

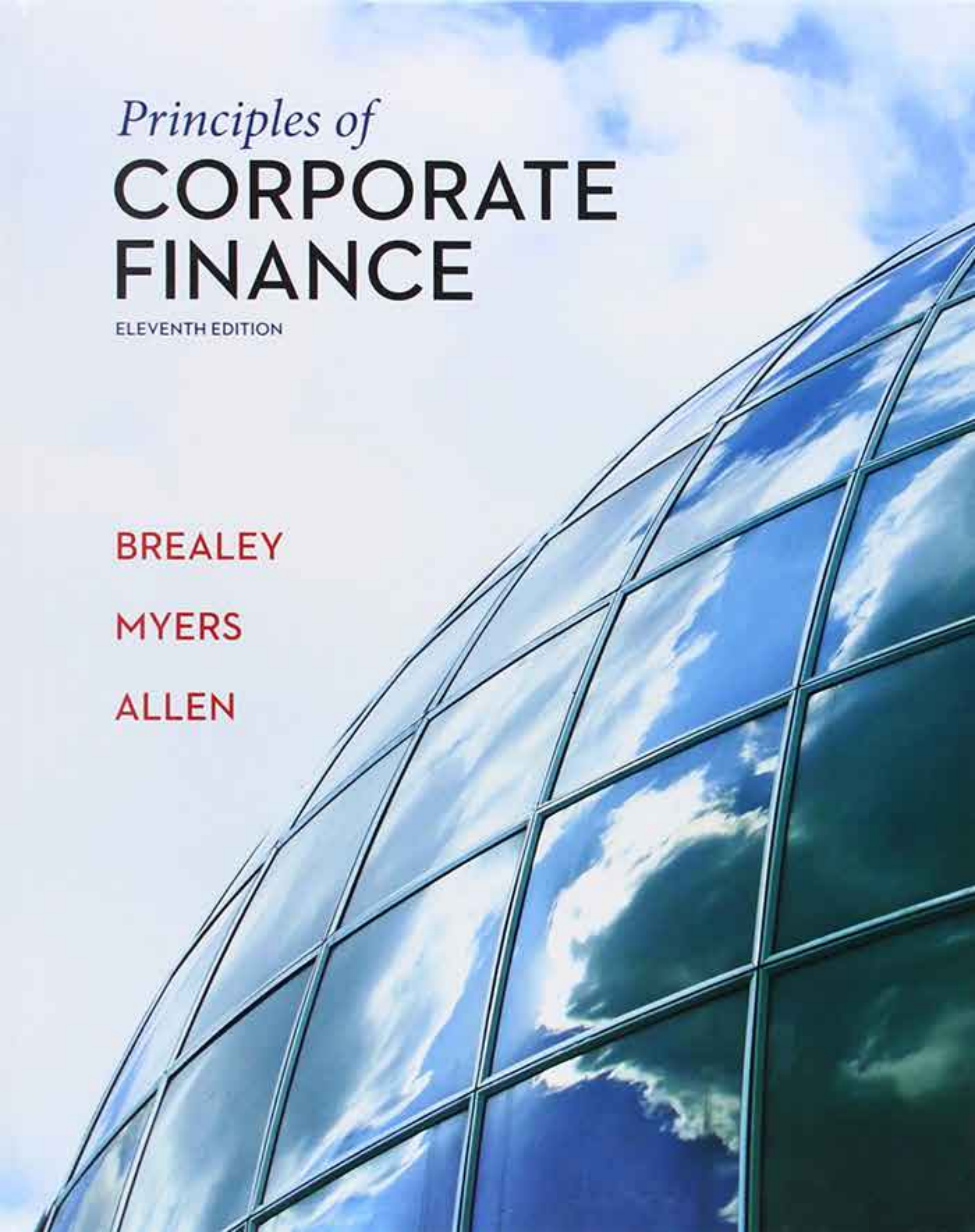
*Principles of*  
**CORPORATE  
FINANCE**

ELEVENTH EDITION

**BREALEY**

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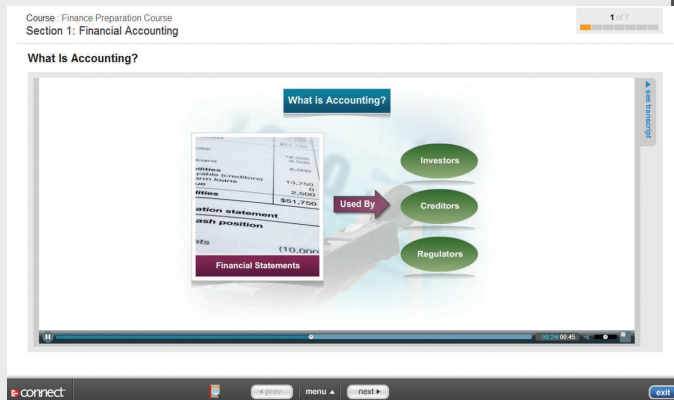


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Click on the arrow to see practice test results, readings, study aids, and practice problems.  
(Results are based on your most recent attempt.)

practice tests	test yourself		help yourself		
	questions	correct	readings	study	practice
Ch 01 Goals and Governance of the Corporation	14	12			
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Connect Finance helps students learn by providing complete step-by-step solutions for every problem, and you decide when students receive the solutions. These solutions can then be accessed before an exam so students can use them as a study tool for their tests.

## Detailed Feedback

Explanation:

The key here is to find a combination of these two bonds (i.e., a portfolio of bonds) that has a cash flow only at  $t = 6$ . Then, knowing the price of the portfolio and the cash flow at  $t = 6$ , we can calculate the 6-year spot rate.

We begin by specifying the cash flows of each bond and using these and their yields to calculate their current prices:

Investment	Yield	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>6</sub>	Price
6% bond	12%	60	60	60	1,060	\$ 753.32
10% bond	8%	100	100	100	1,100	\$ 1,092.46

From the cash flows in years one through five, we can see that buying two 6% bonds produces the same annual payments as buying 1.2 of the 10% bonds. To see the value of a cash flow only in year six, consider the portfolio of two 6% bonds minus 1.2 10% bonds. This portfolio costs:

$$(\$753.32 \times 2) - (1.2 \times \$1,092.46) = \$195.68$$

The cash flow for this portfolio is equal to zero for years one through five and, for year 6, is equal to:

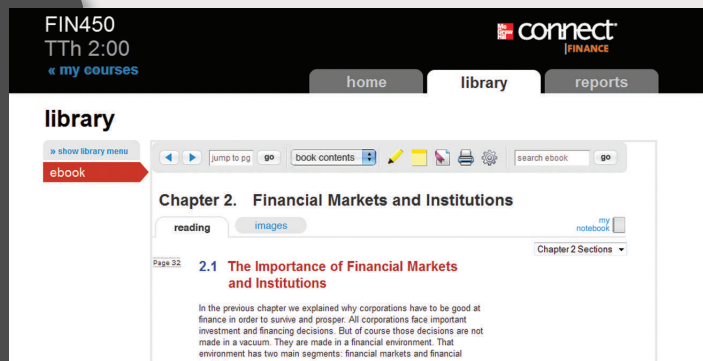
$$(1,060 \times 2) - (1.2 \times 1,100) = \$800$$

Thus:

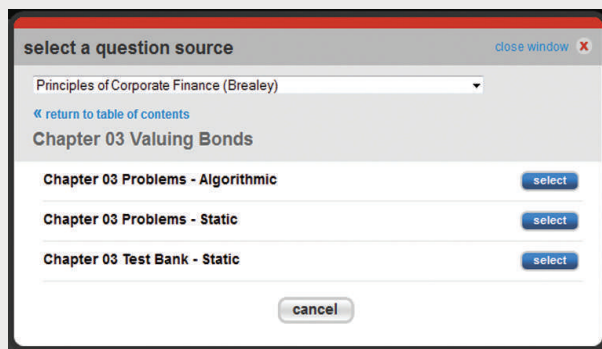
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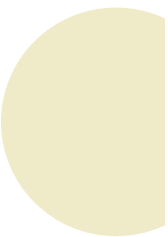
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Connect Finance includes both static and algorithmic versions of end of chapter problems and static test bank questions.



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# Principles *of* Corporate Finance

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ELEVENTH EDITION

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PRINCIPLES OF CORPORATE FINANCE, ELEVENTH EDITION

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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

ISBN 978-0-07-803476-3

MHID 0-07-803476-0

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Designer: *Laurie J. Entringer*  
Cover Image: © *Jean-Francois Schmit; iStockphoto*  
Media Project Manager: *Ron Nelms*  
Typeface: *10/12 Minion Pro Regular*  
Compositor: *Laserwords Private Limited*  
Printer: *R. R. Donnelley*

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**Library of Congress Cataloging-in-Publication Data**

Brealey, Richard A.  
Principles of corporate finance/Richard A. Brealey, Stewart C. Myers, Franklin Allen.—11th ed.  
p. cm.—(The McGraw-Hill/Irwin series in finance, insurance, and real estate)  
Includes index.  
ISBN 978-0-07-803476-3 (alk. paper)—ISBN 0-07-803476-0 (alk. paper)  
1. Corporations—Finance. I. Myers, Stewart C. II. Allen, Franklin, 1956-III. Title.  
HG4026.B667 2014  
658.15—dc23

2012039928

The Internet addresses listed in the text were accurate at the time of publication. The inclusion of a website does not indicate an endorsement by the authors or McGraw-Hill, and McGraw-Hill does not guarantee the accuracy of the information presented at these sites.

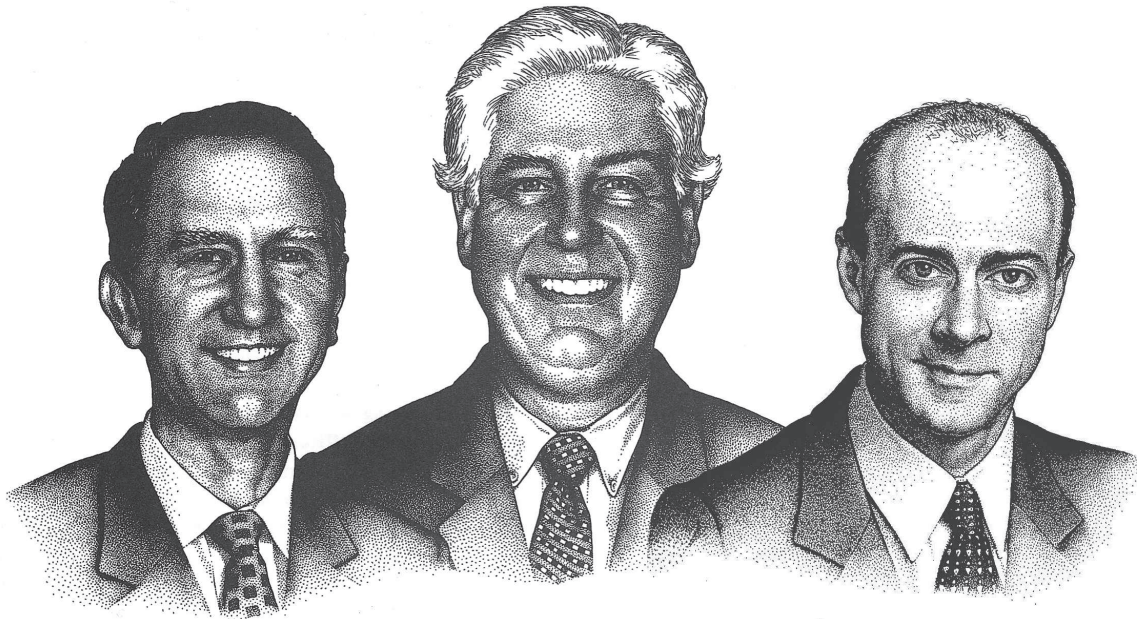
*To Our Parents*

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# About the Authors

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## Richard A. Brealey

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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*.

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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

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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).

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 theory. 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 Eleventh Edition

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

What is new in the eleventh edition? Of course, a large part of the changes in any edition consist of adding some updated data here and a new example there. However, we have rewritten and refreshed several basic chapters. Content remains much the same, but we think that the revised chapters are simpler and flow better.

- **Chapter 1** has grown over the years as major new developments in the financial world seem to demand some reference and comment. In this edition we have sought to make the chapter a more focused introduction to corporate finance. It concentrates on the decisions that corporations need to make and the financial objectives that govern these decisions. It also introduces five basic themes that return again and again throughout the book.
- **Chapter 3** introduces bond valuation. We rewrote and simplified some of the material, such as the discussion of duration. The last section of the chapter includes an introduction to default risk. The tribulations of the eurozone and the default by the Greek government on its bonds are reminders that default is not just a concern for holders of corporate debt. So we discuss briefly the risk of default for both corporate and sovereign borrowers. (We discuss corporate debt and default risk in more detail in **Chapter 23**.)
- **Chapter 4** is concerned with the valuation of common stocks. We start by explaining how individual stocks are valued and go on to look at the problem of valuing the entire company. These days many firms do not pay dividends and use excess cash to repurchase stock. In this edition we provide more guidance on valuing these companies.
- **Chapter 6** explains how to calculate the present value of new investments. We cover the same material in this chapter as in previous editions, but we include a longer discussion of the differences between cash flows and accounting profits. We think that this will provide readers with a clearer understanding of how to derive cash-flow forecasts.
- The financial manager spends a large part of his time interacting with financial institutions and markets. In **Chapter 14** we expand our discussion of these institutions. We describe the main forms of institutions, we look at their economic role, and we use the crisis of 2007–2009 to review what happens when financial institutions and markets cease to function well.
- We substantially rewrote **Chapter 16**, which looks at payout policy. We review both how much companies should pay out and whether they should do so by means of a dividend payment or stock repurchase. We also return to an issue that we introduced in **Chapter 4** and look in more detail at how to value a company when repurchases are important.
- **Chapter 24**, which previously looked at the different kinds of long-term debt, now also looks at short-term debt such as bank loans. Many of the issues about debt design such as the role of covenants apply to both short- and long-term debt.
- In earlier editions we discussed bank debt in the chapter on working capital management. One advantage of moving this discussion to **Chapter 24** is that we have the luxury in

**Chapter 30** of being able to look more broadly at working capital. For example, we now include a discussion of the cash conversion cycle and show how it is affected by management decisions.

The first edition of this book appeared in 1981. Basic principles are the same now as then, but the last three decades have also generated important changes in theory and practice. Research in finance has focused less on what financial managers should do, and more on understanding and interpreting what they do in practice. In other words, finance has become more positive and less normative. For example, we now have careful surveys of firms' capital investment practices and payout and financing policies. We review these surveys and look at how they cast light on competing theories.

Many financial decisions seem less clear-cut than they were 20 or 30 years ago. It no longer makes sense to ask whether high payouts are always good or always bad, or whether companies should always borrow less or more. The right answer is, "It depends." Therefore we set out pros and cons of different policies. We ask, "What questions should the financial manager ask when setting financial policy?" You will, for example, see this shift in emphasis when we discuss payout decisions in **Chapter 16**.

This edition builds on other changes from earlier editions. We recognize that financial managers work more than ever in an international environment and therefore need to be familiar with international differences in financial management and in financial markets and institutions. **Chapters 27** (Managing International Risks) and **33** (Governance and Corporate Control around the World) are exclusively devoted to international issues. We have also found more and more opportunities in other chapters to draw cross-border comparisons or use non-U.S. examples. We hope that this material will both provide a better understanding of the wider financial environment and be useful to our many readers around the world.

As every first-grader knows, it is easier to add than to subtract. To make way for new topics we needed to make some judicious pruning. We will not tell you where we cut out material, because we hope that the deletions will be invisible.

The biggest change in this edition is not to the printed text but to the **Beyond the Page** digital extensions and applications (see Pedagogical Features, below). These pieces are an integral part of the e-versions of the book, but they are also easily accessible via the Web using the QR codes and shortcut URLs provided. They provide additional examples, applica-

#### BEYOND THE PAGE

Principles of corporate  
finance



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tions, spreadsheet programs, and opportunities to explore topics in more depth.

The QR codes are easy to use. First, use your smartphone to download any QR-enabled barcode reader from your provider's marketplace. Focus your smartphone's camera on any code in the book, and you'll be able to access the online chapter content instantly. Try the code above now!

Additional examples include:

- **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 adjust for convexity? The duration application for Figure 3.2 allows you to do so.
- **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 15** There was not space in the chapter to include a real IPO prospectus, but you can go "Beyond the Page" to learn more.
- **Chapter 19** The book briefly describes the flow-to-equity method for valuing businesses, but using the method can be tricky. We provide an application that guides you through the procedure.
- **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.
- **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 opportunity to add additional content and applications such as these will increasingly widen the type of material that can be made available and help the reader to decide how deeply he or she wishes to explore a topic.

## ► 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 list every important article, we largely listed survey articles or general books. We give more specific references in footnotes.

Each chapter is followed by a set of basic problems, intermediate problems on both numerical and conceptual topics, and a few challenge problems. Answers to the odd-numbered basic 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 12 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 to 3 cover valuation and capital investment decisions, including portfolio theory, asset pricing models, and the cost of capital. Parts 4 to 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, Alejda de Cazenove Balsan, Kedran Garrison, Robert Pindyck, Sara Salem, and Gretchen Slemmons at MIT; Elroy Dimson, Paul Marsh, Mike Staunton, and Stefania Ucheddu at London Business School; Lynda Borucki, Michael Barhum, 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 the University of Washington; Simon Gervais at Duke University; Michael Chui at China International Capital Corporation; Pedro Matos at the University of Southern California; Yupana Wiwattanakantang at Hitotsubashi University; Nickolay Gantchev, Tina Horowitz, and Chenying Zhang at the University of Pennsylvania; Julie Wulf at Harvard University; Jinghua Yan at Tykhe Capital; Roger Stein at Moody's Investor Service; Bennett Stewart at EVA Dimensions; and James Matthews at Towers Perrin.

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*  
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Kathleen Kahle *University of Arizona*  
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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, 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/Irwin who worked on the book, including Michele Janicek and Chuck Synovec, Executive Brand Managers; Noelle Bathurst, Development Editor; Melissa Caughlin, Executive Marketing Manager; Jennifer Jelinski, Marketing Specialist; Rachel Townsend, Content Project Manager; Laurie Entringer, Designer; and Michael McCormick, Senior Buyer.

Finally, we record the continuing thanks due to our wives, Diana, Maureen, and Sally, who were unaware when they married us that they were also marrying the *Principles of Corporate Finance*.

**Richard A. Brealey**

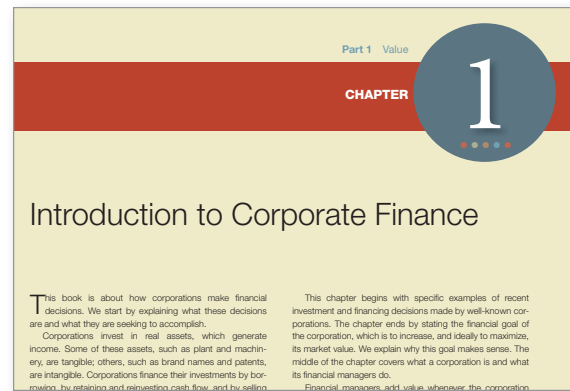
**Stewart C. Myers**

**Franklin Allen**

## Pedagogical Features

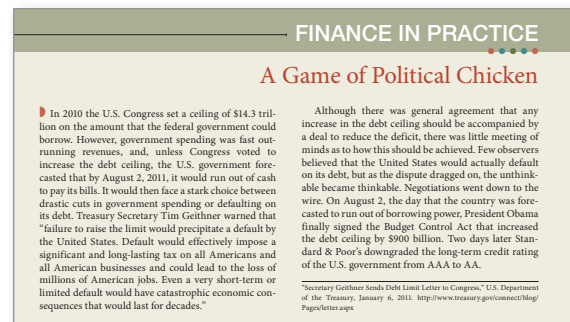
### Chapter Overview

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 on the book's website at [www.mhhe.com/bma](http://www.mhhe.com/bma).



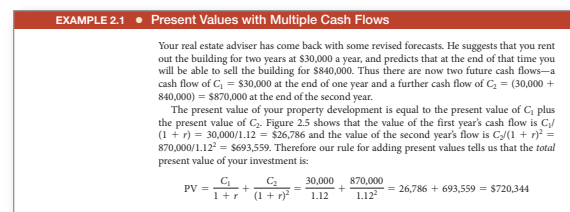
### Finance in Practice Boxes

Relevant news articles 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.



### 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.



### “Beyond the Page” Interactive Content and Applications

**New to this edition!** Additional resources and hands-on applications are just a click away. Students can scan the in-text QR codes or use the direct Web address to learn more about key concepts and try out calculations, tables, and figures when they go “Beyond the Page.”





# Excel Treatment

## 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

#### Valuing Bonds

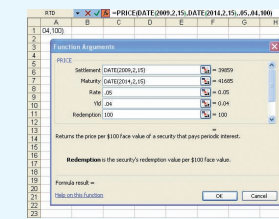
Spreadsheet programs such as Excel provide built-in functions to solve for a variety of bond valuation problems. You can find these functions by pressing *fx* on the Excel toolbar. If you then click on the function that you wish to use, Excel will ask you for the inputs that it needs. At the bottom left 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 valuing bonds, together with some points to remember when entering data:

- **PRICE:** The price of a bond given its yield to maturity.
- **YLD:** The yield to maturity of a bond given its price.
- **DURATION:** The duration of a bond.
- **MDURATION:** The modified duration (or volatility) of a bond.

Note:

- You can enter all the inputs in these functions directly as numbers or as the addresses of cells that contain the numbers.



- You must enter the yield and coupon as decimal values, for example, for 3% you would enter .03.
- Settlement is the date that payment for the security is made. Maturity is the maturity date. You can enter these dates directly using the Excel date function; for example, you would enter 15 Feb 2009 as DATE(2009,02,15). Alternatively, you can enter these dates in a cell and then enter the cell address in the function.
- In the functions for PRICE and YLD you need to scroll down in the function box to enter the frequency of coupon payments. Enter 1 for annual payments or 2 for semiannual.
- The functions for PRICE and YLD ask for an entry for "basis." We suggest you leave this blank. (See the Help facility for an explanation.)

#### SPREADSHEET QUESTIONS

The following questions provide an opportunity to practice each of these functions.

1. (PRICE) In February 2009, Treasury 8.5s of 2020 yielded 3.2976%. What was their price? If the yield rose to 4%, what would happen to the price?
2. (YLD) On the same day Treasury 3.5s of 2018 were priced at 107.46875%. What was their yield to maturity? Suppose that the price was 110.0%. What would happen to the yield?
3. (DURATION) What was the duration of the Treasury 8.5s? How would duration change if the yield rose to 4%? Can you explain why?
4. (MDURATION) What was the modified duration of the Treasury 8.5s? How would modified duration differ if the coupon were only 7.5%?

## Excel Exhibits

Select tables are set as spreadsheets, and the corresponding Excel files are also available on the book's website at [www.mhhe.com/bma](http://www.mhhe.com/bma).


	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1							
2							
3				Deviation	Deviation	Squared	Product of
4				from	from average	deviation	deviations
5				average	Anchovy Q	from average	returns
6	Month	Market return	Anchovy Q return	market return	return	market return	(cols 4 × 5)
7	1	- 8%	- 11%	- 10	- 13	100	130
8	2	4	8	2	6	4	12
9	3	12	19	10	17	100	170
10	4	- 6	- 13	- 8	- 15	64	120
11	5	2	3	0	1	0	0
12	6	8	6	6	4	36	24
13	Average	2	2		Total	304	456
14				Variance = $\sigma_m^2 = 304/6 = 50.67$			
15				Covariance = $\sigma_{im} = 456/6 = 76$			
16				Beta ( $\beta$ ) = $\sigma_{im}/\sigma_m^2 = 76/50.67 = 1.5$			

**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 variance to the covariance (i.e.,  $\beta = \sigma_{im}/\sigma_m^2$ ).

# End-of-Chapter Features

## Problem Sets

For the eleventh edition, topic labels have been added to each end-of-chapter problem to enable easy assignment creation for instructors and reinforcement for students. These end-of-chapter problems give students hands-on practice with the key concepts. The content is organized by level of difficulty: Basic, Intermediate, and Challenge. Answers to the odd-numbered basic problems are included at the back of the book.



Select problems are available in McGraw-Hill's *Connect Finance*. Please see the preface for more information.

● ● ● ● ●  
**PROBLEM SETS**

**BASIC**

1. **Future values** At an interest rate of 12%, the six-year discount factor is .507. How many dollars is \$8,507 worth in six years if invested at 12%?
2. **Discount factors** If the PV of \$139 is \$125, what is the discount factor?
3. **Present values** If the cost of capital is 9%, what is the PV of \$374 paid in year 9?
4. **Present values** A project produces a cash flow of \$432 in year 1, \$137 in year 2, and \$797 in year 3. If the cost of capital is 15%, what is the project's PV?
5. **Futures values** If you invest \$100 at an interest rate of 15%, how much will you have at the end of eight years?
6. **Perpetuities** An investment costs \$1,548 and pays \$138 in perpetuity. If the interest rate is 9%, what is the NPV?

**INTERMEDIATE**

15. **Prices and yields** A 10-year German government bond (bund) has a face value of €100 and a coupon rate of 5% paid annually. Assume that the interest rate (in euros) is equal to 6% per year. What is the bond's PV?
16. **Prices and yields** A 10-year U.S. Treasury bond with a face value of \$10,000 pays a coupon of 5.5% (2.75% of face value every six months). The semiannually compounded interest rate is 5.2% (a six-month discount rate of  $5.2/2 = 2.6\%$ ).
  - a. What is the present value of the bond?
  - b. Generate a graph or table showing how the bond's present value changes for semiannually compounded interest rates between 1% and 15%.
17. **Prices and yields** A six-year government bond makes annual coupon payments of 5% and offers a yield of 3% annually compounded. Suppose that one year later the bond still yields 3%. What return has the bondholder earned over the 12-month period? Now suppose that the bond yields 2% at the end of the year. What return would the bondholder earn in this case?


**CHALLENGE**

31. **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.
32. **Price and spot interest rates** Find the arbitrage opportunity (opportunities?). 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 on the book's website at [www.mhhe.com/bma](http://www.mhhe.com/bma).



Visit us at [www.mhhe.com/bma](http://www.mhhe.com/bma)

21. **Duration** Calculate durations and modified durations for the 3% bonds in Table 3.2. You can follow the procedure set out in Table 3.4 for the 9% coupon bonds. Confirm that modified duration predicts the impact of a 1% change in interest rates on the bond prices.
22. **Duration** Find the spreadsheet for Table 3.4, on this book's website, [www.mhhe.com/bma](http://www.mhhe.com/bma). Show how duration and volatility change if (a) the bond's coupon is 8% of face value and (b) the bond's yield is 6%. Explain your finding.

## ► Finance on the Web Section

Featured in select chapters, this section includes Web exercises that give students the opportunity to explore financial websites on their own to gain familiarity and apply chapter concepts. These problems provide an easy method of including current, real-world data into the classroom.

### FINANCE ON THE WEB

The websites of *The Wall Street Journal* ([www.wsj.com](http://www.wsj.com)) and the *Financial Times* ([www.ft.com](http://www.ft.com)) are wonderful sources of market data. You should become familiar with them.

1. Use [www.wsj.com](http://www.wsj.com) to answer the following questions:
  - a. Find the prices of coupon strips. Use these prices to plot the term structure. If the expectations theory is correct, what is the expected one-year interest rate three years hence?
  - b. Find a three- or four-year bond and construct a package of coupon and principal strips that provides the same cash flows. The law of one price predicts that the cost of the package should be very close to that of the bond. Is it?
  - c. Find a long-term Treasury bond with a low coupon and calculate its duration. Now find another bond with a similar maturity and a higher coupon. Which has the longer duration?
  - d. Look up the yields on 10-year nominal Treasury bonds and on TIPS. If you are confident that inflation will average 2% a year, which bond will provide the higher real return?
2. Bond transactions are reported on FINRA's TRACE service, which was the source of the data for Table 3.6. Use the Advanced Search facility in TRACE to find bond prices for Johnson & Johnson (JNJ), Walmart (WMT), Disney (DIS), SunTrust Banks (STI), and U.S. Steel (X). If possible, exclude callable issues that the company can buy back. Have the bond ratings changed? What has happened to the yields of these companies' bonds? (You will find that bonds issued by the same company may have very different yields, so you will need to use your best judgment to answer this second question.)

## ► Mini-Cases

To enhance concepts discussed within a chapter, mini-cases are included in select chapters so students can apply their knowledge to real-world scenarios.

### MINI-CASE

#### Reeby Sports

Ten years ago, in 2004, George Reebby founded a small mail-order company selling high-quality sports equipment. Since those early days Reebby Sports has grown steadily and been consistently profitable. The company has issued 2 million shares, all of which are owned by George Reebby and his five children.

For some months George has been wondering whether the time has come to take the company public. This would allow him to cash in on part of his investment and would make it easier for the firm to raise capital should it wish to expand in the future.

But how much are the shares worth? George's first instinct is to look at the firm's balance sheet, which shows that the book value of the equity is \$26.34 million, or \$13.17 per share. A share price of \$13.17 would put the stock on a P/E ratio of 6.6. That is quite a bit lower than the 13.1 P/E ratio of Reebby's larger rival, Molly Sports.

George suspects that book value is not necessarily a good guide to a share's market value. He thinks of his daughter Jenny, who works in an investment bank. She would undoubtedly know what the shares are worth. He decides to phone her after she finishes work that evening at 9 o'clock or before she starts the next day at 6.00 a.m.

Before phoning, George jots down some basic data on the company's profitability. After recovering from its early losses, the company has earned a return that is higher than its estimated 10% cost of capital. George is fairly confident that the company could continue to grow fairly steadily for the next six to eight years. In fact he feels that the company's growth has been somewhat held back in the last few years by the demands from two of the children for the company to make large dividend payments. Perhaps, if the company went public, it could hold back on dividends and plow more money back into the business.

There are some clouds on the horizon. Competition is increasing and only that morning Molly Sports announced plans to form a mail-order division. George is worried that beyond the next six or so years it might become difficult to find worthwhile investment opportunities.

George realizes that Jenny will need to know much more about the prospects for the business before she can put a final figure on the value of Reebby Sports, but he hopes that the information is sufficient for her to give a preliminary indication of the value of the shares.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014E
Earnings per share, \$	-2.10	-0.70	0.23	0.81	1.10	1.30	1.52	1.64	2.00	2.03
Dividend, \$	0.00	0.00	0.00	0.20	0.20	0.30	0.30	0.60	0.60	0.80
Book value per share, \$	9.80	7.70	7.00	7.61	8.51	9.51	10.73	11.77	13.17	14.40
ROE, %	-27.10	-7.1	3.0	11.6	14.5	15.3	16.0	15.3	17.0	15.4

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

## FOR THE INSTRUCTOR

The following supplements are available to you via the book's website at [www.mhhe.com/bma](http://www.mhhe.com/bma) and are password protected for security. Print copies are available through your McGraw-Hill/Irwin representative.

### Instructor's Manual

The Instructor's Manual was extensively revised and updated by Catherine Teutsch of the University of Colorado. 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.

### Test Bank

The Test Bank, revised by Frank Ryan of San Diego State University, 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.

### Computerized Test Bank

McGraw-Hill's EZ Test is a flexible and easy-to-use electronic testing program. The program allows you to create tests from book-specific items. It accommodates a wide range of question types and you can add your own questions. Multiple versions of the test can be created and any test can be exported for use with course management systems such as WebCT, BlackBoard, or PageOut. EZ Test Online gives you a place to easily administer your EZ Test-created exams and quizzes online. The program is available for Windows and Macintosh environments.

### PowerPoint Presentations

Catherine Teutsch also prepared the PowerPoint presentations, which contain exhibits, outlines, key points, and summaries in a visually stimulating collection of slides. You can edit, print, or rearrange the slides to fit the needs of your course.

### Solutions Manual

**ISBN 9780077502478; MHID 0077502477**

The Solutions Manual, carefully revised by Peter Crabb of Northwest Nazarene University, contains solutions to all basic,

intermediate, and challenge problems found at the end of each chapter. This supplement can be purchased by your students with your approval or can be packaged with this text at a discount. Please contact your McGraw-Hill/Irwin representative for additional information.

### Finance Video Series DVD

**ISBN 9780073363653; MHID 0073363650**

The McGraw-Hill/Irwin Finance Video Series is a complete video library designed to be added points of discussion to your class. You will find examples of how real businesses face hot topics like mergers and acquisitions, going public, time value of money, and careers in finance.

## Online Support

### ONLINE LEARNING CENTER

[www.mhhe.com/bma](http://www.mhhe.com/bma)

Find a wealth of information online! This site contains information about the book and the authors as well as teaching and learning materials for the instructor and student, including:

- **“Beyond the Page” content** A wealth of additional examples, explanations, and applications are available for quick access on the website. Each “Beyond the Page” feature is called out in the text with a QR code or icon that links directly to the OLC.
- **Excel 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. Also refer to the valuable Useful Spreadsheet Functions Boxes that are sprinkled throughout the text for some helpful prompts on working in Excel.
- **Online quizzes** These multiple-choice questions are provided as an additional testing and reinforcement tool for students. Each quiz is organized by chapter to test the specific concepts presented in that particular chapter. Immediate scoring of the quiz occurs upon submission and the correct answers are provided.
- **Interactive FinSims** This valuable asset consists of multiple simulations of key financial topics. Ideal for students to reinforce concepts and gain additional practice to strengthen skills.

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Greater Learning.**



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*Connect Finance* offers a number of powerful tools and features to make managing assignments easier, so faculty

can spend more time teaching. With *Connect Finance*, students can engage with their coursework anytime and anywhere, making the learning process more accessible and efficient. *Connect Finance* offers the features described here.

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- Reinforce classroom concepts with practice tests and instant quizzes.

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### Student Study Center

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- Offers students quick access to lectures, practice materials, eBooks, and more.
- Provides instant practice material and study questions, easily accessible on-the-go.
- Gives students access to the Self-Quiz and Study described below.

### Self-Quiz and Study

The Self-Quiz and Study (SQS) connects each student to the learning resources needed for success in the course. For each chapter, students

- Take a practice test to initiate the Self-Quiz and Study.
- Immediately upon completing the practice test, see how their performance compares to the chapter objectives to be achieved within each section of the chapters.
- Receive a study plan that recommends specific readings from the text, supplemental study material, and practice work that will improve their understanding and mastery of each learning objective.

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- Dynamic links between the problems or questions you assign to your students and the location in the eBook where that problem or question is covered.

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## I Part One: Value

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APPENDIX A

GLOSSARY G

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# 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 seeking 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 corporation's 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, such as 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 chapter ends by stating the financial goal of the corporation, which is to increase, and ideally to maximize, its market value. We explain why this goal makes sense. The middle of the chapter covers what a corporation is and what its financial managers do.

Financial managers add value whenever the corporation can earn 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 return again and again, in various forms and circumstances, 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 the 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 not sold or 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:

$$\begin{aligned}\text{Investment decision} &= \text{purchase of real assets} \\ \text{Financing decision} &= \text{sale of financial assets}\end{aligned}$$

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 if profits decline. 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 obligations to banks, bondholders, and stockholders that 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.<sup>1</sup>

Let's go to more specific examples. Table 1.1 lists nine corporations from all over the world. We have chosen very large public corporations that you are probably already familiar with. You have probably filled up at an Exxon gas station, shopped at Walmart, 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 Walmart's new stores or Union Pacific's new locomotives, 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 marketing. 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 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 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.

<sup>1</sup>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
Boeing (U.S.)	Delivers first Dreamliner after investing a reported \$30 billion in development costs.	Reinvests \$1.7 billion of profits.
Exxon Mobil (U.S.)	Spends \$7 billion to develop oil sands at Fort McMurray in Alberta.	Spends \$12 billion buying back shares.
GlaxoSmithKline (UK)	Spends \$4 billion on research and development for new drugs.	Pays \$3.2 billion as dividends.
LVMH <sup>2</sup> (France)	Acquires the Italian jeweler, Bulgari, for \$5 billion.	Pays for the acquisition with a mixture of cash and shares.
Procter & Gamble (U.S.)	Spends \$8 billion on advertising.	Raises 100 billion Japanese yen by an issue of five-year bonds.
Tata Motors (India)	Opens a new plant in India to produce the world's cheapest car, the Nano. The facility costs \$400 million.	Raises \$400 million by the sale of new shares.
Union Pacific (U.S.)	Invests \$330 million in 100 new locomotives and 10,000 freight cars and chassis.	Repays \$1.4 billion of debt.
Vale (Brazil)	Opens a huge copper mine at Salobo in Brazil. The project cost nearly \$2 billion.	Maintains credit lines with its banks that allow the company to borrow at any time up to \$1.6 billion.
Walmart (U.S.)	Invests \$12.7 billion, primarily to open 458 new stores around the world.	Issues \$5 billion of long-term bonds to repay short-term commercial paper borrowings.

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

Yet a stream of cash inflows lasting for 40-plus years may still not be enough. For example, the Southern Company has received authorization to build two new nuclear plants. The cost of the plants has been estimated (perhaps optimistically) at \$14 billion. Construction will take seven years (perhaps also an optimistic estimate). Thus Southern, if it goes ahead, will have to invest at least \$14 billion and wait at least seven years for any cash return. The longer it has to wait for cash to flow back in, the greater the cash inflow required to justify the investment. Thus the financial manager has to pay attention to the *timing* of cash inflows, not just to their cumulative amount.

Of course not all investments have distant payoffs. For example, Walmart spends about \$40 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 and expanding, however.)<sup>3</sup>

Among the contenders for the all-time worst investment was Bank of America's purchase of the home-mortgage lender Countrywide Financial Corp. in 2008 for \$2.5 billion. By 2011

<sup>2</sup>LVMH Moët Hennessy Louis Vuitton (usually abbreviated to LVMH) markets perfumes and cosmetics, wines and spirits, watches, and other fashion and luxury goods. And, yes, we know what you are thinking, but LVMH really is short for Moët Hennessy Louis Vuitton.

<sup>3</sup>The private investors who bought the bankrupt system concentrated on aviation, maritime, and defense markets rather than retail customers. In 2010 it arranged \$1.8 billion in new financing to replace and upgrade its satellite system.

Bank of America had racked up about \$18 billion in losses on Countrywide's assets and over \$20 billion in compensation to investors in Countrywide mortgage-backed bonds. "It turned out to be the worst decision we ever made," said one director.<sup>4</sup> Of course Bank of America had the rotten luck to buy Countrywide in the midst of a perfect financial storm, the financial crisis of 2007–2009. We discuss the financial crisis in Chapter 14.

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. Also, do not think of the financial manager as making billion-dollar 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, such as those shown in Table 1.1.

### 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 if interest rates fall? Should it borrow in Paris, receiving and promising to repay euros, or should it borrow dollars in New York? As Table 1.1 shows, Procter & Gamble borrowed Japanese yen, but it could have borrowed dollars or euros instead.

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 the 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 in 2010 GlaxoSmithKline paid cash dividends of \$3.2 billion. In the same year Exxon Mobil paid back \$12 billion to its stockholders by repurchasing shares. This was in addition to \$9 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. At the end of 2011, Microsoft shares traded for \$26 each. There were about 8.4 billion shares outstanding. Therefore Microsoft's overall market value—its *market capitalization* or *market cap*—was  $\$26 \times 8.4 = \$218$  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.

<sup>4</sup>Quoted in Dan Fitzpatrick, "Banks Haunted by Houses," *The Wall Street Journal*, June 30, 2011, pp. C1–C2.

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, when real estate mogul Sam Zell led a buyout of the *Chicago Tribune* in 2007 the newspaper took on about \$8 billion of additional debt. This was not a stupid decision, but it did prove fatal. As advertising revenues fell away in the recession of 2008, the *Tribune* could no longer service its debt. In December 2008 it filed for bankruptcy with assets of \$7.6 billion and debts of \$12.9 billion.

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 *Chicago Tribune* 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 U.S., 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.<sup>5</sup> For example, the articles of incorporation specify the composition and role of the *board of directors*.<sup>6</sup> A corporation’s directors are elected by the shareholders. They choose and advise top management and must sign off on some corporate actions, such as mergers and the payment of dividends to shareholders.

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, perhaps 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. Such 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 Fiat, Peugeot, Benetton, L’Oréal, and the Swatch Group.

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 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

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<sup>5</sup>In the U.S., corporations are identified by the label “Corporation,” “Incorporated,” or “Inc.,” as in US Airways Group, Inc. The UK 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”).

<sup>6</sup>The corporation’s bylaws set out in more detail the duties of the board of directors and how the firm should conduct its business.

## 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)*, 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.

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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S-corporations



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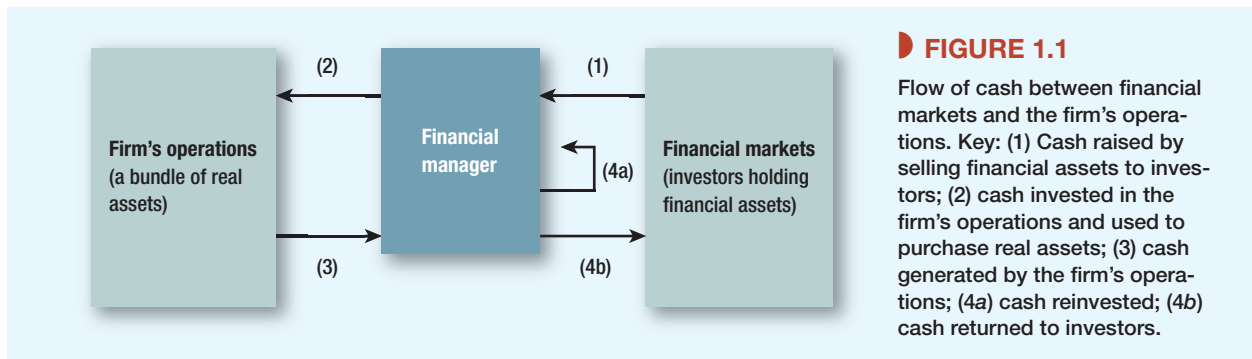
The financial managers



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### 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 (investment projects) needed for the corporation's business (arrow 2). Later, as the business operates, the assets generate cash inflows (arrow 3). That cash is either reinvested (arrow 4a) or returned to the investors who furnished the money in the first place (arrow 4b). Of course, the choice between arrows 4a and 4b 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 4b.

You can see examples of arrows 4a and 4b in Table 1.1. Walmart financed its investment in new stores by reinvesting earnings (arrow 4a). Exxon Mobil decided to return cash to shareholders by buying back its stock (arrow 4b). It 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.

## 1-2 The Financial Goal of the Corporation

### Shareholders Want Managers to Maximize Market Value

Walmart has nearly 300,000 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 Walmart's managers make decisions that satisfy all the shareholders? No two shareholders are exactly the same. They differ in age, tastes, wealth, time horizon, risk tolerance, and investment strategy. Delegating the operation of the firm to professional managers can work only if the 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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B-corporations



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Maximizing shareholder wealth is a sensible goal when the shareholders have access to well-functioning financial markets.<sup>7</sup> Financial markets allow them to share 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 portfolios 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.

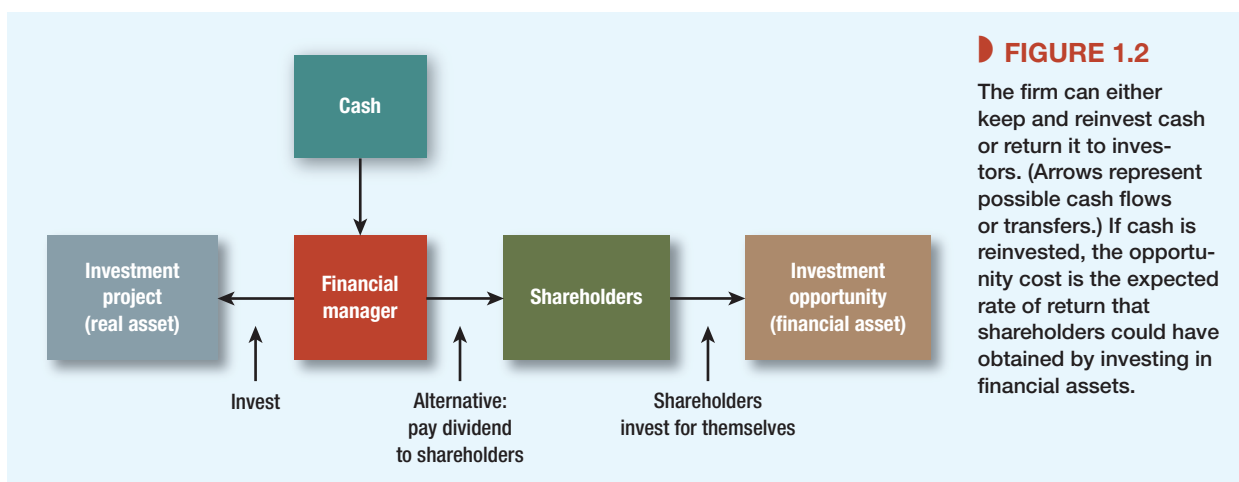
1. Each stockholder wants three things:
  - a. To be as rich as possible, that is, to maximize his or her current wealth.
  - b. To transform that wealth into the most desirable time pattern of consumption either by borrowing to spend now or investing to spend later.
  - c. To manage the risk characteristics 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 its 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 those outlays

<sup>7</sup>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.



may have added long-term value. Shareholders will not welcome higher short-term profits if long-term profits are damaged.

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. 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 Walmart's decisions to invest in new retail stores, for example. Suppose Walmart has cash set aside to build 100 new stores in 2014. 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 can then invest for themselves.

Suppose that Walmart'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 Walmart's stockholders would be happy to let Walmart 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.