

BREALEY

MYERS

ALLEN



Principles *of*
Corporate Finance

TENTH EDITION



Principles *of* Corporate Finance

TENTH EDITION

Richard A. Brealey

*Professor of Finance
London Business School*

Stewart C. Myers

*Robert C. Merton (1970) Professor of Finance
Sloan School of Management
Massachusetts Institute of Technology*

Franklin Allen

*Nippon Life Professor of Finance
The Wharton School
University of Pennsylvania*



**McGraw-Hill
Irwin**



PRINCIPLES OF CORPORATE FINANCE

Published by McGraw-Hill/Irwin, a business unit of The McGraw-Hill Companies, Inc., 1221 Avenue of the Americas, New York, NY, 10020. Copyright © 2011, 2008, 2006, 2003, 2000, 1996, 1991, 1988, 1984, 1980 by The McGraw-Hill Companies, Inc. All rights reserved. No part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written consent of The McGraw-Hill Companies, Inc., including, but not limited to, in any network or other electronic storage or transmission, or broadcast for distance learning.

Some ancillaries, including electronic and print components, may not be available to customers outside the United States.

This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 0 DOW/DOW 1 0 9 8 7 6 5 4 3 2 1 0

ISBN 978-0-07-353073-4

MHID 0-07-353073-5

Vice president and editor-in-chief: *Brent Gordon*

Publisher: *Douglas Reiner*

Executive editor: *Michele Janicek*

Director of development: *Ann Torbert*

Senior development editor: *Christina Kowelis*

Development editor II: *Karen L. Fisher*

Vice president and director of marketing: *Robin J. Zwettler*

Marketing director: *Rhonda Seelinger*

Senior marketing manager: *Melissa S. Caughlin*

Vice president of editing, design, and production: *Sesha Bolisetty*

Managing editor: *Lori Koetters*

Lead production supervisor: *Michael R. McCormick*

Interior and cover design: *Laurie J. Entringer*

Senior media project manager: *Susan Lombardi*

Cover image: © *Jupiter Images Corporation*

Typeface: *10/12 Garamond BE Regular*

Compositor: *Laserwords Private Limited*

Printer: *R. R. Donnelley*

Library of Congress Cataloging-in-Publication Data

Brealey, Richard A.

Principles of corporate finance / Richard A. Brealey, Stewart C. Myers, Franklin Allen.—10th ed.

p. cm.—(The McGraw-Hill/Irwin series in finance, insurance, and real estate)

Includes index.

ISBN-13: 978-0-07-353073-4 (alk. paper)

ISBN-10: 0-07-353073-5 (alk. paper)

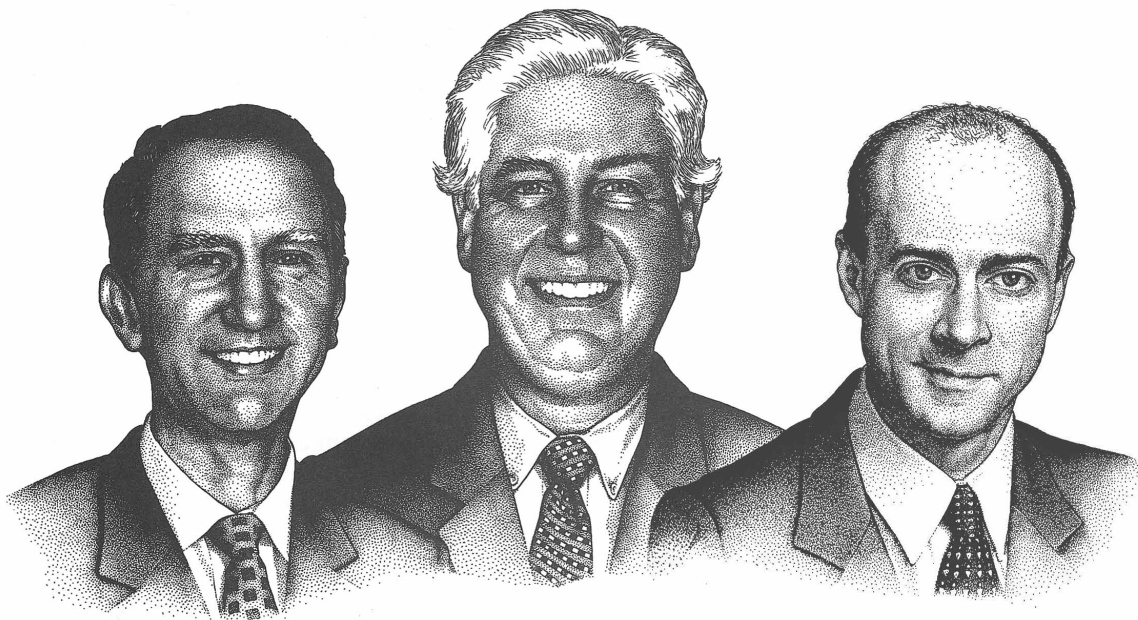
1. Corporations—Finance. I. Myers, Stewart C. II. Allen, Franklin, 1956-III. Title.

HG4026.B667 2011

658.15—dc22

2009048209

About the Authors



Richard A. Brealey

Professor of Finance at the London Business School. He is the former president of the European Finance Association and a former director of the American Finance Association. He is a fellow of the British Academy and has served as a special adviser to the Governor of the Bank of England and director of a number of financial institutions. Other books written by Professor Brealey include *Introduction to Risk and Return from Common Stocks*.

Stewart C. Myers

Robert C. Merton (1970) Professor of Finance at MIT's Sloan School of Management. He is past president of the American Finance Association and a research associate of the National Bureau of Economic Research. His research has focused on financing decisions, valuation methods, the cost of capital, and financial aspects of government regulation of business. Dr. Myers is a director of Entergy Corporation and The Brattle Group, Inc. He is active as a financial consultant.

Franklin Allen

Nippon Life Professor of Finance at the Wharton School of the University of Pennsylvania. He is past president of the American Finance Association, Western Finance Association, and Society for Financial Studies. His research has focused on financial innovation, asset price bubbles, comparing financial systems, and financial crises. He is a scientific adviser at Sveriges Riksbank (Sweden's central bank).

Brief Contents

Part One: Value

1	Goals and Governance of the Firm	1
2	How to Calculate Present Values	20
3	Valuing Bonds	45
4	The Value of Common Stocks	74
5	Net Present Value and Other Investment Criteria	101
6	Making Investment Decisions with the Net Present Value Rule	127

Part Two: Risk

7	Introduction to Risk and Return	156
8	Portfolio Theory and the Capital Asset Pricing Model	185
9	Risk and the Cost of Capital	213

Part Three: Best Practices in Capital Budgeting

10	Project Analysis	240
11	Investment, Strategy, and Economic Rents	268
12	Agency Problems, Compensation, and Performance Measurement	290

Part Four: Financing Decisions and Market Efficiency

13	Efficient Markets and Behavioral Finance	312
14	An Overview of Corporate Financing	341
15	How Corporations Issue Securities	362

Part Five: Payout Policy and Capital Structure

16	Payout Policy	391
17	Does Debt Policy Matter?	418
18	How Much Should a Corporation Borrow?	440
19	Financing and Valuation	471

Part Six: Options

20	Understanding Options	502
21	Valuing Options	525
22	Real Options	554

Part Seven: Debt Financing

23	Credit Risk and the Value of Corporate Debt	577
24	The Many Different Kinds of Debt	597
25	Leasing	625

Part Eight: Risk Management

26	Managing Risk	645
27	Managing International Risks	676

Part Nine: Financial Planning and Working Capital Management

28	Financial Analysis	704
29	Financial Planning	731
30	Working Capital Management	757

Part Ten: Mergers, Corporate Control, and Governance

31	Mergers	792
32	Corporate Restructuring	822
33	Governance and Corporate Control around the World	846

Part Eleven: Conclusion

34	Conclusion: What We Do and Do Not Know about Finance	866
----	--	-----

I Part One Value

1 Goals and Governance of the Firm 1

- 1-1** Corporate Investment and Financing Decisions 2
Investment Decisions/Financing Decisions/What Is a Corporation?
- 1-2** The Role of the Financial Manager and the Opportunity Cost of Capital 6
The Investment Trade-off
- 1-3** Goals of the Corporation 9
Shareholders Want Managers to Maximize Market Value/A Fundamental Result/Should Managers Look After the Interests of Their Shareholders?/Should Firms Be Managed for Shareholders or All Stakeholders?
- 1-4** Agency Problems and Corporate Governance 12
Pushing Subprime Mortgages: Value Maximization Run Amok, or an Agency Problem?/Agency Problems Are Mitigated by Good Systems of Corporate Governance
- Summary 15 • Problem Sets 16 • Appendix: Foundations of the Net Present Value Rule 18

2 How to Calculate Present Values 20

- 2-1** Future Values and Present Values 21
Calculating Future Values/Calculating Present Values/Calculating the Present Value of an Investment Opportunity/Net Present Value/Risk and Present Value/Present Values and Rates of Return/Calculating Present Values When There Are Multiple Cash Flows/The Opportunity Cost of Capital
- 2-2** Looking for Shortcuts—Perpetuities and Annuities 27
How to Value Perpetuities/How to Value Annuities/PV Annuities Due/Calculating Annual Payments/Future Value of an Annuity
- 2-3** More Shortcuts—Growing Perpetuities and Annuities 33
Growing Perpetuities/Growing Annuities

- 2-4** How Interest Is Paid and Quoted 35
Continuous Compounding
- Summary 39 • Problem Sets 39
- Real-Time Data Analysis 43

3 Valuing Bonds 45

- 3-1** Using the Present Value Formula to Value Bonds 46
A Short Trip to Paris to Value a Government Bond/Back to the United States: Semiannual Coupons and Bond Prices
- 3-2** How Bond Prices Vary with Interest Rates 49
Duration and Volatility
- 3-3** The Term Structure of Interest Rates 53
Spot Rates, Bond Prices, and the Law of One Price/Measuring the Term Structure/Why the Discount Factor Declines as Futurity Increases—and a Digression on Money Machines
- 3-4** Explaining the Term Structure 57
Expectations Theory of the Term Structure/Introducing Risk/Inflation and Term Structure
- 3-5** Real and Nominal Rates of Interest 59
Indexed Bonds and the Real Rate of Interest/What Determines the Real Rate of Interest?/Inflation and Nominal Interest Rates
- 3-6** Corporate Bonds and the Risk of Default 65
Corporate Bonds Come in Many Forms
- Summary 68 • Further Reading 69
- Problem Sets 69 • Real-Time Data Analysis 73

4 The Value of Common Stocks 74

- 4-1** How Common Stocks Are Traded 75
- 4-2** How Common Stocks Are Valued 76
Valuation by Comparables/The Determinants of Stock Prices/Today's Price/But What Determines Next Year's Price?
- 4-3** Estimating the Cost of Equity Capital 81
Using the DCF Model to Set Gas and Electricity Prices/Dangers Lurk in Constant-Growth Formulas

4-4 The Link between Stock Price and Earnings per Share 87

Calculating the Present Value of Growth Opportunities for Fledgling Electronics

4-5 Valuing a Business by Discounted Cash Flow 90

Valuing the Concatenator Business/Valuation Format/Estimating Horizon Value/A Further Reality Check

Summary 94 • Further Reading 95

Problem Sets 95 • Real-Time Data Analysis 99

Mini-Case: Reeby Sports 99

5 Net Present Value and Other Investment Criteria 101

5-1 A Review of the Basics 101

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

5-2 Payback 105

Discounted Payback

5-3 Internal (or Discounted-Cash-Flow) Rate of Return 107

Calculating the IRR/The IRR Rule/Pitfall 1—Lending or Borrowing?/Pitfall 2—Multiple Rates of Return/Pitfall 3—Mutually Exclusive Projects/Pitfall 4—What Happens When There Is More Than One Opportunity Cost of Capital?/The Verdict on IRR

5-4 Choosing Capital Investments When Resources Are Limited 115

An Easy Problem in Capital Rationing/Uses of Capital Rationing Models

Summary 119 • Further Reading 120

Problem Sets 120

Mini-Case: Vegetron's CFO Calls Again 124

6 Making Investment Decisions with the Net Present Value Rule 127

6-1 Applying the Net Present Value Rule 128

Rule 1: Only Cash Flow Is Relevant/Rule 2: Estimate Cash Flows on an Incremental Basis/Rule 3: Treat Inflation Consistently

6-2 Example—IM&C'S Fertilizer Project 132

Separating Investment and Financing Decisions/Investments in Working Capital/A Further Note on Depreciation/A Final Comment on Taxes/Project Analysis/Calculating NPV in Other Countries and Currencies

6-3 Investment Timing 140

6-4 Equivalent Annual Cash Flows 141

Investing to Produce Reformulated Gasoline at California Refineries/Choosing Between Long- and Short-Lived Equipment/Equivalent Annual Cash Flow and Inflation/Equivalent Annual Cash Flow and Technological Change/Deciding When to Replace an Existing Machine

Summary 146 • Problem Sets 146

Mini-Case: New Economy Transport (A) and (B) 153

I Part Two Risk

7 Introduction to Risk and Return 156

7-1 Over a Century of Capital Market History in One Easy Lesson 156

Arithmetic Averages and Compound Annual Returns/Using Historical Evidence to Evaluate Today's Cost of Capital/Dividend Yields and the Risk Premium

7-2 Measuring Portfolio Risk 163

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

7-3 Calculating Portfolio Risk 170

General Formula for Computing Portfolio Risk/Limits to Diversification

7-4 How Individual Securities Affect Portfolio Risk 174

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

7-5 Diversification and Value Additivity 177

Summary 178 • Further Reading 179

Problem Sets 179 • Real-Time Data Analysis 184

8 Portfolio Theory and the Capital Asset Model Pricing 185

8-1 Harry Markowitz and the Birth of Portfolio Theory 185

Combining Stocks into Portfolios/We Introduce Borrowing and Lending

- 8-2** The Relationship between Risk and Return 192
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 195
Tests of the Capital Asset Pricing Model/Assumptions behind the Capital Asset Pricing Model
- 8-4** Some Alternative Theories 199
Arbitrage Pricing Theory/A Comparison of the Capital Asset Pricing Model and Arbitrage Pricing Theory/The Three-Factor Model
- Summary 203 • Further Reading 204
Problem Sets 204 • Real-Time Data Analysis 210
Mini-Case: John and Marsha on Portfolio Selection 211

9 Risk and the Cost of Capital 213

- 9-1** Company and Project Costs of Capital 214
Perfect Pitch and the Cost of Capital/Debt and the Company Cost of Capital
- 9-2** Measuring the Cost of Equity 217
Estimating Beta/The Expected Return on Union Pacific Corporation's Common Stock/ Union Pacific's After-Tax Weighted-Average Cost of Capital/Union Pacific's Asset Beta
- 9-3** Analyzing Project Risk 221
What Determines Asset Betas?/Don't Be Fooled by Diversifiable Risk/Avoid Fudge Factors in Discount Rates/Discount Rates for International Projects
- 9-4** Certainty Equivalents—Another Way to Adjust for Risk 227
Valuation by Certainty Equivalents/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 232 • Further Reading 233
Problem Sets 233 • Real-Time Data Analysis 237
Mini-Case: The Jones Family, Incorporated 237

I Part Three Best Practices in Capital Budgeting

10 Project Analysis 240

- 10-1** The Capital Investment Process 241
Project Authorizations—and the Problem of Biased Forecasts/Postaudits
- 10-2** Sensitivity Analysis 243
Value of Information/Limits to Sensitivity Analysis/Scenario Analysis/Break-Even Analysis/Operating Leverage and the Break-Even Point
- 10-3** Monte Carlo Simulation 249
Simulating the Electric Scooter Project
- 10-4** Real Options and Decision Trees 253
The Option to Expand/The Option to Abandon/Production Options/Timing Options/More on Decision Trees/Pro and Con Decision Trees
- Summary 260 • Further Reading 261
Problem Sets 262
Mini-Case: Waldo County 266

11 Investment, Strategy, and Economic Rents 268

- 11-1** Look First to Market Values 268
The Cadillac and the Movie Star
- 11-2** Economic Rents and Competitive Advantage 273
- 11-3** Marvin Enterprises Decides to Exploit a New Technology: an Example 276
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 283 • Further Reading 284
Problem Sets 284
Mini-Case: Ecsy-Cola 289

12 Agency Problems, Compensation, and Performance Measurement 290

- 12-1** Incentives and Compensation 290
Agency Problems in Capital Budgeting/Monitoring/Management Compensation/Incentive Compensation

- 12-2** Measuring and Rewarding Performance: Residual Income and EVA 298
Pros and Cons of EVA
- 12-3** Biases in Accounting Measures of Performance 301
Example: Measuring the Profitability of the Nodhead Supermarket/Measuring Economic Profitability/Do the Biases Wash Out in the Long Run?/What Can We Do about Biases in Accounting Profitability Measures?/Earnings and Earnings Targets
- Summary 307 • Further Reading 307
Problem Sets 308

I Part Four Financing Decisions and Market Efficiency

13 Efficient Markets and Behavioral Finance 312

- 13-1** We Always Come Back to NPV 313
Differences between Investment and Financing Decisions
- 13-2** What Is an Efficient Market? 314
A Startling Discovery: Price Changes Are Random/Three Forms of Market Efficiency/Efficient Markets: The Evidence
- 13-3** The Evidence against Market Efficiency 321
Do Investors Respond Slowly to New Information?/Bubbles and Market Efficiency
- 13-4** Behavioral Finance 326
Limits to Arbitrage/Incentive Problems and the Subprime Crisis
- 13-5** The Six Lessons of Market Efficiency 329
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/What if Markets Are Not Efficient? Implications for the Financial Manager
- Summary 335 • Further Reading 335
Problem Sets 337 • Real-Time Data Analysis 340

14 An Overview of Corporate Financing 341

- 14-1** Patterns of Corporate Financing 341
Do Firms Rely Too Much on Internal Funds?/How Much Do Firms Borrow?
- 14-2** Common Stock 345
Ownership of the Corporation/Voting Procedures/Dual-class Shares and Private Benefits/Equity in Disguise/Preferred Stock
- 14-3** Debt 351
Debt Comes in Many Forms/A Debt by Any Other Name/Variety's the Very Spice of Life
- 14-4** Financial Markets and Institutions 354
The Financial Crisis of 2007–2009/The Role of Financial Institutions
- Summary 357 • Further Reading 358
Problem Sets 359 • Real-Time Data Analysis 361

15 How Corporations Issue Securities 362

- 15-1** Venture Capital 362
The Venture Capital Market
- 15-2** The Initial Public Offering 366
Arranging an Initial Public Offering/The Sale of Marvin Stock/The Underwriters/Costs of a New Issue/Underpricing of IPOs/Hot New-Issue Periods
- 15-3** Alternative Issue Procedures for IPOs 375
Types of Auction: a Digression
- 15-4** Security Sales by Public Companies 376
General Cash Offers/International Security Issues/The Costs of a General Cash Offer/Market Reaction to Stock Issues/Rights Issues
- 15-5** Private Placements and Public Issues 381
Summary 382 • Further Reading 383
Problem Sets 383 • Real-Time Data Analysis 387
Appendix: Marvin's New-Issue Prospectus 387

I Part Five Payout Policy and Capital Structure

16 Payout Policy 391

- 16-1** Facts about Payout 391

- 16-2** How Firms Pay Dividends and Repurchase Stock 392
How Firms Repurchase Stock
- 16-3** How Do Companies Decide on Payouts? 394
- 16-4** The Information in Dividends and Stock Repurchases 395
The Information Content of Share Repurchases
- 16-5** The Payout Controversy 397
Dividend Policy Is Irrelevant in Perfect Capital Markets/Dividend Irrelevance—An Illustration/Calculating Share Price/Stock Repurchase/Stock Repurchase and Valuation
- 16-6** The Rightists 402
Payout Policy, Investment Policy, and Management Incentives
- 16-7** Taxes and the Radical Left 404
Why Pay Any Dividends at All?/Empirical Evidence on Dividends and Taxes/The Taxation of Dividends and Capital Gains/Alternative Tax Systems
- 16-8** The Middle-of-the-Roaders 409
Payout Policy and the Life Cycle of the Firm
- Summary 411 • Further Reading 412
Problem Sets 412
- 17 Does Debt Policy Matter? 418**
-
- 17-1** The Effect of Financial Leverage in a Competitive Tax-free Economy 419
Enter Modigliani and Miller/The Law of Conservation of Value/An Example of Proposition 1
- 17-2** Financial Risk and Expected Returns 424
Proposition 2/How Changing Capital Structure Affects Beta
- 17-3** The Weighted-Average Cost of Capital 428
Two Warnings/Rates of Return on Levered Equity—The Traditional Position/Today’s Unsatisfied Clientele Are Probably Interested in Exotic Securities/Imperfections and Opportunities
- 17-4** A Final Word on the After-Tax Weighted-Average Cost of Capital 433
Summary 434 • Further Reading 434
Problem Sets 435

18 How Much Should a Corporation Borrow? 440

- 18-1** Corporate Taxes 441
How Do Interest Tax Shields Contribute to the Value of Stockholders’ Equity?/Recasting Merck’s Capital Structure/MM and Taxes
- 18-2** Corporate and Personal Taxes 444
- 18-3** Costs of Financial Distress 447
Bankruptcy Costs/Evidence on Bankruptcy Costs/Direct versus Indirect Costs of Bankruptcy/Financial Distress without Bankruptcy/Debt and Incentives/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 460
Debt and Equity Issues with Asymmetric Information/Implications of the Pecking Order/The Trade-off Theory vs. the Pecking-Order Theory—Some Recent Tests/The Bright Side and the Dark Side of Financial Slack/Is There a Theory of Optimal Capital Structure?
- Summary 465 • Further Reading 466
Problem Sets 467 • Real-Time Data Analysis 470

19 Financing and Valuation 471

- 19-1** The After-Tax Weighted-Average Cost of Capital 471
Review of Assumptions
- 19-2** Valuing Businesses 475
Valuing Rio Corporation/Estimating Horizon Value/WACC vs. the Flow-to-Equity Method
- 19-3** Using WACC in Practice 479
Some Tricks of the Trade/Mistakes People Make in Using the Weighted-Average Formula/Adjusting WACC When Debt Ratios and Business Risks Differ/Unlevering and Relevering Betas/The Importance of Rebalancing/The Modigliani–Miller Formula, Plus Some Final Advice

- 19-4** Adjusted Present Value 486
APV for the Perpetual Crusher/Other Financing Side Effects/APV for Businesses/APV for International Investments
- 19-5** Your Questions Answered 490
 Summary 492 • Further Reading 493
 Problem Sets 494 • Real-Time Data Analysis 498
 Appendix: Discounting Safe, Nominal Cash Flows 498

I Part Six Options

20 Understanding Options 502

- 20-1** Calls, Puts, and Shares 503
Call Options and Position Diagrams/Put Options/Selling Calls, Puts, and Shares/Position Diagrams Are Not Profit Diagrams
- 21-2** Financial Alchemy with Options 507
Spotting the Option
- 21-3** What Determines Option Values? 513
Risk and Option Values
 Summary 519 • Further Reading 519
 Problem Sets 519 • Real-Time Data Analysis 524

21 Valuing Options 525

- 21-1** A Simple Option-Valuation Model 525
Why Discounted Cash Flow Won't Work for Options/Constructing Option Equivalents from Common Stocks and Borrowing/Valuing the Google Put Option
- 21-2** The Binomial Method for Valuing Options 530
Example: The Two-Stage Binomial Method/The General Binomial Method/The Binomial Method and Decision Trees
- 21-3** The Black–Scholes Formula 534
Using the Black–Scholes Formula/The Risk of an Option/The Black–Scholes Formula and the Binomial Method
- 21-4** Black–Scholes in Action 538
Executive Stock Options/Warrants/Portfolio Insurance/Calculating Implied Volatilities

- 21-5** Option Values at a Glance 542
- 21-6** The Option Menagerie 543
 Summary 544 • Further Reading 544
 Problem Sets 545 • Real-Time Data Analysis 548
 Mini-Case: Bruce Honiball's Invention 549
 Appendix: How Dilution Affects Option Value 550

22 Real Options 554

- 22-1** The Value of Follow-on Investment Opportunities 554
Questions and Answers about Blitzen's Mark II/Other Expansion Options
- 22-2** The Timing Option 558
Valuing the Malted Herring Option/Optimal Timing for Real Estate Development
- 22-3** The Abandonment Option 561
The Zircon Subductor Project/Abandonment Value and Project Life/Temporary Abandonment
- 22-4** Flexible Production 566
- 22-5** Aircraft Purchase Options 567
- 22-6** A Conceptual Problem? 569
Practical Challenges
 Summary 571 • Further Reading 572
 Problem Sets 572

I Part Seven Debt Financing

23 Credit Risk and the Value of Corporate Debt 577

- 23-1** Yields on Corporate Debt 577
What Determines the Yield Spread?
- 23-2** The Option to Default 581
How the Default Option Affects a Bond's Risk and Yield/A Digression: Valuing Government Financial Guarantees
- 23-3** Bond Ratings and the Probability of Default 587
- 23-4** Predicting the Probability of Default 588
Credit Scoring/Market-Based Risk Models

- 23-5** Value at Risk 592
 Summary 594 • Further Reading 594
 Problem Sets 595 • Real-Time Data Analysis 596

24 The Many Different Kinds of Debt 597

- 24-1** Domestic Bonds, Foreign Bonds, and Eurobonds 598
24-2 The Bond Contract 599
Indenture, or Trust Deed/The Bond Terms
24-3 Security and Seniority 601
Asset-Backed Securities
24-4 Repayment Provisions 603
Sinking Funds/Call Provisions
24-5 Debt Covenants 605
24-6 Convertible Bonds and Warrants 607
The Value of a Convertible at Maturity/Forcing Conversion/Why Do Companies Issue Convertibles?/Valuing Convertible Bonds/A Variation on Convertible Bonds: The Bond–Warrant Package
24-7 Private Placements and Project Finance 612
Project Finance/Project Finance—Some Common Features/The Role of Project Finance
24-8 Innovation in the Bond Market 615
 Summary 617 • Further Reading 618
 Problem Sets 619
 Mini-Case: The Shocking Demise of Mr. Thorndike 623

25 Leasing 625

- 25-1** What Is a Lease? 625
25-2 Why Lease? 626
Sensible Reasons for Leasing/Some Dubious Reasons for Leasing
25-3 Operating Leases 630
Example of an Operating Lease/Lease or Buy?
25-4 Valuing Financial Leases 632
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

- 25-5** When Do Financial Leases Pay? 637
Leasing Around the World
25-6 Leveraged Leases 638
 Summary 640 • Further Reading 640
 Problem Sets 641

I Part Eight Risk Management

26 Managing Risk 645

- 26-1** Why Manage Risk? 645
Reducing the Risk of Cash Shortfalls or Financial Distress/Agency Costs May Be Mitigated by Risk Management/The Evidence on Risk Management
26-2 Insurance 648
How BP Changed Its Insurance Strategy
26-3 Reducing Risk with Options 651
26-4 Forward and Futures Contracts 652
A Simple Forward Contract/Futures Exchanges/The Mechanics of Futures Trading/Trading and Pricing Financial Futures Contracts/Spot and Futures Prices—Commodities/More about Forward Contracts/Homemade Forward Rate Contracts
26-5 Swaps 660
Interest Rate Swaps/Currency Swaps/Total Return Swaps
26-6 How to Set Up a Hedge 664
26-7 Is “Derivative” a Four-Letter Word? 666
 Summary 668 • Further Reading 669
 Problem Sets 670 • Real-Time Data Analysis 675

27 Managing International Risks 676

- 27-1** The Foreign Exchange Market 676
27-2 Some Basic Relationships 678
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?
27-3 Hedging Currency Risk 687
Transaction Exposure and Economic Exposure

- 27-4** Exchange Risk and International Investment Decisions 690
The Cost of Capital for International Investments/Do Some Countries Have a Lower Interest Rate?
- 27-5** Political Risk 694
- Summary 696 • Further Reading 696
- Problem Sets 698 • Real-Time Data Analysis 701
- Mini-Case: Exacta, s.a. 702

I Part Nine Financial Planning and Working Capital Management

28 Financial Analysis 704

- 28-1** Financial Statements 704
- 28-2** Lowe's Financial Statements 705
The Balance Sheet/The Income Statement
- 28-3** Measuring Lowe's Performance 708
Economic Value Added (EVA)/Accounting Rates of Return/Problems with EVA and Accounting Rates of Return
- 28-4** Measuring Efficiency 713
- 28-5** Analyzing the Return on Assets: the Du Pont System 714
The Du Pont System
- 28-6** Measuring Leverage 716
Leverage and the Return on Equity
- 28-7** Measuring Liquidity 718
- 28-8** Interpreting Financial Ratios 720
- Summary 724 • Further Reading 724
- Problem Sets 725

29 Financial Planning 731

- 29-1** Links between Long-Term and Short-Term Financing Decisions 731
- 29-2** Tracing Changes in Cash 734
The Cash Cycle
- 29-3** Cash Budgeting 737
Preparing the Cash Budget: Inflows/Preparing the Cash Budget: Outflows

- 29-4** The Short-Term Financing Plan 740
Options for Short-Term Financing/Dynamic's Financing Plan/Evaluating the Plan/A Note on Short-Term Financial Planning Models
- 29-5** Long-term Financial Planning 743
Why Build Financial Plans?/A Long-Term Financial Planning Model for Dynamic Mattress/Pitfalls in Model Design/Choosing a Plan
- 29-6** Growth and External Financing 748
- Summary 749 • Further Reading 750
- Problem Sets 750 • Real-Time Data Analysis 756

30 Working Capital Management 757

- 30-1** Inventories 758
- 30-2** Credit Management 760
Terms of Sale/The Promise to Pay/Credit Analysis/The Credit Decision/Collection Policy
- 30-3** Cash 766
How Purchases Are Paid For/Speeding up Check Collections/International Cash Management/Paying for Bank Services
- 30-4** Marketable Securities 771
Calculating the Yield on Money-Market Investments/Yields on Money-Market Investments/The International Money Market/Money-Market Instruments
- 30-5** Sources of Short-Term Borrowing 777
Bank Loans/Commercial Paper/Medium-Term Notes
- Summary 782 • Further Reading 784
- Problem Sets 784 • Real-Time Data Analysis 791

I Part Ten Mergers, Corporate Control, and Governance

31 Mergers 792

- 31-1** Sensible Motives for Mergers 792
Economies of Scale/Economies of Vertical Integration/Complementary Resources/Surplus Funds/Eliminating Inefficiencies/Industry Consolidation

- 31-2** Some Dubious Reasons for Mergers 798
Diversification/Increasing Earnings per Share: The Bootstrap Game/Lower Financing Costs
- 31-3** Estimating Merger Gains and Costs 801
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
- 31-4** The Mechanics of a Merger 805
Mergers, Antitrust Law, and Popular Opposition/The Form of Acquisition/Merger Accounting/Some Tax Considerations
- 31-5** Proxy Fights, Takeovers, and the Market for Corporate Control 808
Proxy Contests/Takeovers/Oracle Bids for PeopleSoft/Takeover Defenses/Who Gains Most in Mergers?
- 31-6** Mergers and the Economy 814
Merger Waves/Do Mergers Generate Net Benefits?
- Summary 816 • Further Reading 817
Problem Sets 817 • Appendix: Conglomerate Mergers and Value Additivity 820

32 Corporate Restructuring 822

- 32-1** Leveraged Buyouts 822
RJR Nabisco/Barbarians at the Gate?/Leveraged Restructurings/LBOs and Leveraged Restructurings
- 32-2** Fusion and Fission in Corporate Finance 827
Spin-offs/Carve-outs/Asset Sales/Privatization and Nationalization
- 32-3** Private Equity 831
Private-Equity Partnerships/Are Private-Equity Funds Today’s Conglomerates?
- 32-4** Bankruptcy 837
Is Chapter 11 Efficient?/Workouts/Alternative Bankruptcy Procedures
- Summary 842 • Further Reading 843
Problem Sets 844

33 Governance and Corporate Control around the World 846

- 33-1** Financial Markets and Institutions 846
Investor Protection and the Development of Financial Markets
- 33-2** Ownership, Control, and Governance 851
Ownership and Control in Japan/Ownership and Control in Germany/European Boards of Directors/Ownership and Control in Other Countries/Conglomerates Revisited
- 33-3** Do These Differences Matter? 859
Risk and Short-termism/Growth Industries and Declining Industries/Transparency and Governance
- Summary 863 • Further Reading 864
Problem Sets 864

I Part Eleven Conclusion

34 Conclusion: What We Do and Do not Know about Finance 866

- 34-1** What We Do Know: The Seven Most Important Ideas in Finance 866
1. Net Present Value/2. The Capital Asset Pricing Model/3. Efficient Capital Markets/4. Value Additivity and the Law of Conservation of Value/5. Capital Structure Theory/6. Option Theory/7. Agency Theory
- 34-2** What We Do Not Know: 10 Unsolved Problems in Finance 869
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 Payout Controversy?/7. What Risks Should a Firm Take?/8. What Is the Value of Liquidity?/9. How Can We Explain Merger Waves?/10. Why Are Financial Systems So Prone to Crisis?
- 34-3** A Final Word 875

**Appendix: Answers to Select Basic
Problems A**

Glossary G

Index I-1

Note: Present value tables are available on the book's
Web site, www.mhhe.com/bma.

You can see examples of arrows *4a* and *4b* in Table 1.1. GlaxoSmithKline financed its drug research and development by reinvesting earnings (arrow *4a*). Shell decided to return cash to shareholders by buying back its stock (arrow *4b*). Shell could have chosen instead to pay the money out as additional cash dividends.

Notice how the financial manager stands between the firm and outside investors. On the one hand, the financial manager helps manage the firm's operations, particularly by helping to make good investment decisions. On the other hand, the financial manager deals with investors—not just with shareholders but also with financial institutions such as banks and with financial markets such as the New York Stock Exchange.

The Investment Trade-off

Now look at Figure 1.2, which sets out the fundamental trade-off for corporate investment decisions. The corporation has a proposed investment project (a real asset). Suppose it has cash on hand sufficient to finance the project. The financial manager is trying to decide whether to invest in the project. If the financial manager decides not to invest, the corporation can pay out the cash to shareholders, say as an extra dividend. (The investment and dividend arrows in Figure 1.2 are arrows 2 and *4b* in Figure 1.1.)

Assume that the financial manager is acting in the interests of the corporation's owners, its stockholders. What do these stockholders want the financial manager to do? The answer depends on the rate of return on the investment project and on the rate of return that the stockholders can earn by investing in financial markets. If the return offered by the investment project is higher than the rate of return that shareholders can get by investing on their own, then the shareholders would vote for the investment project. If the investment project offers a lower return than shareholders can achieve on their own, the shareholders would vote to cancel the project and take the cash instead.

Figure 1.2 could apply to Wal-Mart's decisions to invest in new retail stores, for example. Suppose Wal-Mart has cash set aside to build 10 new stores in 2012. It could go ahead with the new stores, or it could choose to cancel the investment project and instead pay the cash out to its stockholders. If it pays out the cash, the stockholders could then invest for themselves.

Suppose that Wal-Mart's new-stores project is just about as risky as the U.S. stock market and that investment in the stock market offers a 10% expected rate of return. If the new stores offer a superior rate of return, say 20%, then Wal-Mart's stockholders would be

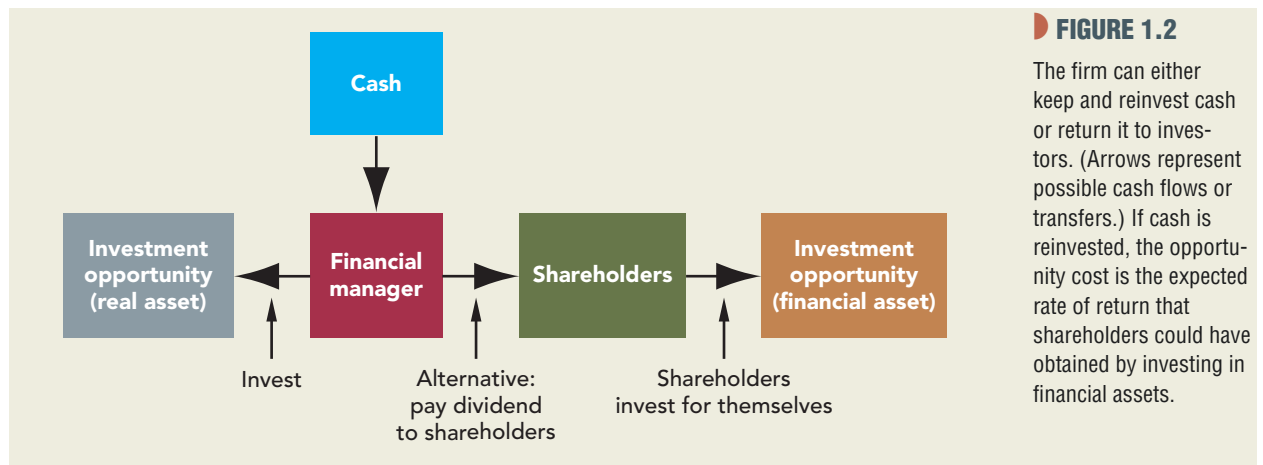


FIGURE 1.2

The firm can either keep and reinvest cash or return it to investors. (Arrows represent possible cash flows or transfers.) If cash is reinvested, the opportunity cost is the expected rate of return that shareholders could have obtained by investing in financial assets.

happy to let Wal-Mart keep the cash and invest it in the new stores. If the new stores offer only a 5% return, then the stockholders are better off with the cash and without the new stores; in that case, the financial manager should turn down the investment project.

As long as a corporation's proposed investments offer higher rates of return than its shareholders can earn for themselves in the stock market (or in other financial markets), its shareholders will applaud the investments and its stock price will increase. But if the company earns an inferior return, shareholders boo, stock price falls, and stockholders demand their money back so that they can invest on their own.

In our example, the minimum acceptable rate of return on Wal-Mart's new stores is 10%. This minimum rate of return is called a *hurdle rate* or *cost of capital*. It is really an **opportunity cost of capital**, because it depends on the investment *opportunities* available to investors in financial markets. Whenever a corporation invests cash in a new project, its shareholders lose the opportunity to invest the cash on their own. Corporations increase value by accepting all investment projects that earn more than the opportunity cost of capital.

Notice that the opportunity cost of capital depends on the risk of the proposed investment project. Why? It's not just because shareholders are risk-averse. It's also because shareholders have to trade off risk against return when they invest on their own. The safest investments, such as U.S. government debt, offer low rates of return. Investments with higher expected rates of return—the stock market, for example—are riskier and sometimes deliver painful losses. (The U.S. stock market was down 38% in 2008, for example.) Other investments are riskier still. For example, high-tech growth stocks offer the prospect of higher rates of return, but are even more volatile.

Notice too that the opportunity cost of capital is generally *not* the interest rate that the company pays on a loan from a bank or on a bond. If the company is making a risky investment, the opportunity cost is the expected return that investors can achieve in financial markets at the same level of risk. The expected return on risky securities is normally well above the interest rate on corporate borrowing.

Managers look to the financial markets to measure the opportunity cost of capital for the firm's investment projects. They can observe the opportunity cost of capital for safe investments by looking up current interest rates on safe debt securities. For risky investments, the opportunity cost of capital has to be estimated. We start to tackle this task in Chapter 7.

Estimating the opportunity cost of capital is one of the hardest tasks in financial management, even when the stock, bond, and other financial markets are behaving normally. When these markets are misbehaving, precise estimates of the cost of capital can be temporarily out of the question.

Financial markets in the U.S. and most developed countries work well most of the time but just like the little girl in the poem, "When they are good, they are very good indeed, but when they are bad they are horrid."⁵ In 2008 financial markets were horrid. Security prices bounced around like Tigger on stimulants, and for some types of investment the market temporarily disappeared. Financial markets no longer offered a good yardstick for a project's value or the opportunity cost of capital. That was a year in which financial managers really earned their keep.

We give more specific examples of investment decisions and the opportunity cost of capital at the start of the next chapter.

⁵The poem is attributed to Longfellow:

There was a little girl,
Who had a little curl,
Right in the middle of her forehead.
When she was good,
She was very good indeed,
But when she was bad she was horrid.