

Summary 455

Further Reading 456

Quiz 457

Practice Questions 459

Challenge Questions 462

# Chapter 17

# DOES DEBT POLICY MATTER? 464

17.1 The Effect of Leverage in a Competitive Tax-free Economy 465

Enter Modigliani and Miller / The Law of the Conservation of Value / An Example of Proposition I

17.2 How Leverage Affects Returns 472

Implications of Proposition I / Proposition II / The Risk-Return

Trade-off

17.3 The Traditional Position 476

Two Warnings / Rates of Return on Levered Equity—The Traditional Position / Where to Look for Violations of MM's Propositions / Today's Unsatisfied Clienteles Are Probably Interested in Exotic Securities / Imperfections and Opportunities

Summary 482

Further Reading 482

Ouiz 483

Practice Questions 485

Challenge Questions 487

### Chapter 18

## **HOW MUCH SHOULD A FIRM BORROW? 488**

18.1 Corporate Taxes 489

How Do Interest Tax Shields Contribute to the Value of Stockholders' Equity? / Recasting Pfizer's Capital Structure / MM and Taxes

### 18.2 Corporate and Personal Taxes 493

### 18.3 Costs of Financial Distress 497

Bankruptcy Costs / Evidence on Bankruptcy Costs / Direct versus Indirect Costs of Bankruptcy / Financial Distress without Bankruptcy / Risk Shifting: The First Game / Refusing to Contribute Equity Capital: The Second Game / And Three More Games, Briefly / What the Games Cost / Costs of Distress Vary with Type of Asset / The Trade-off Theory of Capital Structure

18.4 The Pecking Order of Financing Choices 511
Debt and Equity Issues with Asymmetric Information /
Implications of the Pecking Order / Financial Slack / Free Cash
Flow and the Dark Side of Financial Slack

Summary 515

Further Reading 517

Quiz 517

Practice Questions 519

Challenge Questions 521

### Chapter 19

#### FINANCING AND VALUATION 522

19.1 The After-Tax Weighted-Average Cost of Capital 524

Example: Sangria Corporation / Review of Assumptions

19.2 Using WACC—Some Tricks of the Trade 528
Industry Costs of Capital / Valuing Companies: WACC vs. the
Flow-to-Equity Method / Mistakes People Make in Using the
Weighted-Average Formula

19.3 Adjusting WACC When Debt Ratios or Business Risks Change 532

Unlevering and Relevering Betas / The Importance of Rebalancing

19.4 Adjusted Present Value 536

The Base Case / Issue Costs / Additions to the Firm's Debt Capacity /
The Value of Interest Tax Shields / Review of the AdjustedPresent-Value Approach / APV for International Projects / APV for
the Perpetual Crusher Project / A Technical Point on Financing
Rule 2 / Which Financing Rule? / APV and Hurdle Rates /
A General Definition of the Adjusted Cost of Capital

19.5 Discounting Safe, Nominal Cash Flows
A General Rule / Some Further Examples /
A Consistency Check

19.6 Your Questions Answered 548

Summary 551

Further Reading 552

Quiz 553

Practice Questions 554

Challenge Questions 558

Part Five Related Websites 559

## Part Six

# OPTIONS 56

Chapter 20

#### **UNDERSTANDING OPTIONS 562**

20.1 Calls, Puts, and Shares 564
Call Options and Position Diagrams / Put Options / Selling Calls,
Puts, and Shares/Position Diagrams Are Not Profit Diagrams

20.2 Financial Alchemy with Options 570

Default Puts and the Difference between Safe and Risky Bonds /

Spotting the Option

20.3 What Determines Option Values? 577
Risk and Option Values

Summary 582

Further Reading 583

Quiz 583

Practice Questions 585

Challenge Questions 588

### Chapter 21

#### **VALUING OPTIONS 590**

21.1 A Simple Option-Valuation Model 591
Why Discounted Cash Flow Won't Work for Options /
Constructing Option Equivalents from Common Stocks and
Borrowing / Valuing the AOL Put Option

21.2 The Binomial Method for Valuing Options 596
Example: The Two-Stage Binomial Method / The General
Binomial Method / The Binomial Method and Decision Trees

21.3 The Black–Scholes Formula 602
Using the Black–Scholes Formula / The Black–Scholes Formula

and the Binomial Method / Using the Black–Scholes Formula to
Estimate Variability

21.4 Option Values at a Glance 607

Summary 610

Further Reading 610

Quiz 610

Practice Questions 611

Challenge Questions 613

Mini-case: Bruce Honiball's Invention 613

Chapter 22

#### **REAL OPTIONS 616**

22.1 The Value of Follow-on Investment
Opportunities 617
Questions and Answers about Blitzen's Mark II / Other
Expansion Options

22.2 The Timing Option 622
Valuing the Malted Herring Option / Optimal Timing for Real
Estate Development

22.3 The Abandonment Option 625
The Zircon Subductor Project / Abandonment Value and
Project Life / Temporary Abandonment

22.4 Flexible Production—and Another Look at Aircraft
Purchase Options 630
Another Look at Aircraft Purchase Options

22.5 A Conceptual Problem? 634

Summary 635

Further Reading 636

Quiz 636

Practice Questions 637 Challenge Questions 639

Chapter 23

#### WARRANTS AND CONVERTIBLES 642

23.1 What Is a Warrant? 643

Valuing Warrants / Two Complications: Dividends and Dilution / Example: Valuing United Glue's Warrants / How the Value of United Warrants Is Affected by Dilution

23.2 What Is a Convertible Bond? 648

The Convertible Menagerie / Mandatory Convertibles / Valuing
Convertible Bonds / Dilution and Dividends Revisited /
Forcing Conversion

23.3 The Difference between Warrants and Convertibles 654

23.4 Why Do Companies Issue Warrants and Convertibles? 655

Summary 657

Further Reading 658

Quiz 659

Practice Questions 660

Challenge Questions 661

Mini-case: The Shocking Demise of Mr. Thorndike 662

Part Six Related Websites 664

Part Seven

DEBT FINANCING 665

Chapter 24

VALUING DEBT 666

24.1 Real and Nominal Rates of Interest 668

Indexed Bonds and the Real Rate of Interest / Inflation and Nominal Interest Rates / How Well Does Fisher's Theory Explain Interest Rates?

24.2 Term Structure and Yields to Maturity 671 Yield to Maturity / Measuring the Term Structure

24.3 How Interest Rate Changes Affect Bond Prices 674

Duration and Bond Volatility / Managing Interest Rate Risk / A Cautionary Note

24.4 Explaining the Term Structure 678
The Expectations Theory / The Liquidity-Preference
Theory / Introducing Inflation / Relationships between Bond
Returns

24.5 Allowing for the Risk of Default 683
Bond Ratings / Junk Bonds / Option Pricing and Risky Debt /
Valuing Government Loan Guarantees / Calculating the
Probability of Default

Summary 692
Further Reading 693
Quiz 694
Practice Questions 696
Challenge Questions 698

#### Chapter 25

#### THE MANY DIFFERENT KINDS OF DEBT 700

25.1 Domestic Bonds and International Bonds 701

25.2 The Bond Contract 702
Indenture, or Trust Deed / The Bond Terms

25.3 Security and Seniority 705

25.4 Asset-Backed Securities 707

25.5 Repayment Provisions 707 Sinking Funds / Call Provisions

25.6 Restrictive Covenants 710 Changes in Covenant Protection

25.7 Private Placements and Project Finance 713
Project Finance / Project Finance—Some Common Features /
The Role of Project Finance

25.8 Innovation in the Bond Market 717

Summary 718

Appendix: Bankruptcy Procedures 719

Further Reading 724

Quiz 725

Practice Questions 726

Challenge Questions 727

CONTENT/ xxiii

## Chapter 26

#### **LEASING 728**

26.1 What Is a Lease? 729

26.2 Why Lease? 730

Sensible Reasons for Leasing / Some Dubious Reasons for Leasing

26.3 Operating Leases 734

Example of an Operating Lease / Lease or Buy?

26.4 Valuing Financial Leases 737

Example of a Financial Lease / Who Really Owns the Leased Asset? / Leasing and the Internal Revenue Service / A First Pass at Valuing a Lease Contract / The Story So Far

26.5 When Do Financial Leases Pay? 743

Summary 744

Further Reading 745

Ouiz 746

Practice Questions 747

Challenge Questions 749

Mini-case: Halverton Corporation 749

Part Seven Related Websites 751

Part Eight

RIK MANAGEMENT 753

Chapter 27

#### MANAGING RISK 754

27.1 Insurance 755 How British Petroleum (BP) Changed Its Insurance Strategy

27.2 Hedging with Futures 758

Commodity and Financial Futures / The Mechanics of Futures Trading / Spot and Futures Prices—Financial Futures / Spot and Futures Prices—Commodities

27.3 Forward Contracts 764

Homemade Forward Contracts

27.4 Swaps 765

Interest Rate Swaps / Currency Swaps / Credit Derivatives

27.5 How to Set Up a Hedge 769

Using Theory to Set Up the Hedge: An Example / Options, Deltas, and Betas

27.6 Is "Derivative" a Four-Letter Word? 773

Summary 776

Further Reading 777

Quiz 778

Practice Questions 779
Challenge Questions 783

Chapter 28

### MANAGING INTERNATIONAL RISKS 786

28.1 The Foreign Exchange Market 787

28.2 Some Basic Relationships 789
Interest Rates and Exchange Rates / The Forward Premium and Changes in Spot Rates / Changes in the Exchange Rate and

Inflation Rates / Interest Rates and Inflation Rates / Is Life Really That Simple?

28.3 Hedging Currency Risk 797

Transaction Exposure and Economic Exposure / Currency Speculation

28.4 Exchange Risk and International Investment
Decisions 800

More about the Cost of Capital

28.5 Political Risk 803

Summary 806

Further Reading 806

Quiz 807

Practice Questions 809

Challenge Questions 812

Mini-case: Exacta, s.a. 812

Part Eight Related Websites 814

Part Nine

FINANCIAL PLANNING AND

/HORT-TERM

MANAGEMENT 815

Chapter 29

#### FINANCIAL ANALYSIS AND PLANNING 816

29.1 Financial Statements 817

29.2 Executive Paper's Financial Statements 819
The Balance Sheet / The Income Statement / Sources and Uses
of Funds

29.3 Measuring Executive Paper's Financial Condition 822

How Much Has Executive Paper Borrowed? / How Liquid Is Executive Paper? / How Productively Is Executive Paper Using Its Assets? / How Profitable Is Executive Paper? / How Highly Is Executive Paper Valued by Investors? / The Dupont System

29.4 Financial Planning 831

29.5 Financial Planning Models 832

Pitfalls in Model Design / There Is No Finance in Financial Planning Models

29.6 Growth and External Financing 837

Summary 838

Further Reading 839

Quiz 839

Practice Questions 842

Challenge Question 848

Chapter 30

## SHORT-TERM FINANCIAL PLANNING 850

30.1 The Components of Working Capital 851

Current Assets / Current Liabilities

30.2 Links between Long-Term and Short-Term Financing
Decisions 853

The Comforts of Surplus Cash

30.3 Tracing Changes in Cash and Working Capital

Tracing Changes in Net Working Capital / Profits

and Cash Flow

30.4 Cash Budgeting 859

Preparing the Cash Budget: Inflow / Preparing the Cash

Budget: Outflow

30.5 The Short-Term Financing Plan 862

Options for Short-Term Financing / Dynamic's Financing

Plan / Evaluating the Plan / A Note on Short-Term Financial

Planning Models

30.6 Sources of Short-Term Borrowing 866
Bank Loans / Commercial Paper / Medium-Term Notes

Summary 871

Further Reading 873

Quiz 873

Practice Questions 875

Challenge Questions 878

Chapter 31

#### CASH MANAGEMENT 880

31.1 Cash Collection and Disbursement 881

How Checks Create Float / Managing Float / Speeding Up

Collections / Controlling Disbursements / Electronic Funds

Transfer / International Cash Management / Paying for Bank

Services

31.2 How Much Cash Should the Firm Hold? 889
The Inventory Decision / The Extension to Cash Balances / The
Cash Management Trade-off

31.3 Investing Idle Cash 893

The Money Market / Valuing Money-Market Investments / Calculating the Yield on Money-Market Investments / The International Money Market

31.4 Money-Market Investments 895
U.S. Treasury Bills / Federal Agency Securities / Short-Term
Tax-Exempts / Bank Time Deposits and Certificates of Deposit /
Commercial Paper / Bankers' Acceptances / Repurchase
Agreements

31.5 Floating-Rate Preferred Stock—An Alternative to Money-Market Investments 899

Summary 901

Further Reading 902

Quiz 903

Practice Questions 905

Challenge Question 907

Chapter 32

## CREDIT MANAGEMENT 908

32.1 Terms of Sale 909

32.2 Commercial Credit Instruments 910

32.3 Credit Analysis 911

32.4 The Credit Decision 914

When to Stop Looking for Clues / Credit Decisions with Repeat Orders / Some General Principles

32.5 Collection Policy 918 Factoring and Credit Insurance

Summary 920

Further Reading 921

Quiz 921

**Practice Questions 922** 

Challenge Questions 924

Part Nine Related Websites 926

Part Ten

# MERGER/, CORPORATE CONTROL, AND GOVERNANCE 927

Chapter 33

#### **MERGERS 928**

33.1 Sensible Motives for Mergers 930

Economies of Scale / Economies of Vertical Integration /
Complementary Resources / Surplus Funds / Eliminating
Inefficiencies

CONTENT

33.2 Some Dubious Reasons for Mergers 934

To Diversify / Increasing Earnings per Share: The Bootstrap

Game / Lower Financing Costs

33.3 Estimating Merger Gains and Costs 938
Right and Wrong Ways to Estimate the Benefits of Mergers /
More on Estimating Costs—What if the Target's Stock Price
Anticipates the Merger? / Estimating Cost When the Merger Is
Financed by Stock / Asymmetric Information

33.4 The Mechanics of a Merger 943

Mergers and Antitrust Law / The Form of Acquisition / Merger

Accounting / Some Tax Considerations

33.5 Takeover Battles and Tactics 946
Boone Pickens Tries to Take Over Cities Service, Gulf Oil,
and Phillips Petroleum / Takeover Defenses / AlliedSignal vs.
AMP / Who Gains Most in Mergers?

33.6 Mergers and the Economy 953

Merger Waves / Do Mergers Generate Net Benefits?

Summary 955

Appendix: Conglomerate Mergers and Value Additivity 956

Further Reading 958

Quiz 959

Practice Questions 959
Challenge Questions 961

Chapter 34

# CONTROL, GOVERNANCE, AND FINANCIAL ARCHITECTURE 962

34.1 Leveraged Buyouts, Spin-offs, and
Restructurings 964
RJR Nabisco / Barbarians at the Gate? / Leveraged
Restructurings / Financial Architecture of LBOs and Leveraged
Restructurings

34.2 Fusion and Fission in Corporate Finance 969 Spin-offs / Carve-outs / Asset Sales / Privatization

34.3 Conglomerates 974

Pros and (Mostly) Cons of U.S. Conglomerates / Fifteen Years after Reading This Chapter / Financial Architecture of Traditional U.S. Conglomerates / Temporary Conglomerates / Conglomerates around the World / The Bottom Line on Conglomerates 34.4 Governance and Control in the United States,
Germany, and Japan 981
Ownership and Control in Germany / . . . And in Japan /
Corporate Ownership around the World

Summary 987

Further Reading 988

Quiz 989

**Practice Questions** 990

Challenge Question 990

Part Ten Related Websites 991

Part 11

# CONCLUTION 993

Chapter 35

# CONCLUSION: WHAT WE DO AND DO NOT KNOW ABOUT FINANCE 994

35.1 What We Do Know: The Seven Most Important Ideas in Finance 995

Net Present Value / 2. The Capital Asset Pricing Model /
 Efficient Capital Markets / 4. Value Additivity and the Law of Conservation of Value / 5. Capital Structure Theory /
 Option Theory / 7. Agency Theory

35.2 What We Do Not Know: 10 Unsolved Problems in Finance 998

1. What Determines Project Risk and Present Value? / 2. Risk and Return—What Have We Missed? / 3. How Important Are the Exceptions to the Efficient-Market Theory? / 4. Is Management an Off-Balance-Sheet Liability? / 5. How Can We Explain the Success of New Securities and New Markets? / 6. How Can We Resolve the Dividend Controversy? / 7. What Risks Should a Firm Take? / 8. What Is the Value of Liquidity? / 9. How Can We Explain Merger Waves? / 10. How Can We Explain International Differences in Financial Architecture?

35.3 A Final Word 1004

Appendix A Present Value Tables 1006

Appendix B Answers to Quizzes 1017

Glossary 1039

Global Index 1052

General Index 1057