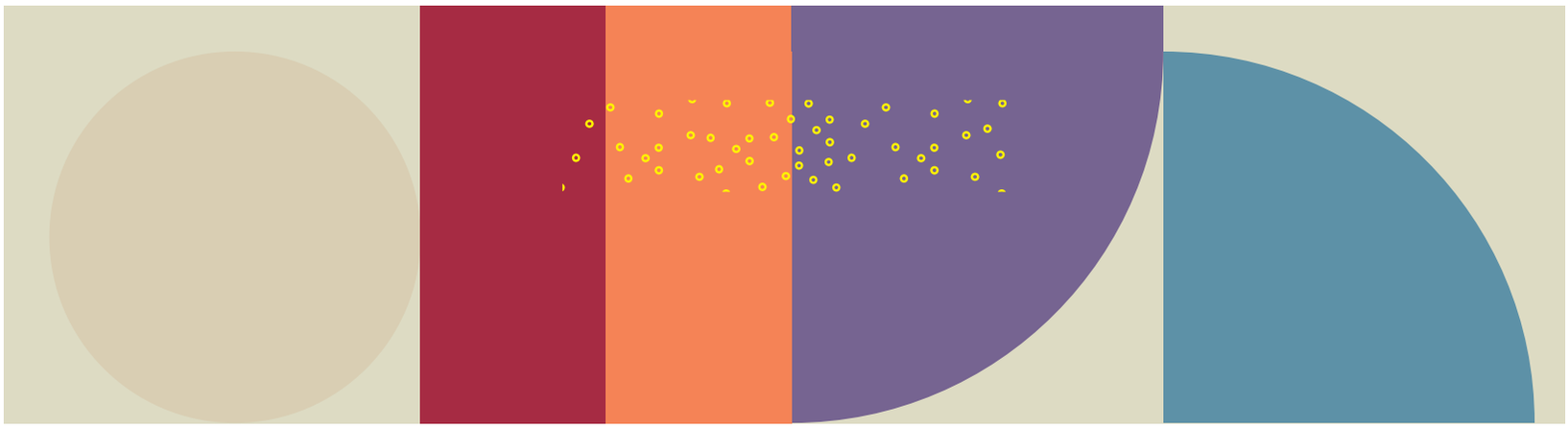
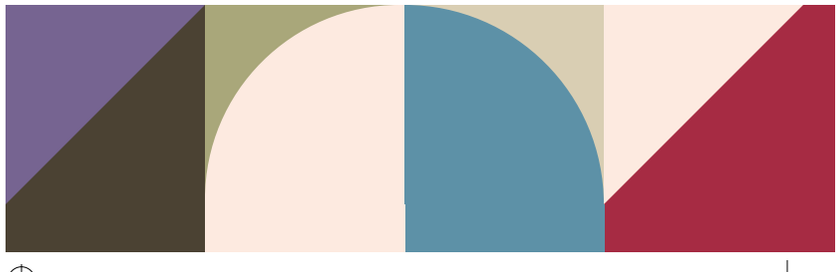


corporate finance

CORE PRINCIPLES & APPLICATIONS



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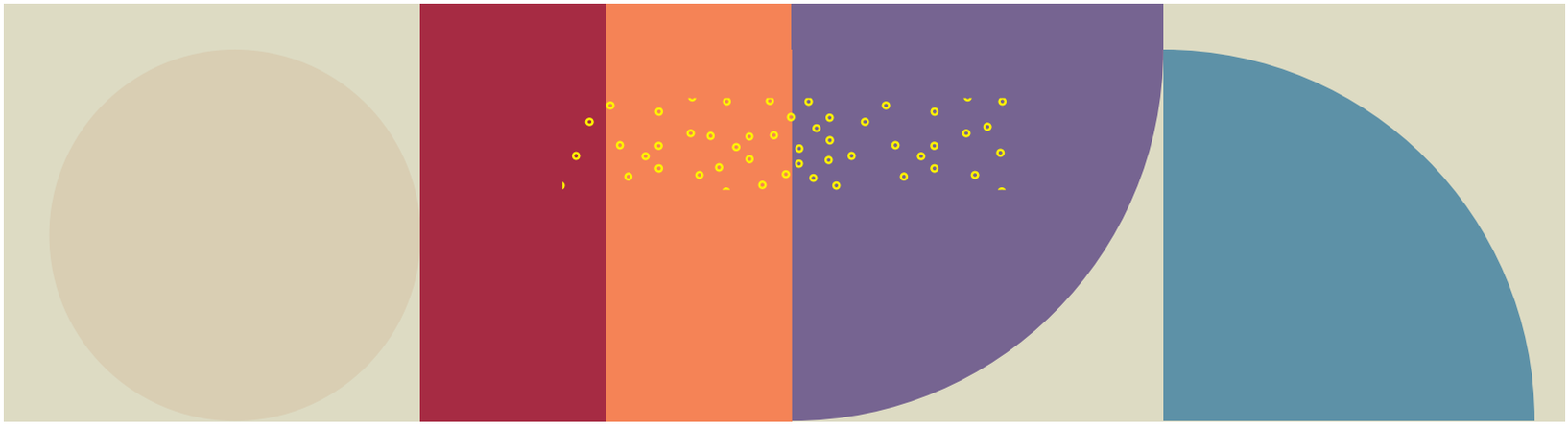

SIXTH EDITION

corporate finance

CORE PRINCIPLES & APPLICATIONS

Stephen A. Ross

Randolph W. Westerfield
University of Southern California, Emeritus

Jeffrey F. Jaffe
Wharton School of Business
University of Pennsylvania

Bradford D. Jordan
Gatton College of Business and Economics
University of Kentucky

CORPORATE FINANCE: CORE PRINCIPLES & APPLICATIONS, SIXTH EDITION

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To Stephen A. Ross and family

Our great friend, colleague, and coauthor Steve Ross passed away on March 3, 2017. Steve's influence on our textbook is seminal, deep, and enduring, and we will miss him greatly. We are confident that on the foundation of Steve's lasting and invaluable contributions, our textbook will continue to reach the highest level of excellence that we all aspire to.

— R.W.W. J.F.J. B.D.J.

ABOUT THE AUTHORS

Stephen A. Ross

SLOAN SCHOOL OF MANAGEMENT, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Stephen A. Ross was the Franco Modigliani Professor of Financial Economics at the Sloan School of Management, Massachusetts Institute of Technology. One of the most widely published authors in finance and economics, Professor Ross was recognized for his work in developing the arbitrage pricing theory, as well as for having made substantial contributions to the discipline through his research in signaling, agency theory, option pricing, and the theory of the term structure of interest rates, among other topics. A past president of the American Finance Association, he also served as an associate editor of several academic and practitioner journals, and was a trustee of CalTech. He died suddenly in March of 2017.

Randolph W. Westerfield

MARSHALL SCHOOL OF BUSINESS, UNIVERSITY OF SOUTHERN CALIFORNIA

Randolph W. Westerfield is Dean Emeritus of the University of Southern California's Marshall School of Business and is the Charles B. Thornton Professor of Finance Emeritus. Professor Westerfield came to USC from the Wharton School, University of Pennsylvania, where he was the chairman of the finance department and member of the finance faculty for 20 years. He is a member of the Board of Trustees of Oaktree Capital Mutual Funds. His areas of expertise include corporate financial policy, investment management, and stock market price behavior.

Jeffrey F. Jaffe

WHARTON SCHOOL OF BUSINESS, UNIVERSITY OF PENNSYLVANIA

Jeffrey F. Jaffe has been a frequent contributor to finance and economic literatures in such journals as the *Quarterly Economic Journal, The Journal of Finance, The Journal of Financial and Quantitative Analysis, The Journal of Financial Economics,* and *The Financial Analysts Journal.* His best-known work concerns insider trading, where he showed both that corporate insiders earn abnormal profits from their trades and that regulation has little effect on these profits. He has also made contributions concerning initial public offerings, the regulation of utilities, the behavior of market makers, the fluctuation of gold prices, the theoretical effect of inflation on interest rates, the empirical effect of inflation on capital asset prices, the relationship between small-capitalization stocks and the January effect, and the capital structure decision.

Bradford D. Jordan

GATTON COLLEGE OF BUSINESS AND ECONOMICS, UNIVERSITY OF KENTUCKY

Bradford D. Jordan is professor of finance and holder of the duPont Endowed Chair in Banking and Financial Services at the University of Kentucky. He has a long-standing interest in both applied and theoretical issues in corporate finance and has extensive experience teaching all levels of corporate finance and financial management policy. Professor Jordan has published numerous articles on issues such as cost of capital, capital structure, and the behavior of security prices. He is a past president of the Southern Finance Association, and he is coauthor of *Fundamentals of Investments: Valuation and Management,* 9th edition, a leading investments text, also published by McGraw-Hill.

FROM THE AUTHORS

IN THE BEGINNING . . .

It was probably inevitable that the four of us would collaborate on this project. Over the last 20 or so years, we have been working as two separate "RWJ" teams. In that time, we managed (much to our own amazement) to coauthor two widely adopted undergraduate texts and an equally successful graduate text, all in the corporate finance area. These three books have collectively totaled more than 35 editions (and counting), plus a variety of country-specific editions and international editions, and they have been translated into at least a dozen foreign languages.

Even so, we knew that there was a hole in our lineup at the graduate (MBA) level. We've continued to see a need for a concise, up-to-date, and to-the-point product, the majority of which can be realistically covered in a typical single term or course. As we began to develop this book, we realized (with wry chuckles all around) that, between the four of us, we had been teaching and researching finance principles for well over a century. From our own very extensive experience with this material, we recognized that corporate finance introductory classes often have students with extremely diverse educational and professional backgrounds. We also recognized that this course is increasingly being delivered in alternative formats ranging from traditional semester-long classes to highly compressed modules, to purely online courses, taught both synchronously and asynchronously.

OUR APPROACH

To achieve our objective of reaching out to the many different types of students and the varying course environments, we worked to distill the subject of corporate finance down to its core, while maintaining a decidedly modern approach. We have always maintained that corporate finance can be viewed as the working of a few very powerful intuitions. We also know that understanding the "why" is just as important, if not more so, than understanding the "how." Throughout the development of this book, we continued to take a hard look at what is truly relevant and useful. In doing so, we have worked to downplay purely theoretical issues and minimize the use of extensive and elaborate calculations to illustrate points that are either intuitively obvious or of limited practical use.

Perhaps more than anything, this book gave us the chance to pool all that we have learned about what really works in a corporate finance text. We have received an enormous amount of feedback over the years. Based on that feedback, the two key ingredients that we worked to blend together here are the careful attention to pedagogy and readability that we have developed in our undergraduate books and the strong emphasis on current thinking and research that we have always stressed in our graduate book.

From the start, we knew we didn't want this text to be encyclopedic. Our goal instead was to focus on what students really need to carry away from a principles course. After much debate and consultation with colleagues who regularly teach this material, we settled on a total of 21 chapters. Chapter length is typically 30 pages, so most of the book (and, thus, most of the key concepts and applications) can be realistically covered in a single term or module. Writing a book that strictly focuses on core concepts and applications necessarily involves some picking and choosing with regard to both topics and depth of coverage. Throughout, we strike a balance by introducing and covering the essentials, while leaving more specialized topics to follow-up courses.

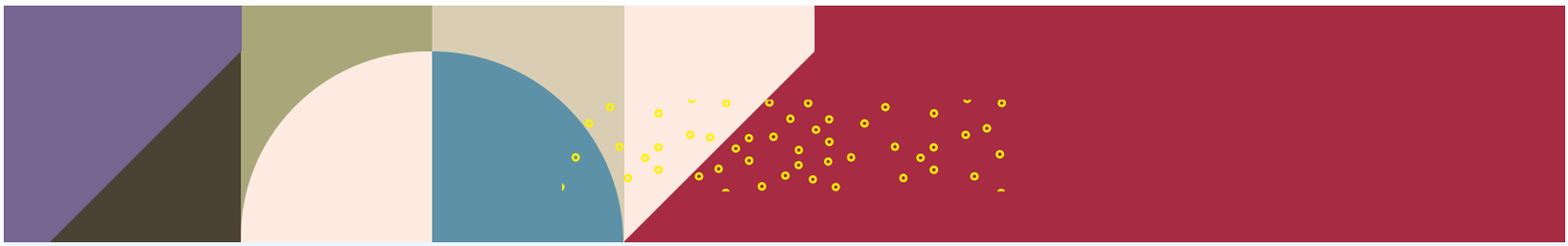
As in our other books, we treat net present value (NPV) as the underlying and unifying concept in corporate finance. Many texts stop well short of consistently integrating this basic principle. The simple, intuitive, and very powerful notion that NPV represents the excess of market value over cost often is lost in an overly mechanical approach that emphasizes computation at the expense of comprehension. In contrast, every subject we cover is firmly rooted in valuation, and care is taken throughout to explain how particular decisions have valuation effects.

Also, students shouldn't lose sight of the fact that financial management is about management. We emphasize the role of the financial manager as decision maker, and we stress the need for managerial input and judgment. We consciously avoid "black box" approaches to decisions, and where appropriate, the approximate, pragmatic nature of financial analysis is made explicit, possible pitfalls are described, and limitations are discussed.

NEW AND NOTEWORTHY TO THE SIXTH EDITION

All chapter openers and examples have been updated to reflect the financial trends and turbulence of the last several years. In addition, we have updated the end-of-chapter problems in every chapter. We have tried to incorporate the many exciting new research findings in corporate finance.

- The Tax Cuts and Jobs Act of 2017 is incorporated throughout. This major legislation covers many aspects of corporate finance, including (but not limited to):
  - Corporate tax. The new, flat-rate 21 percent corporate rate is discussed and compared to the old progressive system. Entities other than C corporations still face progressive taxation, so the discussion of marginal versus average tax rates remains relevant and is retained.



- Bonus depreciation. For a limited time, businesses can take a 100 percent depreciation charge the first year for most non-real estate, MACRS-qualified investments.
- Limitations on interest deductions. The amount of interest that may be deducted for tax purposes is limited. Interest that cannot be deducted can be carried forward to future tax years (but not carried back; see next).
- Carrybacks. Net operating loss (NOL) carrybacks have been eliminated and NOL carryforward deductions are limited in any one tax year.
- Dividends-received tax break. The tax break on dividends received by a corporation has been reduced, meaning that the portion subject to taxation has increased.
- Repatriation. The distinction between U.S. and non-U.S. profits essentially has been eliminated. All "overseas" assets, both liquid and illiquid, are subject to a one-time "deemed" tax.

- In the 12 years since the "financial crisis" or "great recession," we see that the world's financial markets are more integrated than ever before. The theory and practice of corporate finance has been moving forward at a fast pace and we endeavor to bring the theory and practice to life with completely updated chapter openers, many new modern examples, and completely updated end-of-chapter problems and questions.
- In recent years we have seen unprecedented high stock and bond values and returns as well as historically low interest rates and inflation.
- Chapter 10 Risk and Return: Lessons from Market History updates and internationalizes our discussion of historical risk and return. With updated historical data, our estimates of the equity risk premium are on stronger footing and our understanding of the capital market environment is heightened.
- Given the importance of debt in most firms' capital structure, it is a mystery that many firms use no debt. There is new and exciting research of this "no debt" behavior that sheds new light on how firms make actual capital structure decisions.
- Chapter 15 Capital Structure: Limits to the Use of Debt explores this new research and incorporates it into our discussion of capital structure.
- Chapter 16 Dividends and Other Payouts updates the record of earnings, dividends, and repurchases for large U.S. firms. The recent trends show repurchases far outpacing dividends in firm payout policy. Because firms may use dividends or repurchases to pay out cash to equity investors, the recent importance of repurchases suggests a changing financial landscape.
- There are several twists and turns to the calculation of the firm's weighted average cost of capital. Because the weighted average cost of capital is the most important benchmark we use for capital budgeting and represents a firm's "opportunity cost," its calculation is critical. We update our estimates of Eastman Chemical's cost of capital using readily available data from the internet to distinguish the nuances of this calculation.

Our attention to updating and improving also extended to the extensive collection of support and enrichment materials that accompany the text. Working with many dedicated and talented colleagues and professionals, we continue to provide supplements that are unrivaled at the graduate level (a complete description appears in the following pages). Whether you use just the textbook, or the book in conjunction with other products, we believe you will be able to find a combination that meets your current, as well as changing, needs.

—Randolph W. Westerfield
—Jeffrey F. Jaffe
—Bradford D. Jordan

PEDAGOGY

Corporate Finance: Core Principles & Applications is rich in valuable learning tools and support to help students succeed in learning the fundamentals of financial management.

Chapter Opening Case

Each chapter begins with a recent real-world event to introduce students to chapter concepts.

8

Making Capital Investment Decisions

OPENING CASE

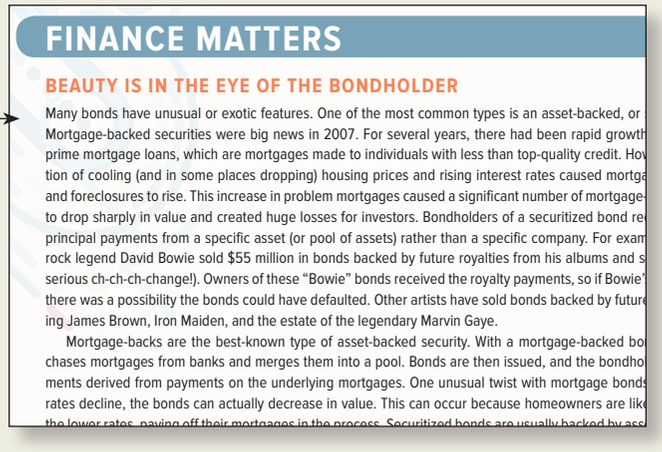
Everyone knows that computer chips evolve quickly, getting smaller, faster, and cheaper. In fact, the famous Moore's Law (named after Intel cofounder Gordon Moore) predicts that the number of transistors placed on a chip will double every two years (and this prediction has held up very well since it was published in 1965). This growth often means that companies need to build new fabrication facilities. For example, in 2018, Samsung announced that it would start producing 7 nanometer (nm) chips at its $6 billion extreme ultraviolet lithography (EUV) line at the company's plant in Hwaseong. The 7 nm chips are faster and more energy efficient than previous chips. And although Moore's Law might be in jeopardy as the doubling has slowed down for many manufacturers, Samsung stated that it planned to build 4 nm chips beginning in 2020 and 3 nm chips in 2021.

This chapter follows up on our previous one by delving more deeply into capital budgeting and the evaluation of projects such as these chip manufacturing facilities. We identify the relevant cash flows of a project, including initial investment outlays, requirements for net working capital, and operating cash flows. Further, we look at the effects of depreciation and taxes. We also examine the impact of inflation and show how to consistently evaluate the NPV of a project.

Please visit us at corecorporatefinance.blogspot.com for the latest developments in the world of corporate finance.

Finance Matters

By exploring information found in recent publications and building upon concepts learned in each chapter, these boxes work through real-world issues relevant to the surrounding text.

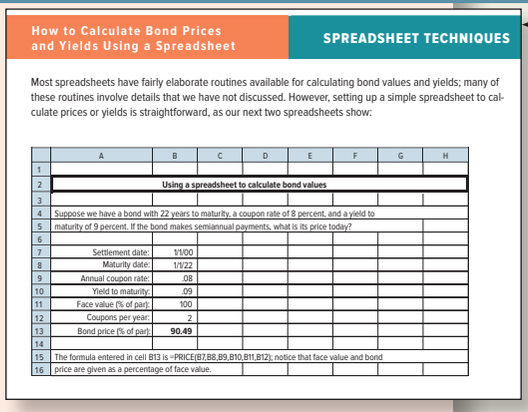


FINANCE MATTERS

BEAUTY IS IN THE EYE OF THE BONDHOLDER

Many bonds have unusual or exotic features. One of the most common types is an asset-backed, or
Mortgage-backed securities were big news in 2007. For several years, there had been rapid growth
prime mortgage loans, which are mortgages made to individuals with less than top-quality credit. Hov
tion of cooling (and in some places dropping) housing prices and rising interest rates caused mortga
and foreclosures to rise. This increase in problem mortgages caused a significant number of mortgage-
to drop sharply in value and created huge losses for investors. Bondholders of a securitized bond re
principal payments from a specific asset (or pool of assets) rather than a specific company. For exam
rock legend David Bowie sold $55 million in bonds backed by future royalties from his albums and s
serious ch-ch-ch-change!). Owners of these "Bowie" bonds received the royalty payments, so if Bowie'
there was a possibility the bonds could have defaulted. Other artists have sold bonds backed by future
ing James Brown, Iron Maiden, and the estate of the legendary Marvin Gaye.

Mortgage-backs are the best-known type of asset-backed security. With a mortgage-backed bo
chases mortgages from banks and merges them into a pool. Bonds are then issued, and the bondho
ments derived from payments on the underlying mortgages. One unusual twist with mortgage bonds
rates decline, the bonds can actually decrease in value. This can occur because homeowners are like
the lower rates, paying off their mortgages in the process. Securitized bonds are usually backed by ass



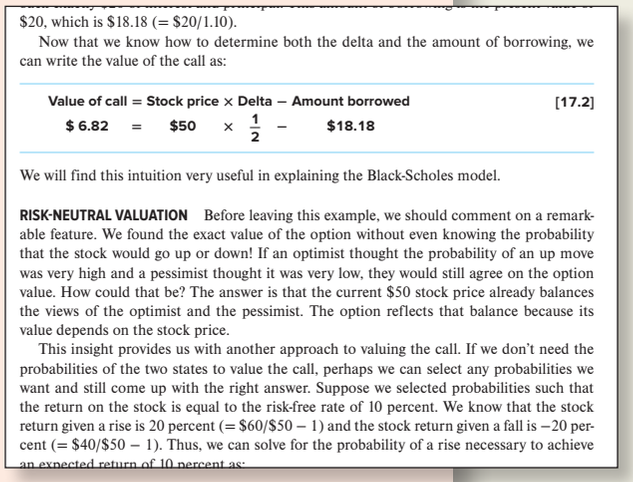
How to Calculate Bond Prices and Yields Using a Spreadsheet SPREADSHEET TECHNIQUES

Most spreadsheets have fairly elaborate routines available for calculating bond values and yields; many of these routines involve details that we have not discussed. However, setting up a simple spreadsheet to calculate prices or yields is straightforward, as our next two spreadsheets show:

	A	B	C	D	E	F	G	H
1								
2	**Using a spreadsheet to calculate bond values**							
3								
4	Suppose we have a bond with 22 years to maturity, a coupon rate of 8 percent, and a yield to							
5	maturity of 9 percent. If the bond makes semiannual payments, what is its price today?							
6								
7	Settlement date:	1/1/00						
8	Maturity date:	1/1/22						
9	Annual coupon rate:	.08						
10	Yield to maturity:	.09						
11	Face value (% of par):	100						
12	Coupons per year:	2						
13	Bond price (% of par):	**90.49**						
14								
15	The formula entered in cell B13 is =PRICE(B7,B8,B9,B10,B11,B12); notice that face value and bond							
16	price are given as a percentage of face value.							

Spreadsheet Techniques

This feature helps students to improve their Excel spreadsheet skills, particularly as they relate to corporate finance. This feature appears in self-contained sections and shows students how to set up spreadsheets to analyze common financial problems—a vital part of every business student's education. For even more help using Excel, students have access to Excel Master, an in-depth online tutorial.



$20, which is $18.18 (= $20/1.10).

Now that we know how to determine both the delta and the amount of borrowing, we can write the value of the call as:

$$\text{Value of call} = \text{Stock price} \times \text{Delta} - \text{Amount borrowed} \quad [17.2]$$
$$\$6.82 = \$50 \times \frac{1}{2} - \$18.18$$

We will find this intuition very useful in explaining the Black-Scholes model.

RISK-NEUTRAL VALUATION Before leaving this example, we should comment on a remarkable feature. We found the exact value of the option without even knowing the probability that the stock would go up or down! If an optimist thought the probability of an up move was very high and a pessimist thought it was very low, they would still agree on the option value. How could that be? The answer is that the current $50 stock price already balances the views of the optimist and the pessimist. The option reflects that balance because its value depends on the stock price.

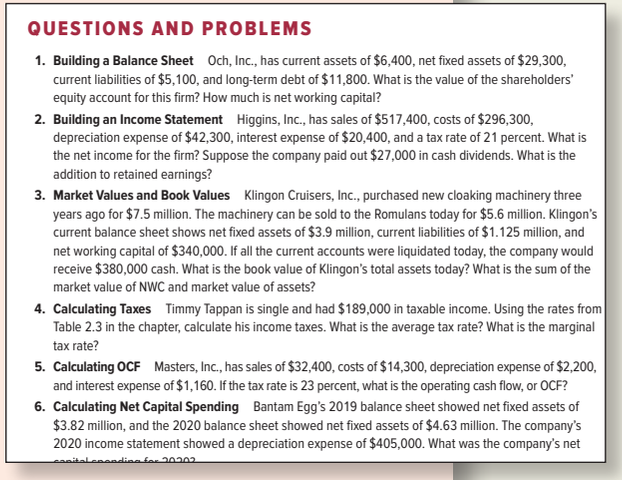
This insight provides us with another approach to valuing the call. If we don't need the probabilities of the two states to value the call, perhaps we can select any probabilities we want and still come up with the right answer. Suppose we selected probabilities such that the return on the stock is equal to the risk-free rate of 10 percent. We know that the stock return given a rise is 20 percent (= $60/$50 − 1) and the stock return given a fall is −20 percent (= $40/$50 − 1). Thus, we can solve for the probability of a rise necessary to achieve an expected return of 10 percent as:

Numbered Equations

Key equations are numbered within the text and listed in Appendix D for easy reference.

END-OF-CHAPTER MATERIAL

The end-of-chapter material reflects and builds on the concepts learned from the chapter and study features.



QUESTIONS AND PROBLEMS

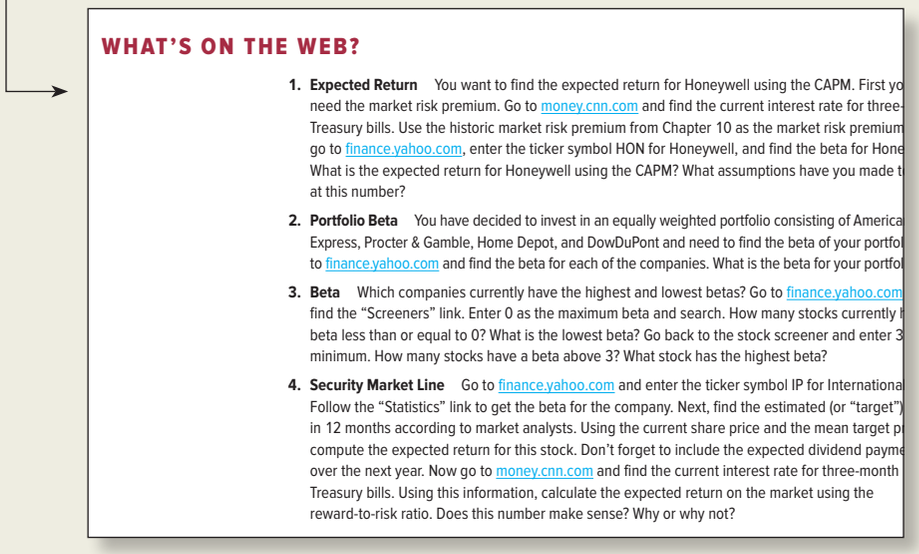
1. **Building a Balance Sheet** Och, Inc., has current assets of $6,400, net fixed assets of $29,300, current liabilities of $5,100, and long-term debt of $11,800. What is the value of the shareholders' equity account for this firm? How much is net working capital?
2. **Building an Income Statement** Higgins, Inc., has sales of $517,400, costs of $296,300, depreciation expense of $42,300, interest expense of $20,400, and a tax rate of 21 percent. What is the net income for the firm? Suppose the company paid out $27,000 in cash dividends. What is the addition to retained earnings?
3. **Market Values and Book Values** Klingon Cruisers, Inc., purchased new cloaking machinery three years ago for $7.5 million. The machinery can be sold to the Romulans today for $5.6 million. Klingon's current balance sheet shows net fixed assets of $3.9 million, current liabilities of $1.125 million, and net working capital of $340,000. If all the current accounts were liquidated today, the company would receive $380,000 cash. What is the book value of Klingon's total assets today? What is the sum of the market value of NWC and market value of assets?
4. **Calculating Taxes** Timmy Tappan is single and had $189,000 in taxable income. Using the rates from Table 2.3 in the chapter, calculate his income taxes. What is the average tax rate? What is the marginal tax rate?
5. **Calculating OCF** Masters, Inc., has sales of $32,400, costs of $14,300, depreciation expense of $2,200, and interest expense of $1,160. If the tax rate is 23 percent, what is the operating cash flow, or OCF?
6. **Calculating Net Capital Spending** Bantam Egg's 2019 balance sheet showed net fixed assets of $3.82 million, and the 2020 balance sheet showed net fixed assets of $4.63 million. The company's 2020 income statement showed a depreciation expense of $405,000. What was the company's net capital spending for 2020?

Questions and Problems

Because solving problems is so critical to students' learning, we provide extensive end-of-chapter questions and problems. The questions and problems are segregated into three learning levels: Basic, Intermediate, and Challenge. All problems are fully annotated so that students and instructors can readily identify particular types. Also, most of the problems are available in McGraw-Hill's Connect.

What's on the Web?

These end-of-chapter activities show students how to use and learn from the vast amount of financial resources available on the internet.

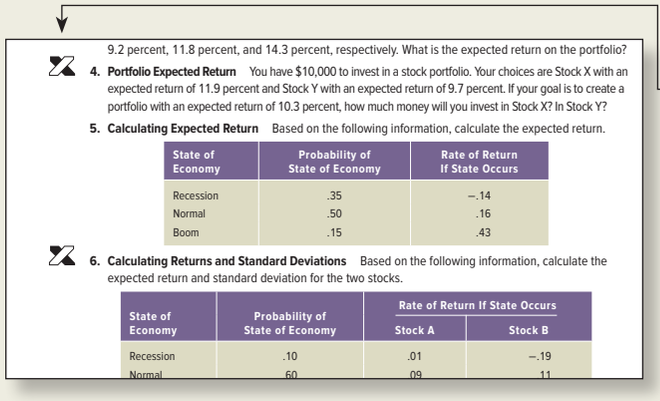


WHAT'S ON THE WEB?

1. **Expected Return** You want to find the expected return for Honeywell using the CAPM. First yo need the market risk premium. Go to money.cnn.com and find the current interest rate for three- Treasury bills. Use the historic market risk premium from Chapter 10 as the market risk premium go to finance.yahoo.com, enter the ticker symbol HON for Honeywell, and find the beta for Hone What is the expected return for Honeywell using the CAPM? What assumptions have you made t at this number?
2. **Portfolio Beta** You have decided to invest in an equally weighted portfolio consisting of America Express, Procter & Gamble, Home Depot, and DowDuPont and need to find the beta of your portfol to finance.yahoo.com and find the beta for each of the companies. What is the beta for your portfol
3. **Beta** Which companies currently have the highest and lowest betas? Go to finance.yahoo.com find the "Screeners" link. Enter 0 as the maximum beta and search. How many stocks currently h beta less than or equal to 0? What is the lowest beta? Go back to the stock screener and enter 3 minimum. How many stocks have a beta above 3? What stock has the highest beta?
4. **Security Market Line** Go to finance.yahoo.com and enter the ticker symbol IP for Internationa Follow the "Statistics" link to get the beta for the company. Next, find the estimated (or "target") in 12 months according to market analysts. Using the current share price and the mean target pr compute the expected return for this stock. Don't forget to include the expected dividend payme over the next year. Now go to money.cnn.com and find the current interest rate for three-month Treasury bills. Using this information, calculate the expected return on the market using the reward-to-risk ratio. Does this number make sense? Why or why not?

Excel Problems

Expanded for this edition! Indicated by the Excel icon in the margin, these problems are integrated in the Questions and Problems section of almost all chapters. RWJJ offers students more practice using the Excel functions they will use throughout their futures in finance.



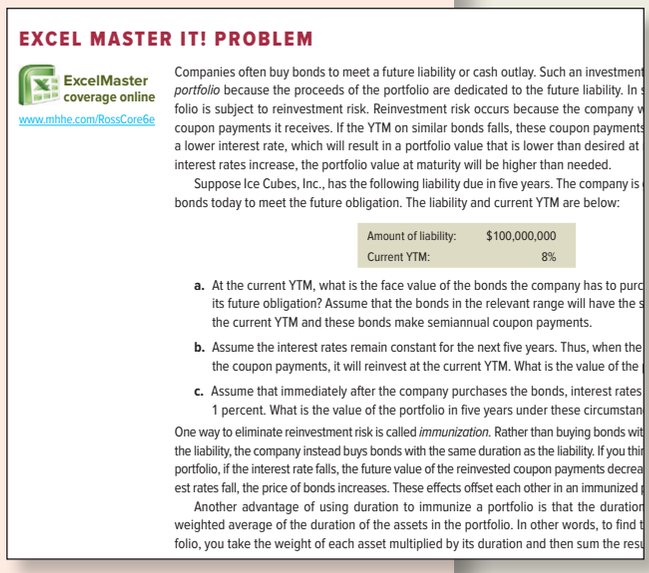
9.2 percent, 11.8 percent, and 14.3 percent, respectively. What is the expected return on the portfolio?

4. **Portfolio Expected Return** You have $10,000 to invest in a stock portfolio. Your choices are Stock X with an expected return of 11.9 percent and Stock Y with an expected return of 9.7 percent. If your goal is to create a portfolio with an expected return of 10.3 percent, how much money will you invest in Stock X? In Stock Y?
5. **Calculating Expected Return** Based on the following information, calculate the expected return.

State of Economy	Probability of State of Economy	Rate of Return If State Occurs
Recession	.35	–.14
Normal	.50	.16
Boom	.15	.43

6. **Calculating Returns and Standard Deviations** Based on the following information, calculate the expected return and standard deviation for the two stocks.

State of Economy	Probability of State of Economy	Rate of Return If State Occurs	
		Stock A	Stock B
Recession	.10	.01	–.19
Normal	.60	.09	.11



EXCEL MASTER IT! PROBLEM

ExcelMaster coverage online

www.mhhe.com/RossCore6e

Companies often buy bonds to meet a future liability or cash outlay. Such an investment *portfolio* because the proceeds of the portfolio are dedicated to the future liability. In s folio is subject to reinvestment risk. Reinvestment risk occurs because the company w coupon payments it receives. If the YTM on similar bonds falls, these coupon payments a lower interest rate, which will result in a portfolio value that is lower than desired at interest rates increase, the portfolio value at maturity will be higher than needed.

Suppose Ice Cubes, Inc., has the following liability due in five years. The company is bonds today to meet the future obligation. The liability and current YTM are below:

Amount of liability:	$100,000,000
Current YTM:	8%

a. At the current YTM, what is the face value of the bonds the company has to purc its future obligation? Assume that the bonds in the relevant range will have the s the current YTM and these bonds make semiannual coupon payments.

b. Assume the interest rates remain constant for the next five years. Thus, when the the coupon payments, it will reinvest at the current YTM. What is the value of the

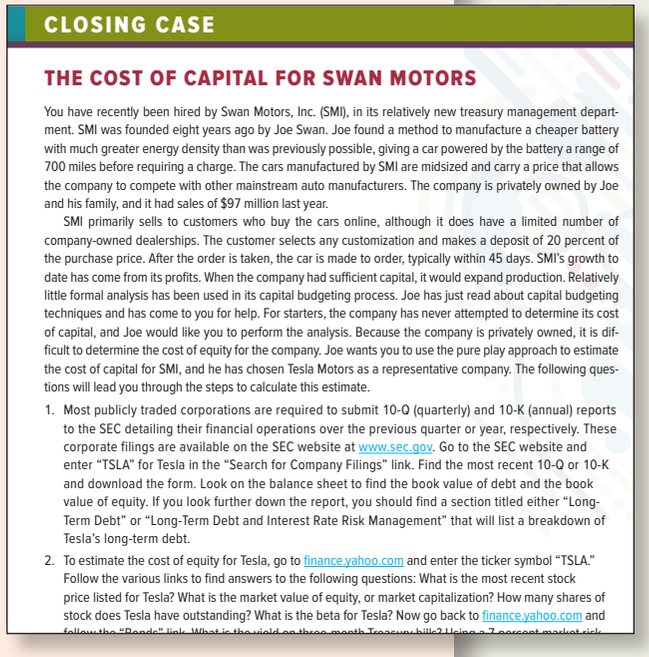
c. Assume that immediately after the company purchases the bonds, interest rates 1 percent. What is the value of the portfolio in five years under these circumstan

One way to eliminate reinvestment risk is called *immunization*. Rather than buying bonds wit the liability, the company instead buys bonds with the same duration as the liability. If you thi portfolio, if the interest rate falls, the future value of the reinvested coupon payments decrea est rates fall, the price of bonds increases. These effects offset each other in an immunized

Another advantage of using duration to immunize a portfolio is that the duration weighted average of the duration of the assets in the portfolio. In other words, to find t folio, you take the weight of each asset multiplied by its duration and then sum the resu

Excel Master It! Problems

These more in-depth mini-case studies highlight higher-level Excel skills. Students are encouraged to use Excel to solve real-life financial problems using the concepts they have learned in the chapter and the Excel skills they have acquired thus far.



CLOSING CASE

THE COST OF CAPITAL FOR SWAN MOTORS

You have recently been hired by Swan Motors, Inc. (SMI), in its relatively new treasury management department. SMI was founded eight years ago by Joe Swan. Joe found a method to manufacture a cheaper battery with much greater energy density than was previously possible, giving a car powered by the battery a range of 700 miles before requiring a charge. The cars manufactured by SMI are midsized and carry a price that allows the company to compete with other mainstream auto manufacturers. The company is privately owned by Joe and his family, and it had sales of $97 million last year.

SMI primarily sells to customers who buy the cars online, although it does have a limited number of company-owned dealerships. The customer selects any customization and makes a deposit of 20 percent of the purchase price. After the order is taken, the car is made to order, typically within 45 days. SMI's growth to date has come from its profits. When the company had sufficient capital, it would expand production. Relatively little formal analysis has been used in its capital budgeting process. Joe has just read about capital budgeting techniques and has come to you for help. For starters, the company has never attempted to determine its cost of capital, and Joe would like you to perform the analysis. Because the company is privately owned, it is difficult to determine the cost of equity for the company. Joe wants you to use the pure play approach to estimate the cost of capital for SMI, and he has chosen Tesla Motors as a representative company. The following questions will lead you through the steps to calculate this estimate.

1. Most publicly traded corporations are required to submit 10-Q (quarterly) and 10-K (annual) reports to the SEC detailing their financial operations over the previous quarter or year, respectively. These corporate filings are available on the SEC website at www.sec.gov. Go to the SEC website and enter "TSLA" for Tesla in the "Search for Company Filings" link. Find the most recent 10-Q or 10-K and download the form. Look on the balance sheet to find the book value of debt and the book value of equity. If you look further down the report, you should find a section titled either "Long-Term Debt" or "Long-Term Debt and Interest Rate Risk Management" that will list a breakdown of Tesla's long-term debt.
2. To estimate the cost of equity for Tesla, go to finance.yahoo.com and enter the ticker symbol "TSLA." Follow the various links to find answers to the following questions: What is the most recent stock price listed for Tesla? What is the market value of equity, or market capitalization? How many shares of stock does Tesla have outstanding? What is the beta for Tesla? Now go back to finance.yahoo.com and follow the "Bonds" link. What is the yield on three-month Treasury bills? Using a 7 percent market risk

End-of-Chapter Cases

Located at the end of each chapter, these mini-cases focus on common company situations that embody important corporate finance topics. Each case presents a new scenario, data, and a dilemma. Several questions at the end of each case require students to analyze and focus on all of the material they learned in that chapter.

COMPREHENSIVE TEACHING

INSTRUCTOR SUPPORT

- **Instructor's Manual**
  prepared by Bruce Costa, University of Montana
  A great place to find new lecture ideas. The IM has three main sections. The first section contains a chapter outline and other lecture materials. The annotated outline for each chapter includes lecture tips, real-world tips, ethics notes, suggested PowerPoint slides, and, when appropriate, a video synopsis. Detailed solutions for all end-of-chapter problems appear in Section 3.
- **Test Bank**
  prepared by Heidi Toprac, University of Texas
  A great format for a better testing process. The Test Bank has 75–100 questions per chapter that closely link with the text material and provide a variety of question formats (multiple-choice questions/problems and essay questions) and levels of difficulty (basic, intermediate, and challenge) to meet every instructor's testing needs. Problems are detailed enough to make them intuitive for students, and solutions are provided for the instructor.
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- **Excel Templates**
  Corresponding to most end-of-chapter problems, each template allows the student to walk through the problem using Excel.
- **Narrated Presentations**
  Each chapter's slides follow the chapter topics and provide steps and explanations showing how to solve key problems. Because each student learns differently, a quick click on each slide will "talk through" its contents with you!

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(ISBN 10: 0077219880/ISBN 13: 9780077219888)
Just $15.00 when packaged with this text. In this comprehensive simulation game, students control a hypothetical company over numerous periods of operation. As students make major financial and operating decisions for their company, they will develop and enhance their skills in financial management and financial accounting statement analysis.

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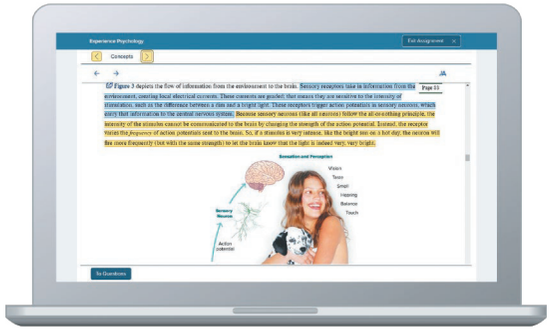

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ACKNOWLEDGMENTS

To borrow a phrase, writing a finance textbook is easy—all you do is sit down at a word processor and open a vein. We never would have completed this book without the incredible amount of help and support we received from our colleagues, students, editors, family members, and friends. We would like to thank, without implicating, all of you.

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Throughout the development of this edition, we have taken great care to discover and eliminate errors. Our goal is to provide the best textbook available on the subject. To ensure that future editions are error-free, we gladly offer $10 per arithmetic error to the first individual reporting it as a modest token of our appreciation. More than this, we would like to hear from instructors and students alike. Please write and tell us how to make this a better text. Forward your comments to: Dr. Brad Jordan, c/o Editorial-Finance, McGraw-Hill, 120 S. Riverside, Suite 1200, Chicago, IL 60606.

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BRIEF CONTENTS

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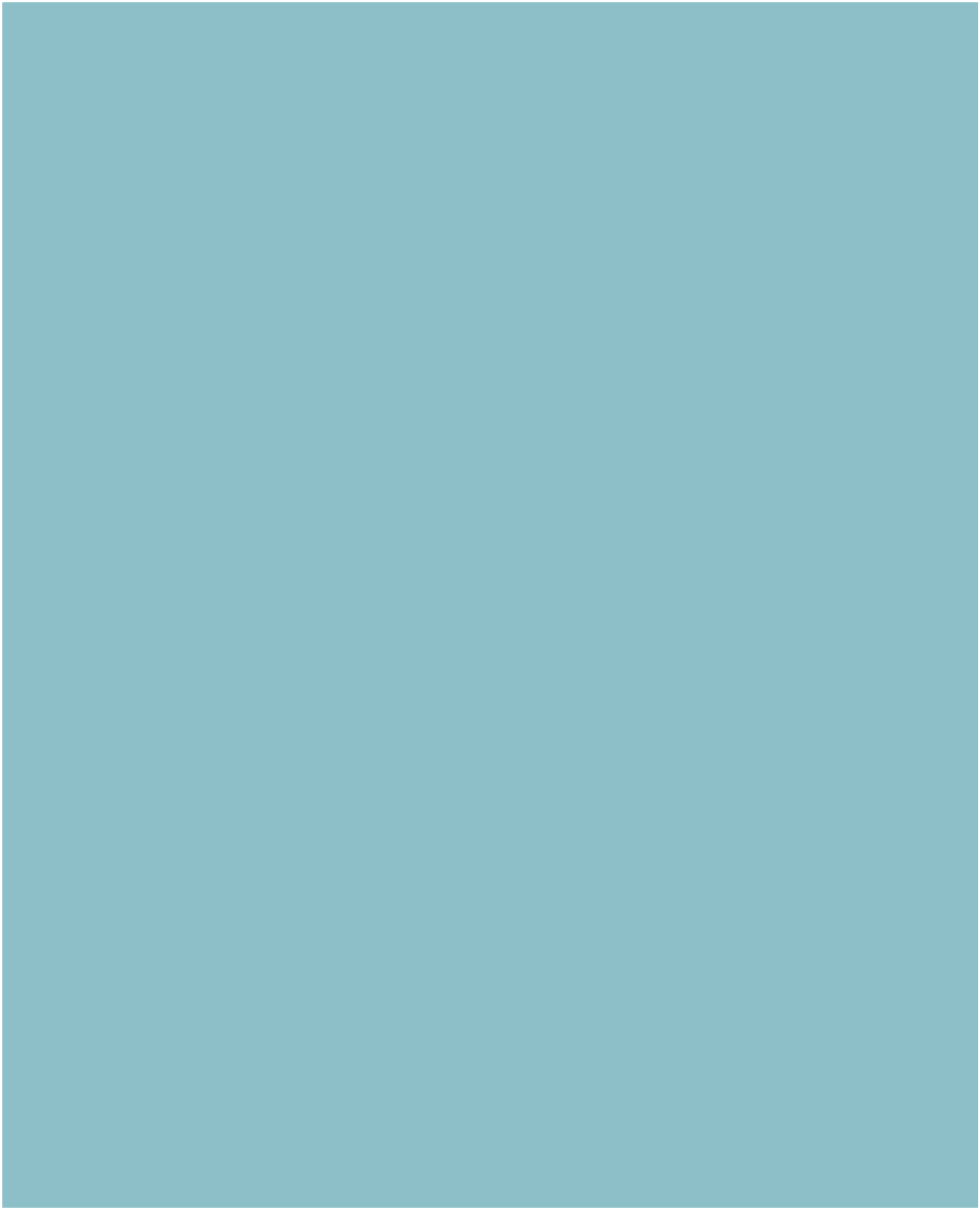
FINANCE MATTERS



PART ONE: OVERVIEW

1

Introduction to Corporate Finance

OPENING CASE

In 2009, Travis Kalanick and Garrett Camp started the ride-sharing app Uber. Uber shot out of the gate, completing more than five billion rides by the middle of 2017. Even though Uber was losing more than $100 million per quarter, its market value reached $70 billion, with Kalanick's personal wealth exceeding $6 billion. Unfortunately, Kalanick was accused of knowing about sexual harassment in the company and doing nothing to resolve the problem. Then, he was videotaped berating an Uber driver. As a result, he was forced to step down as CEO of the company in June 2017, although he remained on the company's board of directors. In 2018, Kalanick became the CEO of start-up City Storage Systems, which focuses on turning distressed real estate, such as parking lots and abandoned malls, into spaces for new industries.

Understanding Kalanick's rapid, bumpy ride from co-founder of a start-up worth $70 billion to ex-CEO takes us into issues involving the corporate form of organization, corporate goals, and corporate control—all of which we discuss in this chapter. And if you are willing to share the ride with us, you'll learn an uber-lot as you read.

Please visit us at corecorporatefinance.blogspot.com for the latest developments in the world of corporate finance.

1.1 WHAT IS CORPORATE FINANCE?

Suppose you decide to start a firm to make tennis balls. To do this you hire managers to buy raw materials, and you assemble a workforce that will produce and sell finished tennis balls. In the language of finance, you make an investment in assets such as inventory, machinery, land, and labor. The amount of cash you invest in assets must be matched by an equal amount of cash raised by financing. When you begin to sell tennis balls, your firm will generate cash. This is the basis of value creation. The purpose of the firm is to create value for you, the owner. The value is reflected in the framework of the simple balance sheet model of the firm.

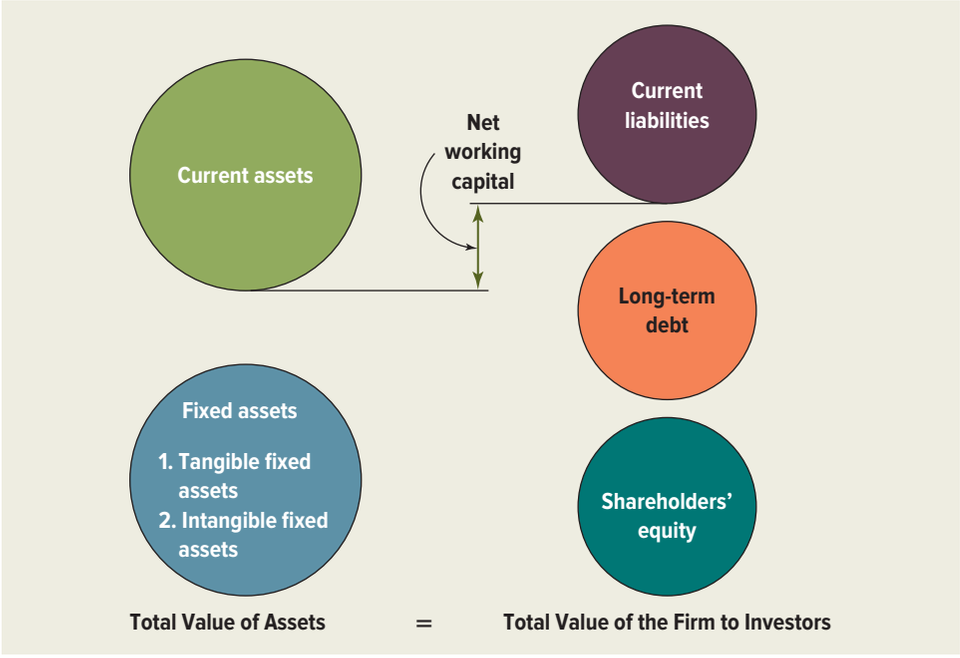
The Balance Sheet Model of the Firm

Suppose we take a financial snapshot of the firm and its activities at a single point in time. Figure 1.1 shows a graphic conceptualization of the balance sheet, and it will help introduce you to corporate finance.

The assets of the firm are on the left side of the balance sheet. These assets can be thought of as current and fixed. *Fixed assets* are those that will last a long time, such as buildings. Some fixed assets are tangible, such as machinery and equipment. Other fixed assets are intangible, such as patents and trademarks. The other category of assets, *current assets,* comprises those that have short lives, such as inventory. The tennis balls that your firm has made, but has not yet sold, are part of its inventory. Unless you have overproduced, they will leave the firm shortly.

Before a company can invest in an asset, it must obtain financing, which means that it must raise the money to pay for the investment. The forms of financing are represented on

FIGURE 1.1
The Balance Sheet Model of the Firm



the right side of the balance sheet. A firm will issue (sell) pieces of paper called *debt* (loan agreements) or *equity shares* (stock certificates). Just as assets are classified as long-lived or short-lived, so too are liabilities. A short-term debt is called a *current liability.* Short-term debt represents loans and other obligations that must be repaid within one year. Long-term debt is debt that does not have to be repaid within one year. Shareholders' equity represents the difference between the value of the assets and the debt of the firm. In this sense, it is a residual claim on the firm's assets.

From the balance sheet model of the firm, it is easy to see why finance can be thought of as the study of the following three questions:

1. In what long-lived assets should the firm invest? This question concerns the left side of the balance sheet. Of course the types and proportions of assets the firm needs tend to be set by the nature of the business. We use the term **capital budgeting** to describe the process of making and managing expenditures on long-lived assets.
2. How can the firm raise cash for required capital expenditures? This question concerns the right side of the balance sheet. The answer to this question involves the firm's **capital structure**, which represents the proportions of the firm's financing from current liabilities, long-term debt, and equity.
3. How should short-term operating cash flows be managed? This question concerns the upper portion of the balance sheet. There is often a mismatch between the timing of cash inflows and cash outflows during operating activities.

Furthermore, the amount and timing of operating cash flows are not known with certainty. Financial managers must attempt to manage the gaps in cash flow.

From a balance sheet perspective, short-term management of cash flow is associated with a firm's **net working capital**. Net working capital is defined as current assets minus current liabilities. From a financial perspective, short-term cash flow problems come from the mismatching of cash inflows and outflows. This is the subject of short-term finance.

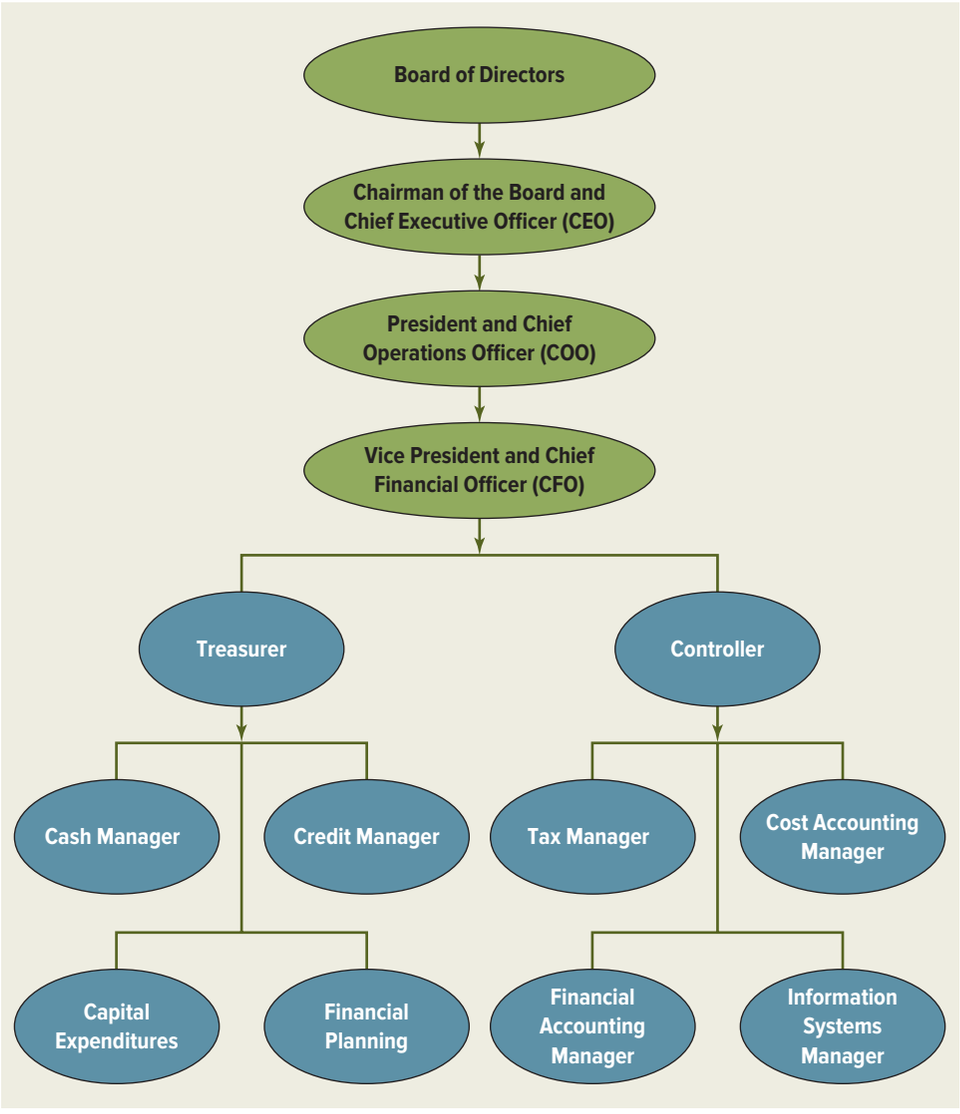


FIGURE 1.2
Hypothetical Organization Chart

The Financial Manager

In large firms, the finance activity is usually associated with a top officer of the firm, such as the vice president and chief financial officer, and some lesser officers. Figure 1.2 depicts a general organizational structure emphasizing the finance activity within the firm. Reporting to the chief financial officer are the treasurer and the controller. The treasurer is responsible for handling cash flows, managing capital expenditure decisions, and making financial plans. The controller handles the accounting function, which includes taxes, cost and financial accounting, and information systems.

For current issues facing CFOs, see www.cfo.com.

1.2 THE CORPORATE FIRM

The firm is a way of organizing the economic activity of many individuals. A basic problem of the firm is how to raise cash. The corporate form of business—that is, organizing the firm as a corporation—is the standard method for solving problems encountered in raising large

amounts of cash. However, businesses can take other forms. In this section we consider the three basic legal forms of organizing firms, and we see how firms go about the task of raising large amounts of money under each form.

The Sole Proprietorship

A **sole proprietorship** is a business owned by one person. Suppose you decide to start a business to produce mousetraps. Going into business is simple: You announce to all who will listen, "Today, I am going to build a better mousetrap."

Most large cities require that you obtain a business license. Afterward, you can begin to hire as many people as you need and borrow whatever money you need. At year-end all the profits or the losses will be yours.

Here are some factors that are important in considering a sole proprietorship:

1. The sole proprietorship is the cheapest business to form. No formal charter is required, and few government regulations must be satisfied for most industries.
2. A sole proprietorship pays no corporate income taxes. All profits of the business are taxed as individual income.
3. The sole proprietorship has unlimited liability for business debts and obligations. No distinction is made between personal and business assets.
4. The life of the sole proprietorship is limited by the life of the sole proprietor.
5. Because the only money invested in the firm is the proprietor's, the equity money that can be raised by the sole proprietor is limited to the proprietor's personal wealth.

The Partnership

Any two or more people can get together and form a **partnership**. Partnerships fall into two categories: (1) general partnerships and (2) limited partnerships.

In a *general partnership,* all partners agree to provide some fraction of the work and cash and to share the profits and losses. Each partner is liable for all of the debts of the partnership. A partnership agreement specifies the nature of the arrangement. The partnership agreement may be an oral agreement or a formal document setting forth the understanding.

Limited partnerships permit the liability of some of the partners to be limited to the amount of cash each has contributed to the partnership. Limited partnerships usually require that (1) at least one partner be a general partner and (2) the limited partners do not participate in managing the business. Here are some things that are important when considering a partnership:

1. Partnerships are usually inexpensive and easy to form. Written documents are required in complicated arrangements. Business licenses and filing fees may be necessary.
2. General partners have unlimited liability for all debts. The liability of limited partners is usually limited to the contribution each has made to the partnership. If one general partner is unable to meet his or her commitment, the shortfall must be made up by the other general partners.
3. The general partnership is terminated when a general partner dies or withdraws (but this is not so for a limited partner). It is difficult for a partnership to transfer ownership without dissolving. Usually all general partners must agree. However, limited partners may sell their interest in a business.
4. It is difficult for a partnership to raise large amounts of cash. Equity contributions are usually limited to a partner's ability and desire to contribute to the partnership. Many companies, such as Apple Computer, start life as a proprietorship or partnership, but at some point they choose to convert to corporate form.

5. Income from a partnership is taxed as personal income to the partners.
6. Management control resides with the general partners. Usually, a majority vote is required on important matters, such as the amount of profit to be retained in the business.

It is difficult for large business organizations to exist as sole proprietorships or partnerships. The main advantage to a sole proprietorship or partnership is the cost of getting started. Afterward, the disadvantages, which may become severe, are (1) unlimited liability, (2) limited life of the enterprise, and (3) difficulty of transferring ownership. These three disadvantages lead to (4) difficulty in raising cash.

The Corporation

Of the forms of business enterprises, the **corporation** is by far the most important. It is a distinct legal entity. As such, a corporation can have a name and enjoy many of the legal powers of natural persons. For example, corporations can acquire and exchange property. Corporations can enter contracts and may sue and be sued. For jurisdictional purposes, the corporation is a citizen of its state of incorporation (it cannot vote, however).

Starting a corporation is more complicated than starting a proprietorship or partnership. The incorporators must prepare articles of incorporation and a set of bylaws. The articles of incorporation must include the following:

1. Name of the corporation.
2. Intended life of the corporation (it may be forever).
3. Business purpose.
4. Number of shares of stock that the corporation is authorized to issue, with a statement of limitations and rights of different classes of shares.
5. Nature of the rights granted to shareholders.
6. Number of members of the initial board of directors.

The bylaws are the rules to be used by the corporation to regulate its own existence, and they concern its shareholders, directors, and officers. Bylaws range from the briefest possible statement of rules for the corporation's management to hundreds of pages of text.

In its simplest form, the corporation comprises three sets of distinct interests: the shareholders (the owners), the directors, and the corporation officers (the top management). Traditionally, the shareholders control the corporation's direction, policies, and activities. The shareholders elect a board of directors, who in turn select top management. Members of top management serve as corporate officers and manage the operations of the corporation in the best interest of the shareholders. In closely held corporations with few shareholders, there may be a large overlap among the shareholders, the directors, and the top management. However, in larger corporations, the shareholders, directors, and the top management are likely to be distinct groups.

The potential separation of ownership from management gives the corporation several advantages over proprietorships and partnerships:

1. Because ownership in a corporation is represented by shares of stock, ownership can be readily transferred to new owners. Because the corporation exists independently of those who own its shares, there is no limit to the transferability of shares as there is in partnerships.
2. The corporation has unlimited life. Because the corporation is separate from its owners, the death or withdrawal of an owner does not affect the corporation's legal existence. The corporation can continue on after the original owners have withdrawn.
3. The shareholders' liability is limited to the amount invested in the ownership shares. For example, if a shareholder purchased $1,000 in shares of a corporation,

the potential loss would be $1,000. In a partnership, a general partner with a $1,000 contribution could lose the $1,000 plus any other indebtedness of the partnership.

Limited liability, ease of ownership transfer, and perpetual succession are the major advantages of the corporate form of business organization. These give the corporation an enhanced ability to raise cash.

There is, however, one great disadvantage to incorporation. The federal government taxes corporate income (the states do as well). This tax is in addition to the personal income tax that shareholders pay on dividend income they receive. This is double taxation for shareholders when compared to taxation on proprietorships and partnerships. Table 1.1 summarizes our discussion of partnerships and corporations.

To find out more about LLCs, visit www.incorporate.com.

Today, all 50 states have enacted laws allowing for the creation of a limited liability company (LLC). The goal of this entity is to operate and be taxed like a partnership but retain limited liability for owners, so an LLC is essentially a hybrid of partnership and corporation. Although states have differing definitions for LLCs, the more important scorekeeper is the Internal Revenue Service (IRS). The IRS will consider an LLC a corporation, thereby subjecting it to double taxation, unless it meets certain specific criteria. In essence, an LLC cannot be too corporation-like, or it will be treated as one by the IRS. LLCs have become common. For example, Goldman, Sachs and Co., one of Wall Street's last remaining partnerships, decided to convert from a private partnership to an LLC (it later "went public," becoming a publicly held corporation). Large accounting firms and law firms by the score have converted to LLCs.

A Corporation by Another Name . . .

The corporate form of organization has many variations around the world. The exact laws and regulations differ from country to country, of course, but the essential features of public ownership and limited liability remain. These firms are often called *joint stock companies, public limited companies,* or *limited liability companies,* depending on the specific nature of the firm and the country of origin.

Table 1.2 gives the names of a few well-known international corporations, their countries of origin, and a translation of the abbreviation that follows each company name.

TABLE 1.1 A Comparison of Partnerships and Corporations

	Corporation	Partnership
Liquidity and marketability	Shares can be exchanged without termination of the corporation. Common stock can be listed on a stock exchange.	Units are subject to substantial restrictions on transferability. There is usually no established trading market for partnership units.
Voting rights	Usually each share of common stock entitles the holder to one vote per share on matters requiring a vote and on the election of the directors. Directors determine top management.	Some voting rights by limited partners. However, general partners have exclusive control and management of operations.
Taxation	Corporations have double taxation: Corporate income is taxable and dividends to shareholders are also taxable.	Partnerships are not taxable. Partners pay personal taxes on partnership profits.
Reinvestment and dividend payout	Corporations have broad latitude on dividend payout decisions.	Partnerships are generally prohibited from reinvesting partnership profits. All profits are distributed to partners.
Liability	Shareholders are not personally liable for obligations of the corporation.	Limited partners are not liable for obligations of partnerships. General partners may have unlimited liability.
Continuity of existence	Corporations may have a perpetual life.	Partnerships have limited life.

TABLE 1.2 International Corporations

		Type of Company	
Company	**Country of Origin**	**In Original Language**	**Interpretation**
Bayerische Motoren Werke (BMW) AG	Germany	Aktiengesellschaft	Corporation
Rolls-Royce PLC	United Kingdom	Public limited company	Public limited company
Shell UK Ltd.	United Kingdom	Limited	Corporation
Unilever NV	Netherlands	Naamloze Vennootschap	Joint stock company
Fiat SpA	Italy	Società per Azioni	Joint stock company
Volvo AB	Sweden	Aktiebolag	Joint stock company
Peugeot SA	France	Société Anonyme	Joint stock company

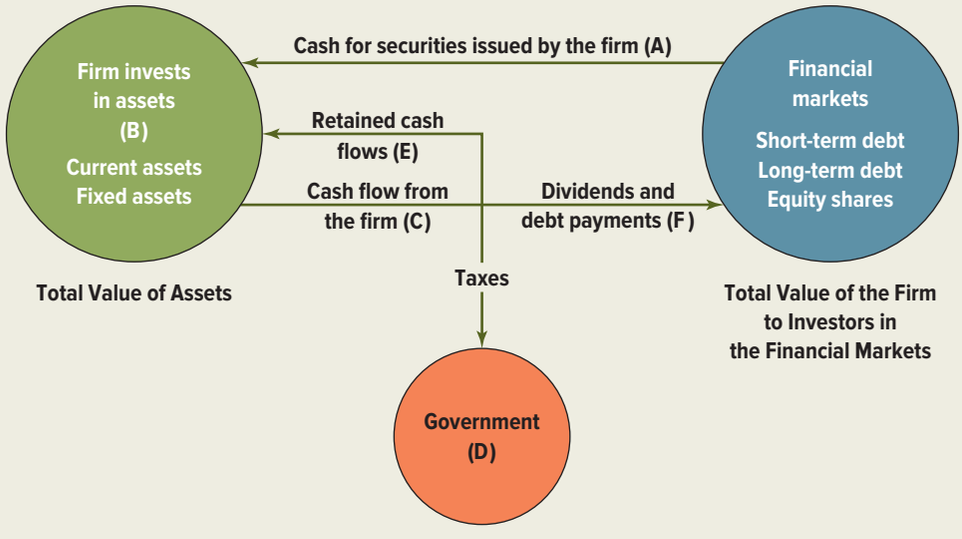
1.3 THE IMPORTANCE OF CASH FLOWS

The most important job of a financial manager is to create value from the firm's capital budgeting, financing, and net working capital activities. How do financial managers create value? The answer is that the firm should create more cash flow than it uses.

The cash flows paid to bondholders and stockholders of the firm should be greater than the cash flows put into the firm by the bondholders and stockholders. To see how this is done, we can trace the cash flows from the firm to the financial markets and back again.

The interplay of the firm's activities with the financial markets is illustrated in Figure 1.3. The arrows in Figure 1.3 trace cash flow from the firm to the financial markets and back again. Suppose we begin with the firm's financing activities. To raise money, the firm sells debt and equity shares to investors in the financial markets. This results in cash flows from the financial markets to the firm (A). This cash is invested in the investment activities (assets) of the firm (B) by the firm's management. The cash generated by the firm (C) is

FIGURE 1.3 Cash Flows between the Firm and the Financial Markets



paid to shareholders and bondholders (F). The shareholders receive cash in the form of dividends; the bondholders who lent funds to the firm receive interest and, when the initial loan is repaid, principal. Not all of the firm's cash is paid out. Some is retained (E), and some is paid to the government as taxes (D).

Over time, if the cash paid to shareholders and bondholders (F) is greater than the cash raised in the financial markets (A), value will be created.

Identification of Cash Flows

Unfortunately, it is sometimes not easy to observe cash flows directly. Much of the information we obtain is in the form of accounting statements, and much of the work of financial analysis is to extract cash flow information from accounting statements. The following example illustrates how this is done.

EXAMPLE 1.1 Accounting Profit versus Cash Flows

The Midland Company refines and trades gold. At the end of the year, it sold 2,500 ounces of gold for $1 million. The company had acquired the gold for $900,000 at the beginning of the year. The company paid cash for the gold when it was purchased. Unfortunately, it has yet to collect from the customer to whom the gold was sold. The following is a standard accounting of Midland's financial circumstances at year-end:

THE MIDLAND COMPANY
Accounting View
Income Statement
Year Ended December 31

Sales	$1,000,000
Costs	900,000
Profit	$ 100,000

By generally accepted accounting principles (GAAP), the sale is recorded even though the customer has yet to pay. It is assumed that the customer will pay soon. From the accounting perspective, Midland seems to be profitable. However, the perspective of corporate finance is different. It focuses on cash flows:

THE MIDLAND COMPANY
Financial View
Income Statement
Year Ended December 31

Cash inflow	$ 0
Cash outflow	−900,000
	$−900,000

The perspective of corporate finance is interested in whether cash flows are being created by the gold trading operations of Midland. Value creation depends on cash flows. For Midland, value creation depends on whether and when it actually receives $1 million.

Timing of Cash Flows

The value of an investment made by a firm depends on the timing of cash flows. One of the most important principles of finance is that individuals prefer to receive cash flows earlier rather than later. One dollar received today is worth more than one dollar received next year.

EXAMPLE 1.2

Cash Flow Timing

The Midland Company is attempting to choose between two proposals for new products. Both proposals will provide additional cash flows over a four-year period and will initially cost $10,000. The cash flows from the proposals are as follows:

Year	New Product A	New Product B
1	$ 0	$ 4,000
2	0	4,000
3	0	4,000
4	20,000	4,000
Total	$20,000	$16,000

At first it appears that new Product A would be best. However, the cash flows from Product B come earlier than those of A. Without more information, we cannot decide which set of cash flows would create the most value for the bondholders and shareholders. It depends on whether the value of getting cash from B up front outweighs the extra total cash from A. Bond and stock prices reflect this preference for earlier cash, and we will see how to use them to decide between A and B.

Risk of Cash Flows

The firm must consider risk. The amount and timing of cash flows are not usually known with certainty. Most investors have an aversion to risk.

EXAMPLE 1.3

Risk

The Midland Company is considering expanding operations overseas. It is evaluating Europe and Japan as possible sites. Europe is considered to be relatively safe, whereas operating in Japan is seen as very risky. In both cases the company would close down operations after one year.

After doing a complete financial analysis, Midland has come up with the following cash flows of the alternative plans for expansion under three scenarios—pessimistic, most likely, and optimistic:

	Pessimistic	Most Likely	Optimistic
Europe	$75,000	$100,000	$125,000
Japan	0	150,000	200,000

If we ignore the pessimistic scenario, perhaps Japan is the best alternative. When we take the pessimistic scenario into account, the choice is unclear. Japan appears to be riskier, but it also offers a higher expected level of cash flow. What is risk and how can it be defined? We must try to answer this important question. Corporate finance cannot avoid coping with risky alternatives, and much of our book is devoted to developing methods for evaluating risky opportunities.

1.4 THE GOAL OF FINANCIAL MANAGEMENT

Assuming that we restrict our discussion to for-profit businesses, the goal of financial management is to make money or add value for the owners. This goal is a little vague, of course, so we examine some different ways of formulating it to come up with a more precise definition. Such a definition is important because it leads to an objective basis for making and evaluating financial decisions.

Possible Goals

If we were to consider possible financial goals, we might come up with some ideas like the following:

- Survive.
- Avoid financial distress and bankruptcy.
- Beat the competition.
- Maximize sales or market share.
- Minimize costs.
- Maximize profits.
- Maintain steady earnings growth.

These are only a few of the goals we could list. Furthermore, each of these possibilities presents problems as a goal for the financial manager.

For example, it's easy to increase market share or unit sales: All we have to do is lower our prices or relax our credit terms. Similarly, we can always cut costs by doing away with things such as research and development. We can avoid bankruptcy by never borrowing any money or never taking any risks, and so on. It's not clear that any of these actions are in the stockholders' best interests.

Profit maximization would probably be the most commonly cited goal, but even this is not a precise objective. Do we mean profits this year? If so, then we should note that actions such as deferring maintenance, letting inventories run down, and taking other short-run cost-cutting measures will tend to increase profits now, but these activities aren't necessarily desirable.

The goal of maximizing profits may refer to some sort of "long-run" or "average" profits, but it's still unclear exactly what this means. First, do we mean something like accounting net income or earnings per share? As we will see in more detail in the next chapter, these accounting numbers may have little to do with what is good or bad for the firm. We are actually more interested in cash flows. Second, what do we mean by the long run? As a famous economist once remarked, in the long run, we're all dead! More to the point, this goal doesn't tell us what the appropriate trade-off is between current and future profits.

The goals we've listed here are all different, but they tend to fall into two classes. The first of these relates to profitability. The goals involving sales, market share, and cost control all relate, at least potentially, to different ways of earning or increasing profits. The goals in the second group, involving bankruptcy avoidance, stability, and safety, relate in some way to controlling risk. Unfortunately, these two types of goals are somewhat contradictory. The pursuit of profit normally involves some element of risk, so it isn't really possible to maximize both safety and profit. What we need, therefore, is a goal that encompasses both factors.

The Goal of Financial Management

The financial manager in a corporation makes decisions for the stockholders of the firm. So, instead of listing possible goals for the financial manager, we really need to answer a more fundamental question: From the stockholders' point of view, what is a good financial management decision?

If we assume that stockholders buy stock because they seek to gain financially, then the answer is obvious: Good decisions increase the value of the stock, and poor decisions decrease the value of the stock.

From our observations, it follows that the financial manager acts in the shareholders' best interests by making decisions that increase the value of the stock. The appropriate goal for the financial manager can thus be stated quite easily:

The goal of financial management is to maximize the current value per share of the existing stock.

The goal of maximizing the value of the stock avoids the problems associated with the different goals we listed earlier. There is no ambiguity in the criterion, and there is no short-run versus long-run issue. We explicitly mean that our goal is to maximize the *current* stock value.

If this goal seems a little strong or one-dimensional to you, keep in mind that the stockholders in a firm are residual owners. By this we mean that they are entitled only to what is left after employees, suppliers, and creditors (and everyone else with legitimate claims) are paid their due. If any of these groups go unpaid, the stockholders get nothing. So if the stockholders are winning in the sense that the leftover, residual portion is growing, it must be true that everyone else is winning also. In other words, managers should make decisions that they believe will achieve the highest firm value because by doing so shareholders will benefit the most.

Because the goal of financial management is to maximize the value of the stock, we need to learn how to identify investments and financing arrangements that favorably impact the value of the stock. This is precisely what we will be studying. In the previous section we emphasized the importance of cash flows in value creation. In fact, we could have defined *corporate finance* as the study of the relationship between business decisions, cash flows, and the value of the stock in the business.

A More General Goal

If our goal is to maximize the value of the stock, as stated in the preceding section, an obvious question comes up: What is the appropriate goal when the firm has no traded stock? Corporations are certainly not the only type of business; and the stock in many corporations rarely changes hands, so it's difficult to say what the value per share is at any particular time.

As long as we are considering for-profit businesses, only a slight modification is needed. The total value of the stock in a corporation is equal to the value of the owners' equity. Therefore, a more general way of stating our goal is:

Maximize the value of the existing owners' equity.

With this in mind, we don't care whether the business is a proprietorship, a partnership, or a corporation. For each of these, good financial decisions increase the value of the owners' equity, and poor financial decisions decrease it. In fact, although we choose to focus on corporations in the chapters ahead, the principles we develop apply to all forms of business. Many of them even apply to the not-for-profit sector.

Business ethics are considered at business-ethics.com.

Finally, our goal does not imply that the financial manager should take illegal or unethical actions in the hope of increasing the value of the equity in the firm. What we mean is that the financial manager best serves the owners of the business by identifying goods and services that add value to the firm because they are desired and valued in the free marketplace.

1.5 THE AGENCY PROBLEM AND CONTROL OF THE CORPORATION

The processes, policies, laws, and institutions that direct a company's actions are all included under the broad category of corporate governance. Corporate governance can also include the relationships among various stakeholders including shareholders, management, employees, the board of directors, suppliers, and the community at large, among others. As such, corporate governance is a wide-ranging topic.

We've seen that the financial manager acts in the best interests of the stockholders by taking actions that increase the value of the firm and thus the stock. However, in large corporations, ownership can be spread over a huge number of stockholders. This dispersion of ownership arguably means that stockholders cannot directly control the firm and that management effectively controls the firm. In this case, will management necessarily act in

the best interests of the stockholders? Put another way, might not management pursue its own goals at the stockholders' expense?

Corporate governance varies quite a bit around the world. For example, in most countries other than the U.S. and the U.K., publicly traded companies are usually controlled by one or more large shareholders. Moreover, in countries with limited shareholder protection, when compared to countries with strong shareholder protection like the U.S. and the U.K., large shareholders may have a greater opportunity to take advantage of minority shareholders. Research shows that a country's investor protection framework is important to understanding a firm's cash holdings and dividend payouts. For example, studies find that shareholders do not highly value cash holdings in firms in countries with low investor protection when compared to firms in the U.S., where investor protection is high.[1]

You can find the changing composition of boards for S&P 500 companies at www.spencerstuart.com.

In the basic corporate governance setup, the shareholders elect the board of directors, who in turn appoint the top corporate managers, such as the CEO. The CEO is usually a member of the board of directors. One aspect of corporate governance that has received attention recently concerns the chair of a firm's board of directors. In a large number of U.S. corporations, the CEO and the board chair are the same person. An argument can be made that combining the CEO and board chair positions can contribute to poor corporate governance. When comparing corporate governance in the U.S. and the U.K., an edge is often given to the U.K., partly because over 90 percent of U.K. companies are chaired by outside directors rather than the CEO.[2] This is a contentious issue confronting many U.S. corporations. For example, in 2018, 31 percent of the S&P 500 companies had named an independent outsider as board chair, up from only 10 percent 11 years earlier.

Agency Relationships

The relationship between stockholders and management is called an *agency relationship.* Such a relationship exists whenever someone (the principal) hires another (the agent) to represent his or her interests. For example, you might hire someone (an agent) to sell a car that you own while you are away at school. In all such relationships, there is a possibility of a conflict of interest between the principal and the agent. Such a conflict is called an **agency problem**.

Suppose you hire someone to sell your car and you agree to pay that person a flat fee when he or she sells the car. The agent's incentive in this case is to make the sale, not necessarily to get you the best price. If you offer a commission of, say, 10 percent of the sales price instead of a flat fee, then this problem might not exist. This example illustrates that the way in which an agent is compensated is one factor that affects agency problems.

Management Goals

To see how management and stockholder interests might differ, imagine that a firm is considering a new investment. The new investment is expected to favorably impact the share value, but it is also a relatively risky venture. The owners of the firm will wish to take the investment (because the stock value will rise), but management may not because there is the possibility that things will turn out badly and management jobs will be lost. If management does not take the investment, then the stockholders may lose a valuable opportunity. This is one example of an *agency cost.*

More generally, the term *agency costs* refers to the costs of the conflict of interest between stockholders and management. These costs can be indirect or direct. An indirect agency cost is a lost opportunity, such as the one we have just described.

[1] See, for example, Rafael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny, "Investor Protection and Corporate Valuation," *Journal of Finance* 57, no. 3 (2002), pp. 1147–70; Lee Pinkowitz, René M. Stulz, and Rohan Williamson, "Cash Holdings, Dividend Policy, and Corporate Governance: A Cross-Country Analysis," *Journal of Applied Corporate Finance* 19, no. 1 (2007), pp. 81–87.

[2] Ralph Walking (moderator), "U.S. Corporate Governance: Accomplishments and Failings, a Discussion with Michael Jensen and Robert Monks,"*Journal of Applied Corporate Finance* 20, no. 1 (Winter 2008), pp. 28–46.

Direct agency costs come in two forms. The first type is a corporate expenditure that benefits management but costs the stockholders. Perhaps the purchase of a luxurious and unneeded corporate jet would fall under this heading. The second type of direct agency cost is an expense that arises from the need to monitor management actions. Paying outside auditors to assess the accuracy of financial statement information could be one example.

It is sometimes argued that, left to themselves, managers would tend to maximize the amount of resources over which they have control or, more generally, corporate power or wealth. This goal could lead to an overemphasis on corporate size or growth. For example, cases in which management is accused of overpaying to buy up another company just to increase the size of the business, or to demonstrate corporate power, are not uncommon. Obviously, if overpayment does take place, such a purchase does not benefit the stockholders of the purchasing company.

Our discussion indicates that management may tend to overemphasize organizational survival to protect job security. Also, management may dislike outside interference, so independence and corporate self-sufficiency may be important goals.

Do Managers Act in the Stockholders' Interests?

Whether managers will, in fact, act in the best interests of stockholders depends on two factors. First, how closely are management goals aligned with stockholder goals? This question relates, at least in part, to the way managers are compensated. Second, can managers be replaced if they do not pursue stockholder goals? This issue relates to control of the firm. As we will discuss, there are a number of reasons to think that, even in the largest firms, management has a significant incentive to act in the interests of stockholders.

MANAGERIAL COMPENSATION Management will frequently have a significant economic incentive to increase share value for two reasons. First, managerial compensation, particularly at the top, is usually tied to financial performance in general and often to share value in particular. For example, managers are frequently given the option to buy stock at a bargain price. The more the stock is worth, the more valuable is this option. In fact, options are often used to motivate employees of all types, not just top management. In 2018, the total compensation of Hock Tan, CEO of Broadcomm, was $103.2 million. His base salary and cash bonus was $4.8 million, with stock and options of $98.3 million. Although there are many critics of the high level of CEO compensation, from the stockholders' point of view, sensitivity of compensation to firm performance is usually more important.[3] By way of comparison, also in 2018, Floyd Mayweather made $285 million and George Clooney made about $239 million.

The second incentive managers have relates to job prospects. Better performers within the firm will tend to get promoted. More generally, managers who are successful in pursuing stockholder goals will be in greater demand in the labor market and thus command higher salaries.

CONTROL OF THE FIRM Control of the firm ultimately rests with stockholders. They elect the board of directors, who, in turn, hire and fire management.

An important mechanism by which unhappy stockholders can replace existing management is called a *proxy fight.* A proxy is the authority to vote someone else's stock. A proxy fight develops when a group solicits proxies in order to replace the existing board and thereby replace existing management. In 2002, the proposed merger between HP and Compaq triggered one of the most widely followed, bitterly contested, and expensive proxy fights in history, with an estimated price tag of well over $100 million.

[3] This raises the issue of the level of top management pay and its relationship to other employees. According to recent research by the Economic Policy Institute, the average CEO compensation was 20 times greater than that of the average employee in 1965, 58 times greater in 1989, and 312 times greater in 2017. However, there is no precise formula that governs the gap between top management compensation and that of other employees.

Another way that management can be replaced is by takeover. Firms that are poorly managed are more attractive as acquisitions than well-managed firms because a greater profit potential exists. Thus, avoiding a takeover by another firm gives management another incentive to act in the stockholders' interests. Unhappy, prominent shareholders can suggest different business strategies to a firm's top management. This was the case in November 2018, when famed soup company Campbell's settled a proxy fight with hedge fund Third Point, which won two seats on the board of directors. Third Point agreed to withdraw its lawsuit against Campbell's and withdrew its bid for an additional three board seats.

Historically, proxy fights have been relatively rare. One reason is that the expenses in a proxy fight can become quite large. Further, outsiders waging a proxy fight must cover their own expenses, while the current directors use company finances to back their bid to retain board seats. Proxy fights appear to have become more civil. In recent years, about 50 percent of proxy fights went the distance, meaning they ultimately resulted in a shareholder vote. Before that, it was not uncommon for 70 percent or more of proxy fights to result in shareholder votes. Companies today appear to be more willing to work with activist shareholders, perhaps because both parties have become more concerned with the potential high costs of a long, bitter proxy fight.

CONCLUSION The available theory and evidence are consistent with the view that stockholders control the firm and that stockholder wealth maximization is the relevant goal of the corporation. Even so, there will undoubtedly be times when management goals are pursued at the expense of the stockholders, at least temporarily.

Stakeholders

Our discussion thus far implies that management and stockholders are the only parties with an interest in the firm's decisions. This is an oversimplification, of course. Employees, customers, suppliers, and even the government all have a financial interest in the firm.

Taken together, these various groups are called **stakeholders** in the firm. In general, a stakeholder is someone other than a stockholder or creditor who potentially has a claim on the cash flows of the firm. Such groups will also attempt to exert control over the firm, perhaps to the detriment of the owners.

1.6 REGULATION

Until now, we have talked mostly about the actions that shareholders and boards of directors can take to reduce the conflicts of interest between themselves and management. We have not talked about regulation.[4] Until recently the main thrust of federal regulation has been to require that companies disclose all relevant information to investors and potential investors.[5] Disclosure of relevant information by corporations is intended to put all investors on a level information playing field and, thereby, to reduce conflicts of interest. More recent regulation has been aimed at corporate governance. Of course, regulation imposes costs on corporations, and any analysis of regulation must include both benefits and costs. Our nearby *Finance Matters* box discusses some of the costs exchange-listed companies face arising from corporate governance requirements.

[4] At this stage in our book, we focus on the regulation of disclosure of relevant information and corporate governance. We do not talk about many other regulators in financial markets such as the Federal Reserve Board. In Chapter 5, we discuss the nationally recognized statistical rating organizations (NRSROs) in the U.S., such as Fitch Ratings, Moody's, and Standard & Poor's. Their ratings are used by market participants to help value securities such as corporate bonds. Many critics of the rating agencies blame the 2007–2009 subprime credit crisis on weak regulatory oversight of these agencies.

[5] Here, we are speaking mostly of public companies and not private companies. You will learn more about this distinction in Chapter 19. If you can't wait, go to investopedia.com and search "public vs. private companies."

FINANCE MATTERS

SARBANES-OXLEY

In response to corporate scandals at companies such as Enron, WorldCom, Tyco, and Adelphia, Congress enacted the Sarbanes-Oxley Act in 2002. The act, better known as "Sarbox," is intended to protect investors from corporate abuses. For example, one section of Sarbox prohibits personal loans from a company to its officers, such as the ones that were received by WorldCom CEO Bernie Ebbers.

One of the key sections of Sarbox took effect on November 15, 2004. Section 404 requires, among other things, that each company's annual report must have an assessment of the company's internal control structure and financial reporting. The auditor must then evaluate and attest to management's assessment of these issues.

Sarbox contains other key requirements. For example, the officers of the corporation must review and sign the annual reports. They must explicitly declare that the annual report does not contain any false statements or material omissions; that the financial statements fairly represent the financial results; and that they are responsible for all internal controls. Finally, the annual report must list any deficiencies in internal controls. In essence, Sarbox makes company management responsible for the accuracy of the company's financial statements.

Of course, as with any law, there are costs. Sarbox has increased the expense of corporate audits, sometimes dramatically. In 2004, the average compliance cost was $4.51 million. By 2007, however, the average compliance cost had fallen to $1.7 million. More recent numbers show that Sarbox costs are becoming more manageable. In 2012, 10 years after Sarbox was passed, it was reported that most small companies spent less than $100,000 on compliance annually, and a third of midsized companies spent $100,000 to $500,000. And there appear to be economies in Sarbox costs. By the fourth year of Sarbox compliance, a company is expected to spend between $100,000 and $500,000, regardless of size.

However, the added expense of Sarbox compliance has led to several unintended results. Over the seven-year period from 1998 to 2004, 484 firms delisted their shares from exchanges, or "went dark." Within the first two years alone of Sarbox, 370 companies delisted. Many of the companies that delisted stated the reason was to avoid the cost of compliance with Sarbox. And small companies are not the only ones to delist because of Sarbox. For example, German insurer Allianz applied to delist its shares from the New York Stock Exchange. The company estimated that canceling its listings outside of its home exchange of Frankfurt could save 5 million euros (about $6 million) per year.

A company that goes dark does not have to file quarterly or annual reports. Annual audits by independent auditors are not required, and executives do not have to certify the accuracy of the financial statements, so the savings can be huge. Of course, there are costs. Stock prices typically fall when a company announces it is going dark. Further, such companies will typically have limited access to capital markets and usually will have a higher interest cost on bank loans.

Sarbox has also probably affected the number of companies choosing to go public in the United States. For example, when Peach Holdings, based in Boynton Beach, Florida, decided to go public, it shunned the U.S. stock markets, instead choosing the London Stock Exchange's Alternative Investment Market (AIM). To go public in the United States, the firm would have paid a $100,000 fee, plus about $2 million to comply with Sarbox. Instead, the company spent only $500,000 on its AIM stock offering.

The Securities Act of 1933 and the Securities Exchange Act of 1934

The Securities Act of 1933 (the 1933 Act) and the Securities Exchange Act of 1934 (the 1934 Act) provide the basic regulatory framework in the United States for the public trading of securities.

The 1933 Act focuses on the issuing of new securities. Basically, the 1933 Act requires a corporation to file a registration statement with the Securities and Exchange Commission (SEC) that must be made available to every buyer of a new security. The intent of the

registration statement is to provide potential stockholders with all the necessary information to make a reasonable decision. The 1934 Act extends the disclosure requirements of the 1933 Act to securities trading in markets after they have been issued. The 1934 Act establishes the SEC and covers a large number of issues including corporate reporting, tender offers, and insider trading. The 1934 Act requires corporations to file reports to the SEC on an annual basis (Form 10K), on a quarterly basis (Form 10Q), and on a monthly basis (Form 8K).

As mentioned, the 1934 Act deals with the important issue of insider trading. Illegal insider trading occurs when any person who has acquired nonpublic, special information (i.e., inside information) buys or sells securities based upon that information. One section of the 1934 Act deals with insiders such as directors, officers, and large shareholders, while another deals with any person who has acquired inside information. The intent of these sections of the 1934 Act is to prevent insiders or persons with inside information from taking unfair advantage of this information when trading with outsiders.

To illustrate, suppose you learned that the ABC firm was about to publicly announce that it had agreed to be acquired by another firm at a price significantly greater than its current price. This is an example of inside information. The 1934 Act prohibits you from buying ABC stock from shareholders who do not have this information. This prohibition would be especially strong if you were the CEO of the ABC firm. Other kinds of inside information could be knowledge of an initial dividend about to be paid, the discovery of a drug to cure cancer, or the default of a debt obligation.

A recent example of insider trading involved New York Congressman Christopher Collins, who was arrested on insider trading charges in August 2018. Collins was accused of tipping off his son and friends of a failed clinical trial for a drug. Collins was a member of the company's board and received the information before it was released to the public. His son and others sold the stock before the news was made public and the stock price subsequently crashed.

SUMMARY AND CONCLUSIONS

This chapter introduced you to some of the basic ideas in corporate finance:

1. Corporate finance has three main areas of concern:
   a. *Capital budgeting:* What long-term investments should the firm take?
   b. *Capital structure:* Where will the firm get the short-term and long-term financing to pay for its investments? Also, what mixture of debt and equity should it use to fund operations?
   c. *Working capital management:* How should the firm manage its everyday financial activities?
2. The goal of financial management in a for-profit business is to make decisions that increase the value of the stock, or, more generally, increase the value of the equity.
3. The corporate form of organization is superior to other forms when it comes to raising money and transferring ownership interests, but it has the significant disadvantage of double taxation.
4. There is the possibility of conflicts between stockholders and management in a large corporation. We called these conflicts *agency problems* and discussed how they might be controlled and reduced.
5. To create value, companies must generate more cash than they use.

6. Until recently, the main thrust of federal regulation has been to require companies to disclose all relevant information to investors and potential investors. More recent regulation has been aimed at corporate governance.

Of the topics we've discussed thus far, the most important is the goal of financial management: maximizing the value of the stock. Throughout the text we will be analyzing many different financial decisions, but we will always ask the same question: How does the decision under consideration affect the value of the stock?

CONCEPT QUESTIONS

1. **Forms of Business** What are the three basic legal forms of organizing a business? What are the advantages and disadvantages of each? What business form do most start-up companies take? Why?
2. **Goal of Financial Management** What goal should always motivate the actions of the firm's financial manager?
3. **Agency Problems** Who owns a corporation? Describe the process whereby the owners control the firm's management. What is the main reason that an agency relationship exists in the corporate form of organization? In this context, what kinds of problems can arise?
4. **Not-for-Profit Firm Goals** Suppose you were the financial manager of a not-for-profit business (a not-for-profit hospital, perhaps). What kinds of goals do you think would be appropriate?
5. **Goal of the Firm** Evaluate the following statement: Managers should not focus on the current stock value because doing so will lead to an overemphasis on short-term profits at the expense of long-term profits.
6. **Ethics and Firm Goals** Can our goal of maximizing the value of the stock conflict with other goals, such as avoiding unethical or illegal behavior? In particular, do you think subjects like customer and employee safety, the environment, and the general good of society fit in this framework, or are they essentially ignored? Try to think of some specific scenarios to illustrate your answer.
7. **International Firm Goal** Would our goal of maximizing the value of the stock be different if we were thinking about financial management in a foreign country? Why or why not?
8. **Agency Problems** Suppose you own stock in a company. The current price per share is $25. Another company has just announced that it wants to buy your company and will pay $35 per share to acquire all the outstanding stock. Your company's management immediately begins fighting off this hostile bid. Is management acting in the shareholders' best interests? Why or why not?
9. **Agency Problems and Corporate Ownership** Corporate ownership varies around the world. Historically, individuals have owned the majority of shares in public corporations in the United States. In Germany and Japan, however, banks, other large financial institutions, and other companies own most of the stock in public corporations. Do you think agency problems are likely to be more or less severe in Germany and Japan than in the United States? Why? In recent years, large financial institutions such as mutual funds and pension funds have been becoming the dominant owners of stock in the United States, and these institutions are becoming more active in corporate affairs. What are the implications of this trend for agency problems and corporate control?
10. **Executive Compensation** Critics have charged that compensation to top management in the United States is too high and should be cut back. For example, focusing on large corporations, Frank Bisignano, CEO of First Data, was one of the best-compensated CEOs in the United States in 2018, earning about $102 million. Are such amounts excessive? In answering, it might be helpful to recognize that superstar athletes such as LeBron James, top people in entertainment such as Dwayne "The Rock" Johnson and Kylie Jenner, and many others at the peak of their respective fields can earn at least as much, if not a great deal more.

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WHAT'S ON THE WEB?

1. **Listing Requirements** In order for a company's stock to be listed on an exchange, it must meet certain requirements. Find the complete listing requirements for the NYSE at www.nyse.com and NASDAQ at www.nasdaq.com. Which exchange has more stringent listing requirements? Why don't the exchanges have the same listing requirements?
2. **Business Formation** As you may (or may not) know, many companies incorporate in Delaware for a variety of reasons. Visit BizFilings at www.bizfilings.com to find out why. Which state has the highest fee for incorporation? For an LLC? While at the site, look at the FAQ section regarding corporations and LLCs.

CLOSING CASE

EAST COAST YACHTS

In 1969, Tom Warren founded East Coast Yachts. The company's operations are located near Hilton Head Island, South Carolina, and the company is structured as a sole proprietorship. The company has manufactured custom midsize, high-performance yachts for clients, and its products have received high reviews for safety and reliability. The company's yachts have also recently received the highest award for customer satisfaction. The yachts are primarily purchased by wealthy individuals for pleasure use. Occasionally, a yacht is manufactured for purchase by a company for business purposes.

The custom yacht industry is fragmented, with a number of manufacturers. As with any industry, there are market leaders, but the diverse nature of the industry ensures that no manufacturer dominates the market. The competition in the market, as well as the product cost, ensures that attention to detail is a necessity. For instance, East Coast Yachts will spend 80 to 100 hours on hand-buffing the stainless steel stem-iron, which is the metal cap on the yacht's bow that conceivably could collide with a dock or another boat.

Several years ago, Tom retired from the day-to-day operations of the company and turned the operations of the company over to his daughter, Larissa. Because of the dramatic changes in the company, Larissa has approached you to help manage and direct the company's growth. Specifically, she has asked you to answer the following questions.

1. What are the advantages and disadvantages of changing the company organization from a sole proprietorship to an LLC?
2. What are the advantages and disadvantages of changing the company organization from a sole proprietorship to a corporation?
3. Ultimately, what action would you recommend the company undertake? Why?

2 Financial Statements and Cash Flow

OPENING CASE

In December 2017, the Tax Cuts and Jobs Act was enacted into law. The new law was a sweeping change to corporate taxes in the United States. For example, rather than depreciating an asset over time for tax purposes, companies are allowed to depreciate the entire purchase price in the first year. Another change was a limit to the tax deductibility of interest expense. However, possibly the biggest change was the switch from a graduated corporate income tax structure, with rates ranging from 15 percent to 39 percent, to a flat 21 percent corporate tax rate.

While the change in the corporate tax rate affects net income, there is a more important impact. Because taxes are a key consideration in making investment decisions, the change in the tax rate could lead to a significant change in corporate investment and financing decisions. Understanding why ultimately leads us to the main subject of this chapter, that all-important substance known as *cash flow*.

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2.1 THE BALANCE SHEET

The **balance sheet** is an accountant's snapshot of the firm's accounting value on a particular date, as though the firm stood momentarily still. The balance sheet has two sides: On the left are the *assets* and on the right are the *liabilities* and *stockholders' equity*. The balance sheet states what the firm owns and how it is financed. The accounting definition that underlies the balance sheet and describes the balance is:

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$$\text{Assets} \equiv \text{Liabilities} + \text{Stockholders' equity} \quad [2.1]$$

We have put a three-line equality in the balance equation to indicate that it must always hold, by definition. In fact, the stockholders' equity is *defined* to be the difference between the assets and the liabilities of the firm. In principle, equity is what the stockholders would have remaining after the firm discharged its obligations.

Table 2.1 gives the 2019 and 2020 balance sheets for the fictitious U.S. Composite Corporation. The assets in the balance sheet are listed in order by the length of time it normally would take an ongoing firm to convert them to cash. The asset side depends on the nature of the business and how management chooses to conduct it. Management must make decisions about cash versus marketable securities, credit versus cash sales, whether to make or buy commodities, whether to lease or purchase items, the types of business in which to engage, and so on.

Two excellent sources for company financial information are finance.yahoo.com and money.cnn.com.

The liabilities and stockholders' equity side reflects the types and proportions of financing, which depend on management's choice of capital structure, as between debt and equity