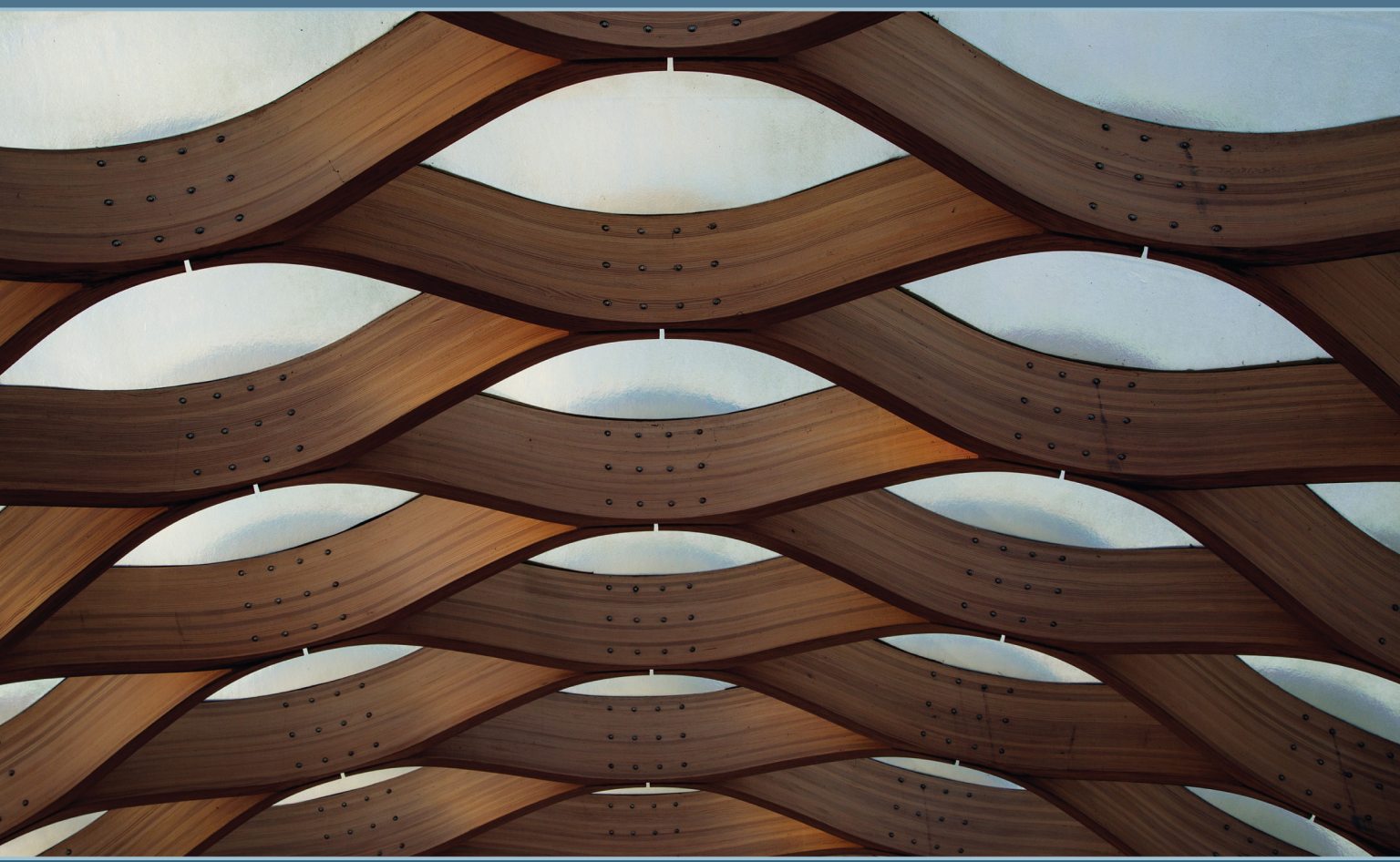
Thirteenth Edition

Principles of CORPORATE FINANCE



Brealey Myers Allen

Mc Graw Hill Education

Principles *of* Corporate Finance

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Principles *of* Corporate Finance

THIRTEENTH EDITION

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Mc Graw Hill Education

PRINCIPLES OF CORPORATE FINANCE, THIRTEENTH EDITION

This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 0 LWI/LWI 22 21 20 19

ISBN 978-1-260-01390-0
MHID 1-260-01390-1

Portfolio Manager: *Charles Synovec*
Product Developer: *Noelle Bathurst*
Marketing Manager: *Allison McCabe-Carroll*
Content Project Managers: *Fran Simon and Jamie Koch*
Buyer: *Laura Fuller*
Design: *Matt Diamond*
Content Licensing Specialist: *Ann Marie Jannette*
Cover Image: *Emily Tolan/Shutterstock*
Compositor: *SPi Global*

Library of Congress Cataloging-in-Publication Data

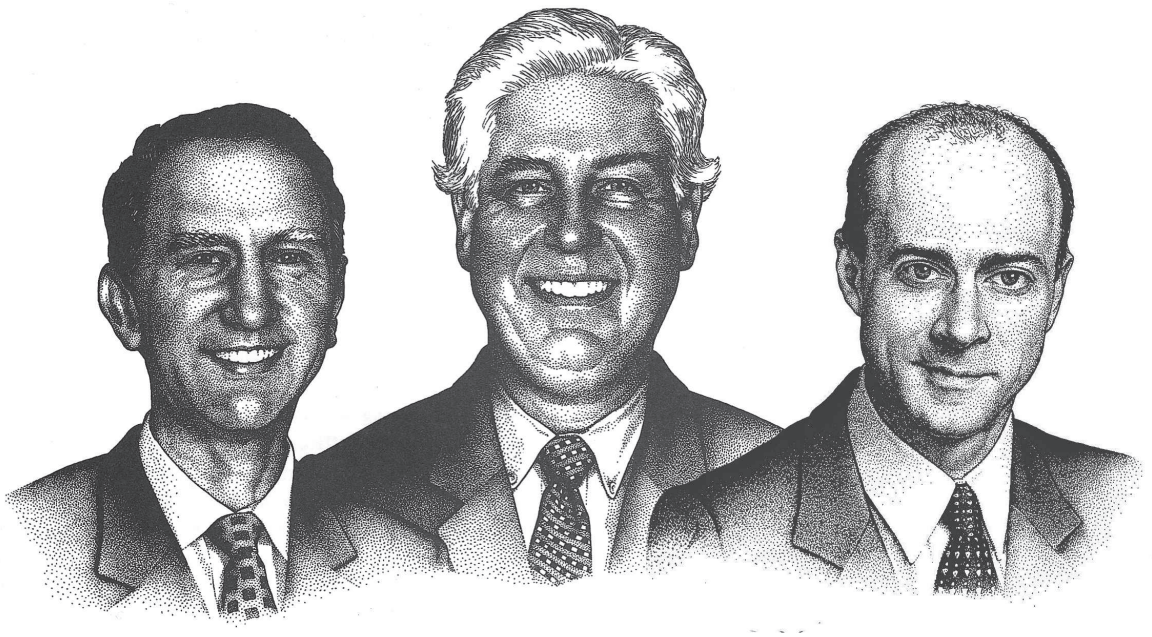
Names: Brealey, Richard A., author. | Myers, Stewart C., author. | Allen, Franklin, 1956- author.
Title: Principles of corporate finance / Richard A. Brealey, Professor of Finance, London Business School, Stewart C. Myers, Robert C. Merton (1970) Professor of Finance, Sloan School of Management, Massachusetts Institute of Technology, Franklin Allen, Professor of Finance and Economics, Imperial College London.
Description: Thirteenth edition. | New York, NY : McGraw-Hill Education, [2020]
Identifiers: LCCN 2018040697 | ISBN 9781260013900 (alk. paper)
Subjects: LCSH: Corporations—Finance.
Classification: LCC HG4026 .B667 2020 | DDC 658.15—dc23
LC record available at https://lccn.loc.gov/2018040697

mheducation.com/highered

Dedication

To our parents.

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. Books written by Professor Brealey include *Introduction to Risk and Return from Common Stocks.*

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Professor of Finance and Economics, Imperial College London, and Emeritus 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, Society for Financial Studies, Financial Intermediation Research Society, Financial Management Association, and a fellow of the Econometric Society and the British Academy. His research has focused on financial innovation, asset price bubbles, comparing financial systems, and financial crises. He is Director of the Brevan Howard Centre for Financial Analysis at Imperial College Business School.

Preface

This book describes the theory and practice of corporate finance. We hardly need to explain why financial managers have to master the practical aspects of their job, but we should spell out why down-to-earth managers need to bother with theory.

Managers learn from experience how to cope with routine problems. But the best managers are also able to respond to change. To do so you need more than time-honored rules of thumb; you must understand why companies and financial markets behave the way they do. In other words, you need a *theory* of finance.

Does that sound intimidating? It shouldn't. Good theory helps you to grasp what is going on in the world around you. It helps you to ask the right questions when times change and new problems need to be analyzed. It also tells you which things you do *not* need to worry about. Throughout this book, we show how managers use financial theory to solve practical problems.

Of course, the theory presented in this book is not perfect and complete—no theory is. There are some famous controversies where financial economists cannot agree. We have not glossed over these disagreements. We set out the arguments for each side and tell you where we stand.

Much of this book is concerned with understanding what financial managers do and why. But we also say what financial managers *should* do to increase company value. Where theory suggests that financial managers are making mistakes, we say so, while admitting that there may be hidden reasons for their actions. In brief, we have tried to be fair but to pull no punches.

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 into 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.

Changes in the Thirteenth Edition

We are proud of the success of previous editions of *Principles,* and we have done our best to make the thirteenth edition even better.

Some of the biggest changes in this edition were prompted by the tax changes enacted in the U.S. Tax Cuts and Jobs Act passed in December 2017. One of the chapters most affected was Chapter 6, which is concerned with calculating the present value of capital projects. We describe the major tax changes in that chapter, and we work through an example of a capital budgeting problem with 100% bonus depreciation and a 21% corporate tax rate. But the U.S. system of immediate expensing of capital expenditures is almost unique. So we also set out examples of the more common systems of straight-line depreciation and double-declining-balance, which is essentially identical to the former U.S. MACRS depreciation.

Another 2017 tax change was the limit imposed on interest tax shields. For companies that are caught by this change, it may no longer make sense to discount cash flows by the weighted average cost of capital. We discuss the implications for company debt policy in Chapter 18. In Chapter 19, we show how adjusted present value can be used in these cases to value companies and projects. Similarly, the cap on interest tax shields complicates the valuation of leases. In Chapter 25, we show that when the cap is operative, leases need to be valued by constructing an equivalent loan. Finally, in Chapter 32, we consider the possible effect on the private-equity market.

The third important change was the switch by the United States to a territorial tax system. This has major implications for tax strategies, which we largely discuss in the chapters on working capital management (Chapter 30) and mergers (Chapter 31).

U.S. financial managers work in a global environment and need to understand the financial systems of other countries. Also, many of the text's readers come from countries other than the United States. Therefore, in recent editions we have progressively introduced more international material, including information about the major developing economies, such as China and India. In the current edition, we have continued to augment the international content. We hope that an understanding of practices in other countries will also lead to a better understanding of the characteristics of one's own financial system.

Users of previous editions of this book will not find dramatic changes in coverage or in the ordering of topics. However, there are a number of chapters that have been thoroughly rewritten. For example, the material on agency issues in Chapter 12 has been substantially revised. Chapter 13 on market efficiency and behavioral

finance is now fresher and more up to date. Chapter 23 on credit risk focuses more on the practical issues of forecasting default probabilities.

Throughout, we have tried to make the book more up-to-date and easier to read. In many cases, the changes consist of some updated data here and a new example there. Often, these additions reflect some recent development in the financial markets or company practice.

In the 11th edition, we added digital extensions through our Beyond the Page features, or "apps" as we call them. This extra material can allow us to escape from some of the constraints of the printed page by providing more explanation for readers who need it and additional material for those who would like to dig deeper. The Beyond the Page features include extra examples and spreadsheet programs, as well as some interesting anecdotes.

There are now more than 150 of these apps. They are all seamlessly available with a click on the e-versions of the book, but they are also readily accessible from the traditional hard copy of the text through the shortcut URLs. Check out **mhhe.com/brealey13e** to learn more.

Examples of these applications include:

- **Chapter 1** In Chapter 1, we refer to Bernard Madoff's ponzi scheme. But this scam pales into insignificance compared with the great Albanian ponzi scheme, which is described in an app.
- **Chapter 2** Do you need to learn how to use a financial calculator? The Beyond the Page financial calculator application shows how to do so.
- **Chapter 3** Would you like to calculate a bond's duration, see how it predicts the effect of small interest rate changes on bond price, calculate the duration of a common stock, or learn how to measure convexity? The duration application for Figure 3.2 allows you to do so.
- **Chapter 5** Want more practice in valuing annuities? There is an application that provides worked examples and hands-on practice.
- **Chapter 9** How about measuring the betas of the Fama–French three-factor model for U.S. stocks? The Beyond the Page beta estimation application does this.
- **Chapter 14** Ever wonder why Google split its stock into A and C shares? An app provides the answer.
- **Chapter 15** Want to now how companies can raise capital by an initial coin offering? There is an app on the topic.
- **Chapter 19** The text briefly describes the flow-to-equity method for valuing businesses, but using the method can be tricky. We provide an application that guides you step by step.
- **Chapter 20** The Black–Scholes Beyond the Page application provides an option calculator. It also shows how to estimate the option's sensitivity to changes in the inputs and how to measure an option's risk.
- **Chapter 28** Would you like to view the most recent financial statements for different U.S. companies and calculate their financial ratios? There is an application that will do this for you.

We believe that the apps offer an opportunity to widen the types of material that can be made available and help the reader to decide how deeply he or she wishes to explore a topic.

We have added end-of-chapter questions, merged what was becoming a false distinction between basic and intermediate questions, and reordered the questions to follow better the same sequence as the chapter.

Making Learning Easier

Each chapter of the book includes an introductory preview, a summary, and an annotated list of suggested further reading. The list of possible candidates for further reading is now voluminous. Rather than trying to include every important article, we largely list survey articles or general books. We give more specific references in footnotes.

Each chapter is followed by a set of problems on both numerical and conceptual topics and a few challenge problems. Answers to the starred problems appear in the Appendix at the end of the book.

We included a Finance on the Web section in chapters where it makes sense to do so. This section now houses a number of Web Projects, along with new Data Analysis problems. These exercises seek to familiarize the reader with some useful websites and to explain how to download and process data from the web.

The book also contains 13 end-of-chapter Mini-Cases. These include specific questions to guide the case analyses. Answers to the mini-cases are available to instructors on the book's website.

Spreadsheet programs such as Excel are tailor-made for many financial calculations. Several chapters include boxes that introduce the most useful financial functions and provide some short practice questions. We show how to use the Excel function key to locate the function and then enter the data. We think that this approach is much simpler than trying to remember the formula for each function.

We conclude the book with a glossary of financial terms.

The 34 chapters in this book are divided into 11 parts. Parts 1, 2, and 3 cover valuation and capital investment decisions, including portfolio theory, asset pricing

models, and the cost of capital. Parts 4 through 8 cover payout policy, capital structure, options (including real options), corporate debt, and risk management. Part 9 covers financial analysis, planning, and working-capital management. Part 10 covers mergers and acquisitions, corporate restructuring, and corporate governance around the world. Part 11 concludes.

We realize that instructors will wish to select topics and may prefer a different sequence. We have therefore written chapters so that topics can be introduced in several logical orders. For example, there should be no difficulty in reading the chapters on financial analysis and planning before the chapters on valuation and capital investment.

Acknowledgments

We have a long list of people to thank for their helpful criticism of earlier editions and for assistance in preparing this one. They include Faiza Arshad, Aleijda de Cazenove Balsan, Kedran Garrison, Robert Pindyck, Donna Cheung, and Gretchen Slemmons at MIT; Elroy Dimson, Paul Marsh, Mike Staunton, and Stefania Uccheddu at London Business School; Lynda Borucki, Marjorie Fischer, Larry Kolbe, Michael Vilbert, Bente Villadsen, and Fiona Wang at The Brattle Group Inc.; Alex Triantis at the University of Maryland; Adam Kolasinski at Texas A&M University; Simon Gervais at Duke University; Michael Chui at Bank for International Settlements; Pedro Matos at the University of Southern California; Yupana Wiwattanakantang at National University of Singapore; Nickolay Gantchev at the Southern Methodist University; Tina Horowitz, and Lin Shen, at the University of Pennsylvania; Darien Huang at Tudor Investment; Julie Wulf at Harvard University; Jinghua Yan at SAC Capital; Bennett Stewart at EVA Dimensions; and Mobeen Iqbal and Antoine Uettwiller at Imperial College London. We are grateful to Cyrus Brealey for his suggestions.

We would also like to thank the dedicated experts who have helped with updates to the instructor materials and online content in Connect and LearnSmart, including Kay Johnson, Blaise Roncagli, Deb Bauer, Mishal Rawaf, Marc-Anthony Isaacs, Frank Ryan, Peter Crabb, Victoria Mahan, Nicholas Racculia, Angela Treinen, and Kent Ragan.

We want to express our appreciation to those instructors whose insightful comments and suggestions were invaluable to us during the revision process:

Ibrahim Affaneh *Indiana University of Pennsylvania*
Neyaz Ahmed *University of Maryland*
Alexander Amati *Rutgers University, New Brunswick*
Anne Anderson *Lehigh University*
Noyan Arsen *Koc University*
Anders Axvarn *Gothenburg University*
John Banko *University of Florida, Gainesville*
Michael Barry *Boston College*
Jan Bartholdy *ASB, Denmark*
Penny Belk *Loughborough University*
Omar Benkato *Ball State University*
Eric Benrud *University of Baltimore*
Ronald Benson *University of Maryland, University College*
Peter Berman *University of New Haven*
Tom Boulton *Miami University of Ohio*
Edward Boyer *Temple University*
Alon Brav *Duke University*
Jean Canil *University of Adelaide*
Robert Carlson *Bethany College*
Chuck Chahyadi *Eastern Illinois University*
Fan Chen *University of Mississippi*
Celtin Ciner *University of North Carolina, Wilmington*
John Cooney *Texas Tech University*
Charles Cuny *Washington University, St. Louis*
John Davenport *Regent University*
Ray DeGennaro *University of Tennessee, Knoxville*
Adri DeRidder *Gotland University*
William Dimovski *Deakin University, Melbourne*
David Ding *Nanyang Technological University*
Robert Duvic *University of Texas at Austin*
Alex Edmans *London Business School*
Susan Edwards *Grand Valley State University*
Riza Emekter *Robert Morris University*
Robert Everett *Johns Hopkins University*
Dave Fehr *Southern New Hampshire University*
Donald Flagg *University of Tampa*
Frank Flanegin *Robert Morris University*
Zsuzanna Fluck *Michigan State University*
Connel Fullenkamp *Duke University*
Mark Garmaise *University of California, Los Angeles*
Sharon Garrison *University of Arizona*
Christopher Geczy *University of Pennsylvania*
George Geis *University of Virginia*
Stuart Gillan *University of Delaware*
Felix Goltz *Edhec Business School*
Ning Gong *Melbourne Business School*
Levon Goukasian *Pepperdine University*
Gary Gray *Pennsylvania State University*
C. J. Green *Loughborough University*
Mark Griffiths *Thunderbird, American School of International Management*
Re-Jin Guo *University of Illinois, Chicago*
Ann Hackert *Idaho State University*
Winfried Hallerbach *Erasmus University, Rotterdam*
Milton Harris *University of Chicago*
Mary Hartman *Bentley College*
Glenn Henderson *University of Cincinnati*
Donna Hitscherich *Columbia University*
Ronald Hoffmeister *Arizona State University*
James Howard *University of Maryland, College Park*
George Jabbour *George Washington University*

Ravi Jagannathan *Northwestern University*
Abu Jalal *Suffolk University*
Nancy Jay *Mercer University*
Thadavillil (Nathan) Jithendranathan *University of Saint Thomas*
Kathleen Kahle *University of Arizona*
Jarl Kallberg *NYU, Stern School of Business*
Ron Kaniel *University of Rochester*
Steve Kaplan *University of Chicago*
Eric Kelley *University of Arizona*
Arif Khurshed *Manchester Business School*
Ken Kim *University of Wisconsin, Milwaukee*
Jiro Eduoard Kondo *Northwestern University Kellogg School of Management*
C. R. Krishnaswamy *Western Michigan University*
George Kutner *Marquette University*
Dirk Laschanzky *University of Iowa*
Scott Lee *Texas A&M University*
Bob Lightner *San Diego Christian College*
David Lins *University of Illinois, Urbana*
Brandon Lockhart *University of Nebraska, Lincoln*
David Lovatt *University of East Anglia*
Greg Lucado *University of the Sciences in Philadelphia*
Debbie Lucas *Northwestern University*
Brian Lucey *Trinity College, Dublin*
Suren Mansinghka *University of California, Irvine*
Ernst Maug *Mannheim University*
George McCabe *University of Nebraska*
Eric McLaughlin *California State University, Pomona*
Joe Messina *San Francisco State University*
Tim Michael *University of Houston, Clear Lake*
Dag Michalsen *Bl, Oslo*
Franklin Michello *Middle Tennessee State University*
Peter Moles *University of Edinburgh*
Katherine Morgan *Columbia University*
James Nelson *East Carolina University*
James Owens *West Texas A&M University*
Darshana Palkar *Minnesota State University, Mankato*
Claus Parum *Copenhagen Business School*
Dilip Patro *Rutgers University*
John Percival *University of Pennsylvania*
Birsel Pirim *University of Illinois, Urbana*
Latha Ramchand *University of Houston*
Narendar V. Rao *Northeastern University*
Rathin Rathinasamy *Ball State University*
Raghavendra Rau *Purdue University*
Joshua Raugh *University of Chicago*
Charu Reheja *Wake Forest University*
Thomas Rhee *California State University, Long Beach*
Tom Rietz *University of Iowa*
Robert Ritchey *Texas Tech University*
Michael Roberts *University of Pennsylvania*
Mo Rodriguez *Texas Christian University*
John Rozycki *Drake University*
Frank Ryan *San Diego State University*
Marc Schauten *Eramus University*
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Jay Shanken *Emory University*
Chander Shekhar *University of Melbourne*
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Richard Simonds *Michigan State University*
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Tim Sullivan *Bentley College*
Shrinivasan Sundaram *Ball State University*
Chu-Sheng Tai *Texas Southern University*
Tom Tallerico *Dowling College*
Stephen Todd *Loyola University, Chicago*
Walter Torous *University of California, Los Angeles*
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Patrick Wilkie *University of Virginia*
Matt Will *University of Indianapolis*
David Williams *Texas A&M University, Commerce*
Art Wilson *George Washington University*
Shee Wong *University of Minnesota, Duluth*
Bob Wood *Tennessee Tech University*
Fei Xie *George Mason University*
Minhua Yang *University of Central Florida*
David Zalewski *Providence College*
Chenying Zhang *University of Pennsylvania*

This list is surely incomplete. We know how much we owe to our colleagues at the London Business School, MIT's Sloan School of Management, Imperial College London, and the University of Pennsylvania's Wharton School. In many cases, the ideas that appear in this book are as much their ideas as ours.

We would also like to thank all those at McGraw-Hill Education who worked on the book, including Chuck Synovec, Executive Brand Manager; Allison McCabe-Carroll, Senior Product Developer; Trina Mauer, Executive Marketing Manager; Dave O'Donnell, Marketing Specialist; Fran Simon, Project Manager; Matt Diamond, Designer; and Angela Norris, Digital Product Analyst.

Richard A. Brealey
Stewart C. Myers
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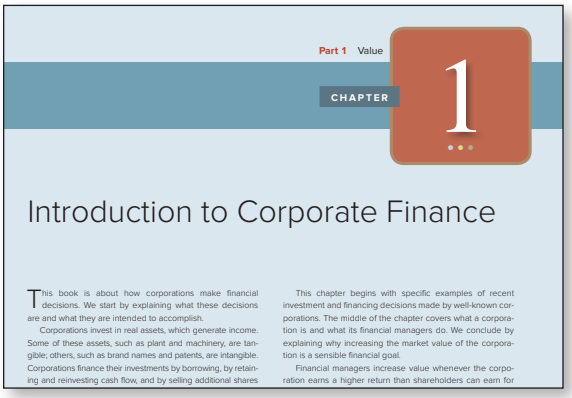
Pedagogical Features

Chapter Overview

Each chapter begins with a brief narrative and outline to explain the concepts that will be covered in more depth. Useful websites related to material for each Part are provided in the Connect library.


Part 1 Value

CHAPTER 1

Introduction to Corporate Finance

This book is about how corporations make financial decisions. We start by explaining what these decisions are and what they are intended to accomplish.

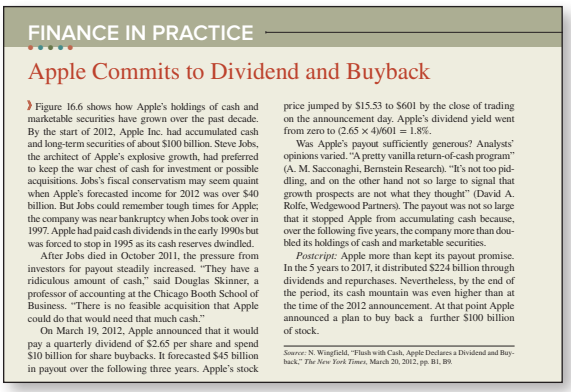
Corporations invest in real assets, which generate income. Some of these assets, such as plant and machinery, are tangible; others, such as brand names and patents, are intangible. Corporations finance their investments by borrowing, by retaining and reinvesting cash flow, and by selling additional shares

This chapter begins with specific examples of recent investment and financing decisions made by well-known corporations. The middle of the chapter covers what a corporation is and what its financial managers do. We conclude by explaining why increasing the market value of the corporation is a sensible financial goal.

Financial managers increase value whenever the corporation earns a higher return than shareholders can earn for

Finance in Practice Boxes

Relevant news articles, often from financial publications, appear in various chapters throughout the text. Aimed at bringing real-world flavor into the classroom, these boxes provide insight into the business world today.


FINANCE IN PRACTICE

Apple Commits to Dividend and Buyback

Figure 16.6 shows how Apple's holdings of cash and marketable securities have grown over the past decade. By the start of 2012, Apple Inc. had accumulated cash and long-term securities of about $100 billion. Steve Jobs, the architect of Apple's explosive growth, had preferred to keep the war chest of cash for investment or possible acquisitions. Jobs's fiscal conservatism may seem quaint when Apple's forecasted income for 2012 was over $40 billion. But Jobs could remember tough times for Apple; the company was near bankruptcy when Jobs took over in 1997. Apple had paid cash dividends in the early 1990s but was forced to stop in 1995 as its cash reserves dwindled.

After Jobs died in October 2011, the pressure from investors for payout steadily increased. "They have a ridiculous amount of cash," said Douglas Skinner, a professor of accounting at the Chicago Booth School of Business. "There is no feasible acquisition that Apple could do that would need that much cash."

On March 19, 2012, Apple announced that it would pay a quarterly dividend of $2.65 per share and spend $10 billion for share buybacks. It forecasted $45 billion in payout over the following three years. Apple's stock price jumped by $15.53 to $601 by the close of trading on the announcement day. Apple's dividend yield went from zero to (2.65 × 4)/601 = 1.8%.

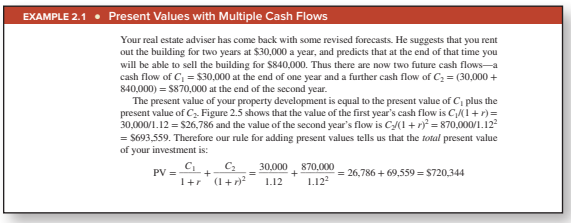
Was Apple's payout sufficiently generous? Analysts' opinions varied. "A pretty vanilla return-of-cash program" (A. M. Sacconaghi, Bernstein Research). "It's not too piddling, and on the other hand not so large to signal that growth prospects are not what they thought" (David A. Rolfe, Wedgewood Partners). The payout was not so large that it stopped Apple from accumulating cash because, over the following five years, the company more than doubled its holdings of cash and marketable securities.

Postcript: Apple more than kept its payout promise. In the 5 years to 2017, it distributed $224 billion through dividends and repurchases. Nevertheless, by the end of the period, its cash mountain was even higher than at the time of the 2012 announcement. At that point Apple announced a plan to buy back a further $100 billion of stock.

Source: N. Wingfield, "Flush with Cash, Apple Declares a Dividend and Buyback," *The New York Times*, March 20, 2012, pp. B1, B9.

Numbered Examples

Numbered and titled examples are called out within chapters to further illustrate concepts. Students can learn how to solve specific problems step-by-step and apply key principles to answer concrete questions and scenarios.


EXAMPLE 2.1 • Present Values with Multiple Cash Flows

Your real estate adviser has come back with some revised forecasts. He suggests that you rent out the building for two years at $30,000 a year, and predicts that at the end of that time you will be able to sell the building for $840,000. Thus there are now two future cash flows—a cash flow of C_1 = $30,000 at the end of one year and a further cash flow of C_2 = (30,000 + 840,000) = $870,000 at the end of the second year.

The present value of your property development is equal to the present value of C_1 plus the present value of C_2. Figure 2.5 shows that the value of the first year's cash flow is $C_1/(1 + r)$ = 30,000/1.12 = $26,786 and the value of the second year's flow is $C_2/(1 + r)^2$ = 870,000/1.12^2 = $693,559. Therefore our rule for adding present values tells us that the *total* present value of your investment is:

$$PV = \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} = \frac{30{,}000}{1.12} + \frac{870{,}000}{1.12^2} = 26{,}786 + 69{,}559 = \$720{,}344$$

Beyond the Page Interactive Content and Applications

Additional resources and hands-on applications are just a click away. Students can use the web address or click on the icon in the eBook to learn more about key concepts and try out calculations, tables, and figures when they go Beyond the Page.


BEYOND THE PAGE

Major world stock exchanges

mhhe.com/brealey13e


BEYOND THE PAGE

Try It! Figure 4.1: Value and the investor's horizon

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Excel

Spreadsheet Functions Boxes

These boxes provide detailed examples of how to use Excel spreadsheets when applying financial concepts. Questions that apply to the spreadsheet follow for additional practice.

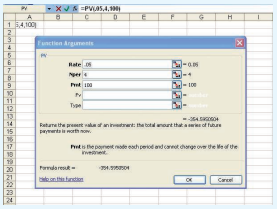
USEFUL SPREADSHEET FUNCTIONS

Discounting Cash Flows

Spreadsheet programs such as Excel provide built-in functions to solve discounted cash flow (DCF) problems. You can find these functions by pressing *fx* on the Excel toolbar. If you then click on the function that you wish to use, Excel asks you for the inputs that it needs. At the bottom left of the function box there is a Help facility with an example of how the function is used.

Here is a list of useful functions for DCF problems and some points to remember when entering data:

- **FV:** Future value of single investment or annuity.
- **PV:** Present value of single future cash flow or annuity.
- **RATE:** Interest rate (or rate of return) needed to produce given future value or annuity.
- **NPER:** Number of periods (e.g., years) that it takes an investment to reach a given future value or series of future cash flows.
- **PMT:** Amount of annuity payment with a given present or future value.
- **NPV:** Calculates the value of a stream of negative and positive cash flows. (When using this function, note the warning below.)
- **EFFECT:** The effective annual interest rate, given the quoted rate (APR) and number of interest payments in a year.
- **NOMINAL:** The quoted interest rate (APR) given the effective annual interest rate.



All the inputs in these functions can be entered directly as numbers or as the addresses of cells that contain the numbers.

Three warnings:

1. PV is the amount that needs to be invested today be entered as a negative number. Entering both PV and FV with the same sign when solving for RATE results in an error message.
2. Always enter the interest or discount rate as a decimal value (for example, .05 rather than 5%).
3. Use the NPV function with care. Better still, don't use it at all. It gives the value of the cash flows one period *before* the first cash flow and not the value at the date of the first cash flow.

Spreadsheet Questions

The following questions provide opportunities to practice each of the Excel functions.

1. (FV) In 1880, five aboriginal trackers were each promised the equivalent of 100 Australian dollars for helping to capture the notorious outlaw Ned Kelly. One hundred and thirteen years later, the granddaughters of two of the trackers claimed that this reward had not been paid. If the interest rate over this period averaged about 4.5%, how much would the A$100 have accumulated to?
2. (PV) Your adviser has produced revised figures for your office building. It is forecasted to produce a cash flow of $40,000 in year 1, but only $850,000 in year 2, when you come to sell it. If the cost of capital is 12%, what is the value of the building?
3. (PV) Your company can lease a truck for $10,000 a year (paid at the end of the year) for six years, or it can buy the truck today for $50,000. At the end of the six years the truck will be worthless. If the interest rate is 6%, what is the present value of the lease payments? Is the lease worthwhile?
4. (RATE) Ford Motor stock was one of the victims of the 2008 credit crisis. In June 2007, Ford stock price stood at $9.42. Eighteen months later it was $2.72. What was the annual rate of return over this period to an investor in Ford stock?
5. (NPER) An investment adviser has promised to double your money. If the interest rate is 7% a year, how many years will she take to do so?
6. (PMT) You need to take out a home mortgage for $200,000. If payments are made annually over 30 years and the interest rate is 8%, what is the amount of the annual payment?

Excel Exhibits

Select tables are set as spreadsheets, and the corresponding Excel files are also available in Connect and through the Beyond the Page features.

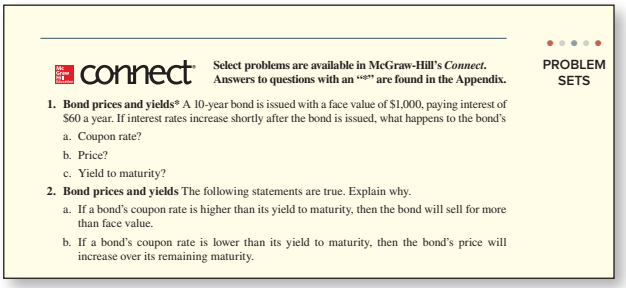
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
							Product of
				Deviation	Deviation	Squared	Deviations
				from	from Average	Deviation	from Average
		Market	Anchovy Q	Average	Anchovy Q	from Average	Returns
	Month	Return	Return	Market Return	Return	Market Return	(cols 4 × 5)
	1	−8%	−11%	−10	−13	100	130
	2	4	8	2	6	4	12
	3	12	19	10	17	100	170
	4	−6	−13	−8	−15	64	120
	5	2	3	0	1	0	0
	6	8	6	6	4	36	24
	Average	2	2		Total	304	456
				Variance = σ_m^2 = 304/6 = 50.67			
				Covariance = σ_{im} = 456/6 = 76			
				Beta (β) = σ_{im}/σ_m^2 = 76/50.67 = 1.5			

TABLE 7.7 Calculating the variance of the market returns and the covariance between the returns on the market and those of Anchovy Queen. Beta is the ratio of the covariance to the variance (i. e., $\beta = \sigma_{im}/\sigma_m^2$)

End-of-Chapter Features

Problem Sets

For the 13th edition, we continue to use topic labels for each end-of-chapter problem to help instructors create assignments and to provide reinforcement for students. These end-of-chapter problems give students hands-on practice with key concepts and applications. Answers to select problems marked with * are included at the back of the book.

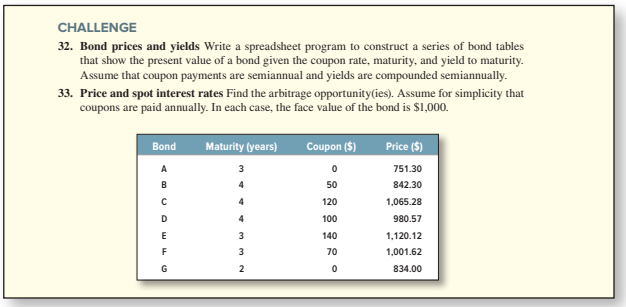


connect

Select problems are available in McGraw-Hill's *Connect*. Answers to questions with an "*" are found in the Appendix.

PROBLEM SETS

1. **Bond prices and yields*** A 10-year bond is issued with a face value of $1,000, paying interest of $60 a year. If interest rates increase shortly after the bond is issued, what happens to the bond's
   a. Coupon rate?
   b. Price?
   c. Yield to maturity?
2. **Bond prices and yields** The following statements are true. Explain why.
   a. If a bond's coupon rate is higher than its yield to maturity, then the bond will sell for more than face value.
   b. If a bond's coupon rate is lower than its yield to maturity, then the bond's price will increase over its remaining maturity.



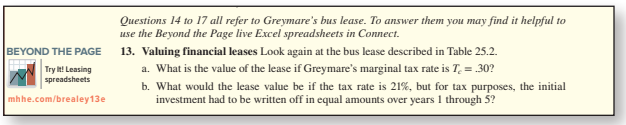
CHALLENGE

32. **Bond prices and yields** Write a spreadsheet program to construct a series of bond tables that show the present value of a bond given the coupon rate, maturity, and yield to maturity. Assume that coupon payments are semiannual and yields are compounded semiannually.
33. **Price and spot interest rates** Find the arbitrage opportunity(ies). Assume for simplicity that coupons are paid annually. In each case, the face value of the bond is $1,000.

Bond	Maturity (years)	Coupon ($)	Price ($)
A	3	0	751.30
B	4	50	842.30
C	4	120	1,065.28
D	4	100	980.57
E	3	140	1,120.12
F	3	70	1,001.62
G	2	0	834.00

Excel Problems

Most chapters contain problems, denoted by an icon, specifically linked to Excel spreadsheets that are available in Connect and through the Beyond the Page features.



Questions 14 to 17 all refer to Greymare's bus lease. To answer them you may find it helpful to use the Beyond the Page live Excel spreadsheets in Connect.

BEYOND THE PAGE

Try it! Leasing spreadsheets

mhhe.com/brealey13e

13. **Valuing financial leases** Look again at the bus lease described in Table 25.2.
    a. What is the value of the lease if Greymare's marginal tax rate is $T_c = .30$?
    b. What would the lease value be if the tax rate is 21%, but for tax purposes, the initial investment had to be written off in equal amounts over years 1 through 5?

Finance on the Web

These web exercises give students the opportunity to explore financial websites on their own. The web exercises make it easy to include current, real-world data in the classroom.

FINANCE ON THE WEB

You can download data for the following questions from **finance.yahoo.com.**

1. Look at the companies listed in Table 8.2. Calculate monthly rates of return for two successive five-year periods. Calculate betas for each subperiod using the Excel SLOPE function. How stable was each company's beta? Suppose that you had used these betas to estimate expected rates of return from the CAPM. Would your estimates have changed significantly from period to period?
2. Identify a sample of food companies. For example, you could try Campbell Soup (CPB), General Mills (GIS), Kellogg (K), Mondelez International (MDLZ), and Tyson Foods (TSN).
   a. Estimate beta and R^2 for each company, using five years of monthly returns and Excel functions SLOPE and RSQ.
   b. Average the returns for each month to give the return on an equally weighted portfolio of the stocks. Then calculate the industry beta using these portfolio returns. How does the R^2 of this portfolio compare with the average R^2 of the individual stocks?
   c. Use the CAPM to calculate an average cost of equity (r_{equity}) for the food industry. Use current interest rates—take a look at the end of Section 9-2—and a reasonable estimate of the market risk premium.

Mini-Cases

Mini-cases are included in select chapters so students can apply their knowledge to real-world scenarios.

MINI-CASE

The Jones Family Incorporated

The Scene: It is early evening in the summer of 2018, in an ordinary family room in Manhattan. Modern furniture, with old copies of *The Wall Street Journal* and the *Financial Times* scattered around. Autographed photos of Jerome Powell and George Soros are prominently displayed. A picture window reveals a distant view of lights on the Hudson River. John Jones sits at a computer terminal, glumly sipping a glass of chardonnay and putting on a carry trade in Japanese yen over the Internet. His wife Marsha enters.

Marsha: Hi, honey. Glad to be home. Lousy day on the trading floor, though. Dullsville. No volume. But I did manage to hedge next year's production from our copper mine. I couldn't get a good quote on the right package of futures contracts, so I arranged a commodity swap.

John doesn't reply.

Supplements

In this edition, we have gone to great lengths to ensure that our supplements are equal in quality and authority to the text itself.

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- Reinforce classroom concepts with practice tests and instant quizzes.

Instructor Library

The *Connect* Instructor Library provides additional resources to improve student engagement in and out of class. This library contains information about the book and the authors, as well as all of the instructor supplements, including:

- **Instructor's Manual** The Instructor's Manual was extensively revised and updated by Leslie Rush of the University of Hawaii, West Oahu. It contains an overview of each chapter, teaching tips, learning objectives, challenge areas, key terms, and an annotated outline that provides references to the PowerPoint slides.
- **Solutions Manual** The Solutions Manual, carefully revised by Mishal Rawaf, contains solutions to all basic, intermediate, and challenge problems found at the end of each chapter.
- **Test Bank** The Test Bank, revised by Deb Bauer of the University of Oregon, contains hundreds of multiple-choice and short answer/discussion questions, updated based on the revisions of the authors. The level of difficulty varies, as indicated by the easy, medium, or difficult labels.
- **PowerPoint Presentations** Leslie Rush also prepared the PowerPoint presentations, which contain exhibits, outlines, key points, and summaries in a visually stimulating collection of slides. The instructor can edit, print, or rearrange the slides to fit the needs of his or her course.
- **Beyond the Page** The authors have created a wealth of additional examples, explanations, and applications, available for quick access by instructors and students. Each Beyond the Page feature is called out in the text with an icon that links directly to the content.

- **Excel Solutions and Templates** There are templates for select exhibits, as well as various end-of-chapter problems that have been set as Excel spreadsheets—all denoted by an icon. They correlate with specific concepts in the text and allow students to work through financial problems and gain experience using spreadsheets. Useful Spreadsheet Functions Boxes are sprinkled throughout the text to provide helpful prompts on working in Excel.

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- Adapts automatically to each student, so students spend less time on the topics they understand and practice more those they have yet to master.
- Provides continual reinforcement and remediation but gives only as much guidance as students need.
- Integrates diagnostics as part of the learning experience.
- Enables the instructor to assess which concepts students have efficiently learned on their own, thus freeing class time for more applications and discussion.

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The Connect Student Study Center is the place for students to access additional resources. The Student Study Center:

- Offers students quick access to the Beyond the Page features, Excel files and templates, lectures, practice materials, eBooks, and more.
- Provides instant practice material and study questions, easily accessible on-the-go.

Student Progress Tracking

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- View scored work immediately and track individual or group performance with assignment and grade reports.
- Access an instant view of student or class performance relative to learning objectives.

Lecture Capture through Tegrity Campus

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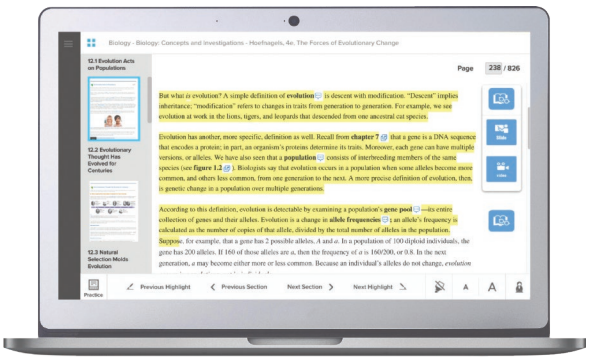

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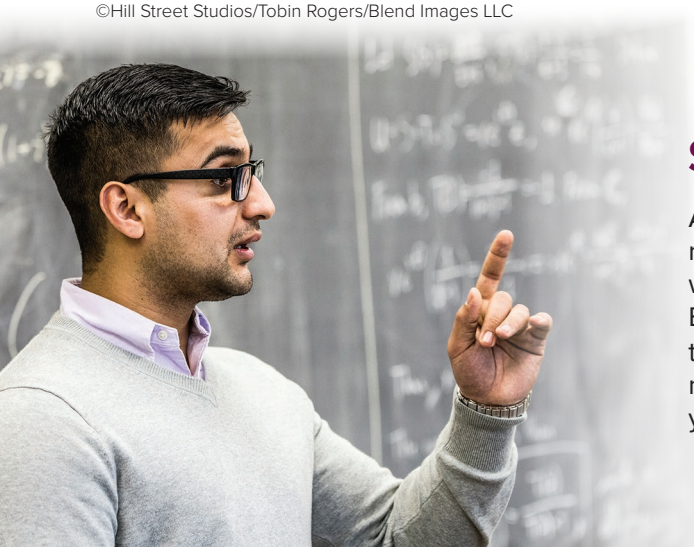

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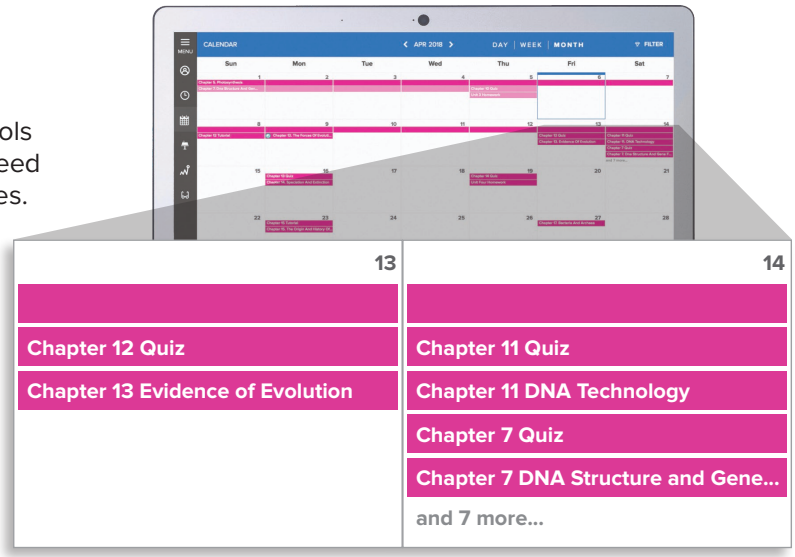

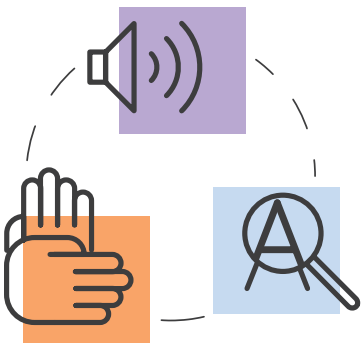

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Brief Contents

Contents

Note: Present value tables are available in Connect.

CHAPTER 1

Introduction to Corporate Finance

This book is about how corporations make financial decisions. We start by explaining what these decisions are and what they are intended to accomplish.

Corporations invest in real assets, which generate income. Some of these assets, such as plant and machinery, are tangible; others, such as brand names and patents, are intangible. Corporations finance their investments by borrowing, by retaining and reinvesting cash flow, and by selling additional shares of stock to the corporation's shareholders. Thus, the financial manager faces two broad financial questions: First, what investments should the corporation make? Second, how should it pay for those investments? The investment decision involves spending money; the financing decision involves raising it.

A large corporation may have hundreds of thousands of shareholders. These shareholders differ in many ways, including their wealth, risk tolerance, and investment horizon. Yet we shall see that they usually share the same financial objective. They want the financial manager to increase the value of the corporation and its current stock price.

Thus, the secret of success in financial management is to increase value. That is easy to say but not very helpful. Instructing the financial manager to increase value is like advising an investor in the stock market to "buy low, sell high." The problem is how to do it.

There may be a few activities in which one can read a textbook and then just "do it," but financial management is not one of them. That is why finance is worth studying. Who wants to work in a field where there is no room for judgment, experience, creativity, and a pinch of luck? Although this book cannot guarantee any of these things, it does cover the concepts that govern good financial decisions, and it shows you how to use the tools of the trade of modern finance.

This chapter begins with specific examples of recent investment and financing decisions made by well-known corporations. The middle of the chapter covers what a corporation is and what its financial managers do. We conclude by explaining why increasing the market value of the corporation is a sensible financial goal.

Financial managers increase value whenever the corporation earns a higher return than shareholders can earn for themselves. The shareholders' investment opportunities *outside* the corporation set the standard for investments *inside* the corporation. Financial managers, therefore, refer to the *opportunity cost* of the capital contributed by shareholders.

Managers are, of course, human beings with their own interests and circumstances; they are not always the perfect servants of shareholders. Therefore, corporations must combine governance rules and procedures with appropriate incentives to make sure that all managers and employees—not just the financial managers—pull together to increase value.

Good governance and appropriate incentives also help block out temptations to increase stock price by illegal or unethical means. Thoughtful shareholders do not want the maximum possible stock price. They want the maximum honest stock price.

This chapter introduces five themes that occur again and again throughout the book:

1. Corporate finance is all about maximizing value.
2. The opportunity cost of capital sets the standard for investment decisions.
3. A safe dollar is worth more than a risky dollar.
4. Smart investment decisions create more value than smart financing decisions.
5. Good governance matters.

1-1 Corporate Investment and Financing Decisions

To carry on business, a corporation needs an almost endless variety of **real assets.** These do not drop free from a blue sky; they need to be paid for. The corporation pays for its real assets by selling claims on them and on the cash flow that they will generate. These claims are called **financial assets** or **securities.** Take a bank loan as an example. The bank provides the corporation with cash in exchange for a financial asset, which is the corporation's promise to repay the loan with interest. An ordinary bank loan is not a security, however, because it is held by the bank and is not traded in financial markets.

Take a corporate bond as a second example. The corporation sells the bond to investors in exchange for the promise to pay interest on the bond and to pay off the bond at its maturity. The bond is a financial asset, and also a security, because it can be held and traded by many investors in financial markets. Securities include bonds, shares of stock, and a dizzying variety of specialized instruments. We describe bonds in Chapter 3, stocks in Chapter 4, and other securities in later chapters.

This suggests the following definitions:

$$\text{Investment decision} = \text{purchase of real assets}$$
$$\text{Financing decision} = \text{sale of securities and other financial assets}$$

But these equations are too simple. The investment decision also involves managing assets already in place and deciding when to shut down and dispose of assets when they are no longer profitable. The corporation also has to manage and control the risks of its investments. The financing decision includes not just raising cash today but also meeting its obligations to banks, bondholders, and stockholders that have contributed financing in the past. For example, the corporation has to repay its debts when they become due. If it cannot do so, it ends up insolvent and bankrupt. Sooner or later the corporation will also want to pay out cash to its shareholders.[1]

Let's go to more specific examples. Table 1.1 lists 10 corporations from all over the world. We have chosen very large public corporations that you are probably already familiar with. You may have used Facebook to chat with your friends, eaten at McDonald's, or used Crest toothpaste.

Investment Decisions

The second column of Table 1.1 shows an important recent investment decision for each corporation. These investment decisions are often referred to as **capital budgeting** or **capital expenditure (CAPEX)** decisions because most large corporations prepare an annual **capital budget** listing the major projects approved for investment. Some of the investments in Table 1.1, such as ExxonMobil's new oil field or Lenovo's factory, involve the purchase of tangible assets—assets that you can touch and kick. However, corporations also need to invest in intangible assets, such as research and development (R&D), advertising, and computer software. For example, GlaxoSmithKline and other major pharmaceutical companies invest billions every year on R&D for new drugs. Similarly, consumer goods companies such as Procter & Gamble invest huge sums in advertising and marketing their products. These outlays are investments because they build know-how, brand recognition, and reputation for the long run.

Today's capital investments generate future cash returns. Sometimes the cash inflows last for decades. For example, many U.S. nuclear power plants, which were initially licensed by

[1]We have referred to the corporation's owners as "shareholders" and "stockholders." The two terms mean exactly the same thing and are used interchangeably. Corporations are also referred to casually as "companies," "firms," or "businesses." We also use these terms interchangeably.

Company	Recent Investment Decisions	Recent Financing Decisions
Ahold Delhaize (Netherlands)	Invests €1.4 billion in supermarkets in the U.S. and Europe.	Announces a €1 billion share repurchase program.
ExxonMobil (U.S.)	Announces decision to proceed with development of a huge offshore oil discovery in Guyana.	Reinvests $8.5 billion of the cash that it generates from operations.
Facebook (U.S.)	Acquires Two Big Ears, a British virtual reality audio company.	Leases large new office building in San Francisco.
Fiat Chrysler (Italy)	Spins off its Ferrari luxury car unit.	Repays $1.8 billion of bank debt.
GlaxoSmithKline (U.K.)	Spends $3.6 billion on research and development for new drugs.	Issues additional short-term euro debt.
Lenovo (China)	Announces plans to build a new manufacturing facility in India to produce PCs and smartphones.	Issues $850 million of 5-year dollar bonds.
McDonald's (U.S.)	Announces plans to sell 2,000 restaurants in China.	Issues C$1 billion of Canadian dollar bonds.
Procter & Gamble (U.S.)	Spends over $7 billion on advertising.	Buys back $4.6 billion of stock and pays a $7.2 billion dividend.
Tesla Motors (U.S.)	Starts battery cell production at its new Gigafactory in Nevada.	Raises about $250 million by the sale of new shares.
Vale (Brazil)	Loads first shipment from its new $14.3 billion iron-ore mine in the Amazon rainforest.	Lines up a 5-year revolving credit facility, allowing it to borrow up to $2 billion from a group of international banks.

TABLE 1.1 Examples of recent investment and financing decisions by major public corporations

the Nuclear Regulatory Commission to operate for 40 years, are now being re-licensed for 20 more years and may be able to operate efficiently for 80 years overall.

Of course, not all investments have such distant payoffs. For example, Walmart spends about $50 billion each year to stock up its stores and warehouses before the holiday season. The company's return on this investment comes within months as the inventory is drawn down and the goods are sold.

In addition, financial managers know (or quickly learn) that cash returns are not guaranteed. An investment could be a smashing success or a dismal failure. For example, the Iridium communications satellite system, which offered instant telephone connections worldwide, soaked up $5 billion of investment before it started operations in 1998. It needed 400,000 subscribers to break even, but attracted only a small fraction of that number. Iridium defaulted on its debt and filed for bankruptcy in 1999. The Iridium system was sold a year later for just $25 million. (Iridium has recovered and is now profitable, however.)[2]

Among the contenders for the all-time worst investment was Hewlett-Packard's (HP) purchase of the British software company Autonomy. HP paid $11.1 billion for Autonomy. Just 13 months later, it wrote down the value of this investment by $8.8 billion. HP claimed that it was misled by improper accounting at Autonomy. Nevertheless, the acquisition was a disastrous investment, and HP's CEO was fired in short order.

In some cases, the costs and risks of an investment can be huge. For example, the cost of developing the Gorgon natural gas field in Australia has been estimated at more than

[2]The private investors who bought the bankrupt system concentrated on aviation, maritime, and defense markets rather than retail customers. In 2010 the company arranged $1.8 billion in new financing to replace and upgrade its satellite system. The first launches of a fleet of 66 new satellites took place in 2017.

$40 billion. But do not think of the financial manager as making such large investments on a daily basis. Most investment decisions are smaller and simpler, such as the purchase of a truck, machine tool, or computer system. Corporations make thousands of these smaller investment decisions every year. The cumulative amount of small investments can be just as large as that of the occasional big investments.

Also, financial managers do not make major investment decisions in solitary confinement. They may work as part of a team of engineers and managers from manufacturing, marketing, and other business functions.

Financing Decisions

The third column of Table 1.1 lists a recent financing decision by each corporation. A corporation can raise money from lenders or from shareholders. If it borrows, the lenders contribute the cash, and the corporation promises to pay back the debt plus a fixed rate of interest. If the shareholders put up the cash, they do not get a fixed return, but they hold shares of stock and therefore get a fraction of future profits and cash flow. The shareholders are *equity investors,* who contribute *equity financing*. The choice between debt and equity financing is called the **capital structure** decision. *Capital* refers to the firm's sources of long-term financing.

The financing choices available to large corporations seem almost endless. Suppose the firm decides to borrow. Should it borrow from a bank or borrow by issuing bonds that can be traded by investors? Should it borrow for 1 year or 20 years? If it borrows for 20 years, should it reserve the right to pay off the debt early? Should it borrow in Paris, receiving and promising to repay euros, or should it borrow dollars in New York?

Corporations raise equity financing in two ways. First, they can issue new shares of stock. The investors who buy the new shares put up cash in exchange for a fraction of the corporation's future cash flow and profits. Second, the corporation can take the cash flow generated by its existing assets and reinvest that cash in new assets. In this case the corporation is reinvesting on behalf of existing stockholders. No new shares are issued.

What happens when a corporation does not reinvest all of the cash flow generated by its existing assets? It may hold the cash in reserve for future investment, or it may pay the cash back to its shareholders. Table 1.1 shows that Procter & Gamble paid back $4.6 billion to its stockholders by repurchasing shares. This was in addition to $7.2 billion paid out as cash dividends. The decision to pay dividends or repurchase shares is called the *payout decision.* We cover payout decisions in Chapter 16.

In some ways, financing decisions are less important than investment decisions. Financial managers say that "value comes mainly from the asset side of the balance sheet." In fact, the most successful corporations sometimes have the simplest financing strategies. Take Microsoft as an example. It is one of the world's most valuable corporations. In December 2017, Microsoft shares traded for about $88 each. There were 7.7 billion shares outstanding. Therefore Microsoft's overall market value—its *market capitalization* or *market cap*—was $\$88 \times 7.7 = \$680$ billion. Where did this market value come from? It came from Microsoft's product development, from its brand name and worldwide customer base, from its research and development, and from its ability to make profitable future investments. The value did *not* come from sophisticated financing. Microsoft's financing strategy is very simple: It carries no debt to speak of and finances almost all investment by retaining and reinvesting cash flow.

Financing decisions may not add much value, compared with good investment decisions, but they can destroy value if they are stupid or if they are ambushed by bad news. For example, after a consortium of investment companies bought the energy giant TXU in 2007, the company took on an additional $50 billion of debt. This may not have been a stupid

decision, but it did prove nearly fatal. The consortium did not foresee the expansion of shale gas production and the resulting sharp fall in natural gas and electricity prices. In 2014, the company (renamed Energy Future Holdings) was no longer able to service its debts and filed for bankruptcy.

Business is inherently risky. The financial manager needs to identify the risks and make sure they are managed properly. For example, debt has its advantages, but too much debt can land the company in bankruptcy, as the buyers of TXU discovered. Companies can also be knocked off course by recessions, by changes in commodity prices, interest rates and exchange rates, or by adverse political developments. Some of these risks can be hedged or insured, however, as we explain in Chapters 26 and 27.

What Is a Corporation?

We have been referring to "corporations." Before going too far or too fast, we need to offer some basic definitions. Details follow in later chapters.

A **corporation** is a legal entity. In the view of the law, it is a legal *person* that is owned by its shareholders. As a legal person, the corporation can make contracts, carry on a business, borrow or lend money, and sue or be sued. One corporation can make a takeover bid for another and then merge the two businesses. Corporations pay taxes—but cannot vote!

In the United States, corporations are formed under state law, based on *articles of incorporation* that set out the purpose of the business and how it is to be governed and operated.[3] For example, the articles of incorporation specify the composition and role of the *board of directors.*[4] A corporation's directors are elected by the shareholders. They choose and advise top management and must sign off on important corporate actions, such as mergers and the payment of dividends to shareholders.

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A corporation is owned by its shareholders but is legally distinct from them. Therefore the shareholders have **limited liability,** which means that they cannot be held personally responsible for the corporation's debts. When the U.S. financial corporation Lehman Brothers failed in 2008, no one demanded that its stockholders put up more money to cover Lehman's massive debts. Shareholders can lose their entire investment in a corporation, but no more.

When a corporation is first established, its shares may be privately held by a small group of investors, such as the company's managers and a few backers. In this case, the shares are not publicly traded and the company is *closely held.* Eventually, when the firm grows and new shares are issued to raise additional capital, its shares are traded in public markets such as the New York Stock Exchange. These corporations are known as *public companies.* Most well-known corporations in the U.S. are public companies with widely dispersed shareholdings. In other countries, it is more common for large corporations to remain in private hands, and many public companies may be controlled by just a handful of investors. The latter category includes such well-known names as Volkswagen (Germany), Alibaba (China), Softbank (Japan), and the Swatch Group (Switzerland).

A large public corporation may have hundreds of thousands of shareholders, who own the business but cannot possibly manage or control it directly. This *separation of ownership and control* gives corporations permanence. Even if managers quit or are dismissed and

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Zipcar's bylaws

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[3]In the U.S., corporations are identified by the label "Corporation," "Incorporated," or "Inc.," as in Iridium Communications Inc. The U.K. identifies public corporations by "plc" (short for "Public Limited Corporation"). French corporations have the suffix "SA" ("Société Anonyme"). The corresponding labels in Germany are "GmbH" ("Gesellschaft mit beschränkter Haftung") or "AG" ("Aktiengesellschaft").

[4]The corporation's bylaws set out in more detail the duties of the board of directors and how the firm should conduct its business.

FINANCE IN PRACTICE

Other Forms of Business Organization

Corporations do not have to be prominent, multinational businesses such as those listed in Table 1.1. You can organize a local plumbing contractor or barber shop as a corporation if you want to take the trouble. But most corporations are larger businesses or businesses that aspire to grow. Small "mom-and-pop" businesses are usually organized as sole proprietorships.

What about the middle ground? What about businesses that grow too large for sole proprietorships but don't want to reorganize as corporations? For example, suppose you wish to pool money and expertise with some friends or business associates. The solution is to form a *partnership* and enter into a partnership agreement that sets out how decisions are to be made and how profits are to be split up. Partners, like sole proprietors, face unlimited liability. If the business runs into difficulties, each partner can be held responsible for *all* the business's debts.

Partnerships have a tax advantage. Partnerships, unlike corporations, do not have to pay income taxes. The partners simply pay personal income taxes on their shares of the profits.

Some businesses are hybrids that combine the tax advantage of a partnership with the limited liability advantage of a corporation. In a *limited partnership,* partners are classified as general or limited. General partners manage the business and have unlimited personal liability for its debts. Limited partners are liable only for the money they invest and do not participate in management.

Many states allow *limited liability partnerships (LLPs)* or, equivalently, *limited liability companies (LLCs).* These are partnerships in which all partners have limited liability.

Another variation on the theme is the *professional corporation (PC)* or *professional limited liability company (PLCC),* which is commonly used by doctors, lawyers, and accountants. In this case, the business has limited liability, but the professionals can still be sued personally—for example, for malpractice.

Most large investment banks such as Morgan Stanley and Goldman Sachs started life as partnerships. But eventually these companies and their financing requirements grew too large for them to continue as partnerships, and they reorganized as corporations. The partnership form of organization does not work well when ownership is widespread and separation of ownership and management is essential.

replaced, the corporation survives. Today's stockholders can sell all their shares to new investors without disrupting the operations of the business. Corporations can, in principle, live forever, and in practice, they may survive many human lifetimes. One of the oldest corporations is the Hudson's Bay Company, which was formed in 1670 to profit from the fur trade between northern Canada and England. The company still operates as one of Canada's leading retail chains.

The separation of ownership and control can also have a downside, for it can open the door for managers and directors to act in their own interests rather than in the stockholders' interest. We return to this problem later in the chapter.

There are other disadvantages to being a corporation. One is the cost, in both time and money, of managing the corporation's legal machinery. These costs are particularly burdensome for small businesses. There is also an important tax drawback to corporations in the United States. Because the corporation is a separate legal entity, it is taxed separately. So corporations pay tax on their profits, and shareholders are taxed again when they receive dividends from the company or sell their shares at a profit. By contrast, income generated by businesses that are not incorporated is taxed just once as personal income.

Almost all large and medium-sized businesses are corporations, but the nearby box describes how smaller businesses may be organized.

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The financial managers

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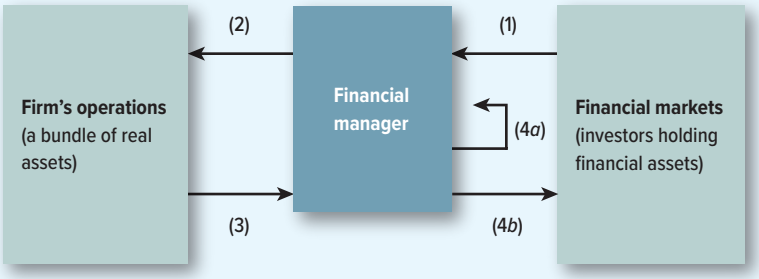

FIGURE 1.1
Flow of cash between financial markets and the firm's operations. Key: (1) Cash raised by selling financial assets to investors; (2) cash invested in the firm's operations and used to purchase real assets; (3) cash generated by the firm's operations; (4*a*) cash reinvested; (4*b*) cash returned to investors.

The Role of the Financial Manager

What is the essential role of the financial manager? Figure 1.1 gives one answer. The figure traces how money flows from investors to the corporation and back to investors again. The flow starts when cash is raised from investors (arrow 1 in the figure). The cash could come from banks or from securities sold to investors in financial markets. The cash is then used to pay for the real assets (capital investment projects) needed for the corporation's business (arrow 2). Later, as the business operates, the assets produce cash inflows (arrow 3). That cash is either reinvested (arrow 4*a*) or returned to the investors who furnished the money in the first place (arrow 4*b*). Of course, the choice between arrows 4*a* and 4*b* is constrained by the promises made when cash was raised at arrow 1. For example, if the firm borrows money from a bank at arrow 1, it must repay this money plus interest at arrow 4*b*.

You can see examples of arrows 4*a* and 4*b* in Table 1.1. ExxonMobil financed its new projects by reinvesting earnings (arrow 4*a*). Procter & Gamble decided to return cash to shareholders by paying cash dividends and by buying back its stock (arrow 4*b*).

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.

1-2 The Financial Goal of the Corporation

Shareholders Want Managers to Maximize Market Value

Major corporations may have hundreds of thousands of shareholders. There is no way that these shareholders can be actively involved in management; it would be like trying to run New York City by town meetings. Authority has to be delegated to professional managers. But how can the company's managers make decisions that satisfy all the shareholders? No two shareholders are exactly the same. Some may plan to cash in their investments next year; others may be investing for a distant old age. Some may be wary of taking much risk; others may be more venturesome. Delegating the operation of the firm to professional managers can work only if these shareholders have a common objective. Fortunately, there is a natural financial objective on which almost all shareholders agree: Maximize the current market value of shareholders' investment in the firm.

A smart and effective manager makes decisions that increase the current value of the company's shares and the wealth of its stockholders. This increased wealth can then be put to whatever purposes the shareholders want. They can give their money to charity or spend it in glitzy nightclubs; they can save it or spend it now. Whatever their personal tastes or objectives, they can all do more when their shares are worth more.

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Maximizing shareholder wealth is a sensible goal when the shareholders have access to well-functioning financial markets.[5] Financial markets allow them to adjust risks and transport savings across time. Financial markets give them the flexibility to manage their own savings and investment plans, leaving the corporation's financial managers with only one task: to increase market value.

A corporation's roster of shareholders usually includes both risk-averse and risk-tolerant investors. You might expect the risk-averse to say, "Sure, maximize value, but don't touch too many high-risk projects." Instead, they say, "Risky projects are OK, *provided* that expected profits are more than enough to offset the risks. If this firm ends up too risky for my taste, I'll adjust my investment portfolio to make it safer." For example, the risk-averse shareholders can shift more of their investment to safer assets, such as U.S. government bonds. They can also just say good-bye, selling shares of the risky firm and buying shares in a safer one. If the risky investments increase market value, the departing shareholders are better off than if the risky investments were turned down.

A Fundamental Result

The goal of maximizing shareholder value is widely accepted in both theory and practice. It's important to understand why. Let's walk through the argument step by step, assuming that the financial manager should act in the interests of the firm's owners, its stockholders.

1. Each stockholder wants three things:
   a. To be as rich as possible, that is, to maximize his or her current wealth.
   b. To transform that wealth into the most desirable time pattern of consumption either by borrowing to spend now or investing to spend later.
   c. To manage the risk characteristics of that consumption plan.
2. But stockholders do not need the financial manager's help to achieve the best time pattern of consumption. They can do that on their own, provided they have free access to competitive financial markets. They can also choose the risk characteristics of their consumption plan by investing in more- or less-risky securities.
3. How then can the financial manager help the firm's stockholders? There is only one way: by increasing their wealth. That means increasing the market value of the firm and the current price of its shares.

Economists have proved this value-maximization principle with great rigor and generality. After you have absorbed this chapter, take a look at the Appendix, which contains a further example. The example, though simple, illustrates how the principle of value maximization follows from formal economic reasoning.

We have suggested that shareholders want to be richer rather than poorer. But sometimes you hear managers speak as if shareholders have different goals. For example, managers may say that their job is to "maximize profits." That sounds reasonable. After all, don't shareholders want their company to be profitable? But taken literally, profit maximization is not a well-defined financial objective for at least two reasons:

1. Maximize profits? Which year's profits? A corporation may be able to increase current profits by cutting back on outlays for maintenance or staff training, but that may result in lower profits in the future. Shareholders will not welcome higher short-term profits if long-term profits are damaged.

[5]Here we use "financial markets" as shorthand for the financial sector of the economy. Strictly speaking, we should say "access to well-functioning financial markets and institutions." Many investors deal mostly with financial institutions, for example, banks, insurance companies, or mutual funds. The financial institutions in turn engage in financial markets, including the stock and bond markets. The institutions act as financial intermediaries on behalf of individual investors.

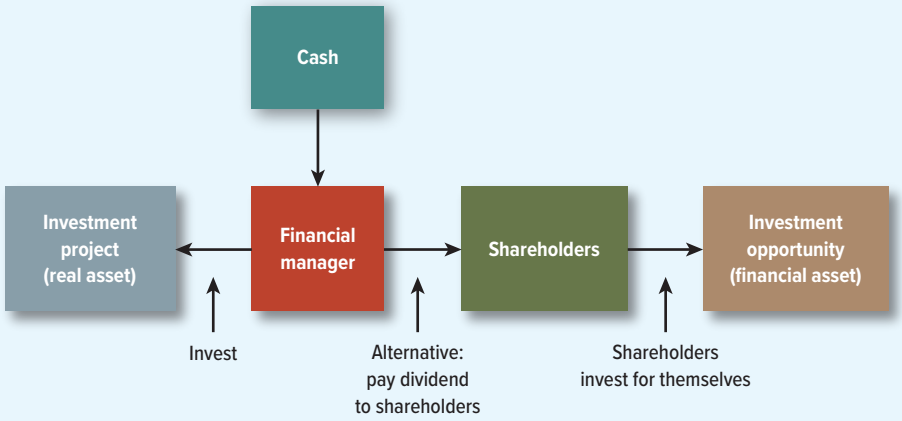

FIGURE 1.2
The firm can either keep and reinvest cash or return it to investors. (Arrows represent possible cash flows or transfers.) If cash is reinvested, the opportunity cost is the expected rate of return that shareholders could have obtained by investing in financial assets.

2. A company may be able to increase future profits by cutting this year's dividend and investing the freed-up cash in the firm. That is not in the shareholders' best interest if the company earns only a modest return on the money.

The Investment Trade-Off

OK, let's take the objective as maximizing market value. But why do some investments increase market value, while others reduce it? The answer is given by Figure 1.2, which sets out the fundamental trade-off for corporate investment decisions. Suppose the corporation has a proposed investment in a real asset and enough cash on hand to finance the investment. If the corporation does not invest, it can instead pay out the cash to shareholders—say, as an extra dividend. How does the financial manager decide whether to go ahead with the project or to pay out the cash? (The investment and dividend arrows in Figure 1.2 are arrows 2 and 4*b* 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 project's rate of return 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 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, they would vote to cancel the project and take the cash instead.

Perhaps the investment project in Figure 1.2 is a proposal for Tesla to launch a new electric car. Suppose Tesla has set aside cash to launch the new model in 2020. It could go ahead with the launch, or it could choose to cancel the investment and instead pay the cash out to its stockholders. If it pays out the cash, the stockholders can then invest for themselves.

Suppose that Tesla's new 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 project offers a superior rate of return—say, 20%—then Tesla's stockholders would be happy for the company to keep the cash and invest it in the new model. If the project offers only a 5% return, then the stockholders are better off with the cash and without the new model; in that case, the financial manager should turn down the 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.