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Fundamentals of Corporate Finance

THIRTEENTH EDITION

McGraw Hill

Ross Westerfield Jordan

Fundamentals of CORPORATE FINANCE

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Fundamentals of CORPORATE FINANCE

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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, like his influence on the field of finance, is seminal, deep, and enduring, and we miss him greatly.

R.W.W. **B.D.J.**

About the Authors

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The late Stephen A. Ross was the Franco Modigliani Professor of Finance and 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 known for his work in developing the Arbitrage Pricing Theory as well as his substantial contributions to the discipline through his research on 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 various academic and practitioner journals. He was a trustee of CalTech.

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Preface from the Authors

When the three of us decided to write a book, we were united by one strongly held principle: Corporate finance should be developed in terms of a few integrated, powerful ideas. We believed that the subject was all too often presented as a collection of loosely related topics, unified primarily by virtue of being bound together in one book, and we thought there must be a better way.

One thing we knew for certain was that we didn't want to write a "me-too" book. So, with a lot of help, we took a hard look at what was truly important and useful. In doing so, we were led to eliminate topics of dubious relevance, 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.

As a result of this process, three basic themes became our central focus in writing *Fundamentals of Corporate Finance*:

AN EMPHASIS ON INTUITION

We always try to separate and explain the principles at work on a commonsense, intuitive level before launching into any specifics. The underlying ideas are discussed first in very general terms and then by way of examples that illustrate in more concrete terms how a financial manager might proceed in a given situation.

A UNIFIED VALUATION APPROACH

We treat net present value (NPV) as the basic concept underlying corporate finance. Many texts stop well short of consistently integrating this important principle. The most basic and important 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.

A MANAGERIAL FOCUS

Students shouldn't lose sight of the fact that financial management concerns 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 finance, and, where appropriate, the approximate, pragmatic nature of financial analysis is made explicit, possible pitfalls are described, and limitations are discussed.

In retrospect, looking back to our 1991 first edition IPO, we had the same hopes and fears as any entrepreneurs. How would we be received in the market? At the time, we had no idea that almost 30 years later, we would be working on a thirteenth edition. We certainly never dreamed that in those years we would work with friends and colleagues from around the world to create country-specific Australian, Canadian, European, Indian, and South African editions; an International edition; Chinese, French, Polish, Portuguese, Thai, Russian, Korean, and Spanish (among others) language editions; and an entirely separate book, *Essentials of Corporate Finance,* now in its tenth edition.

Today, as we prepare to once more enter the market, our goal is to stick with the basic principles that have brought us this far. However, based on the enormous amount of feedback we have received from you and your colleagues, we have made this edition and its package even more flexible than previous editions. We offer flexibility in coverage, as customized editions of this text can be crafted in any combination through McGraw Hill's *CREATE* system, and flexibility in pedagogy, by providing a wide variety of features in the book to help students learn about corporate finance. We also provide flexibility in package options by offering the most extensive collection of teaching, learning, and technology aids of any corporate finance text. Whether you use only the textbook, or the book in conjunction with our other products, we believe you will find a combination with this edition that will meet your current as well as your changing course needs.

Stephen A. Ross
Randolph W. Westerfield
Bradford D. Jordan

THE TAX CUTS AND JOBS ACT (TCJA) IS INCORPORATED THROUGHOUT ROSS *FUNDAMENTALS OF CORPORATE FINANCE,* 13E.

There are six primary areas of change that are reflected in the 13th edition:

1. *Corporate tax.* The new, flat-rate 21 percent corporate rate is discussed and compared to the old progressive system. The new rate is used throughout the text in examples and problems. Entities other than C corporations still face progressive taxation, so the discussion of marginal versus average tax rates remains relevant and is retained.
2. *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. This "bonus depreciation" ends in a few years and MACRS returns, so the MACRS material remains relevant and is retained. The impact of bonus depreciation is illustrated in various problems.
3. *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).
4. *Carrybacks.* Net operating loss (NOL) carrybacks have been eliminated and NOL carryforward deductions are limited in any one tax year.
5. *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.
6. *Repatriation.* The distinction between U.S. and non-U.S. profits has been essentially eliminated. All "overseas" assets, both liquid and illiquid, were subject to a one-time "deemed" tax.

With the 13th edition, we've also included coverage of:

- COVID-19 and its impact on finance in multiple chapters.
- Clawbacks and deferred compensation.
- Fintech and the relationship between finance and other disciplines.
- Ratios in practice.
- Inversions.
- Negative interest rates.
- Corporate default rates in practice.
- Entrepreneurship and venture capital.
- Online Appendix on covariance and correlation.
- Direct listings and cryptocurrency initial coin offerings (ICOs).
- Regulation CF.
- Brexit.
- Repatriation.
- Changes in lease accounting.

Coverage

This book was designed and developed explicitly for a first course in business or corporate finance, for both finance majors and non-majors alike. In terms of background or prerequisites, the book is nearly self-contained, assuming some familiarity with basic algebra and accounting concepts, while still reviewing important accounting principles very early on. The organization of this text has been developed to give instructors the flexibility they need.

The following grid presents, for each chapter, some of the most significant features as well as a few selected chapter highlights of the 13th edition of *Fundamentals*. Of course, in every chapter, opening vignettes, boxed features, in-chapter illustrated examples using real companies, and end-of-chapter material have been thoroughly updated as well.

Chapters	Selected Topics of Interest	Benefits to You
PART 1 Overview of Corporate Finance		
CHAPTER 1 Introduction to Corporate Finance	Goal of the firm and agency problems.	Stresses value creation as the most fundamental aspect of management and describes agency issues that can arise.
	Ethics, financial management, and executive compensation.	Brings in real-world issues concerning conflicts of interest and current controversies surrounding ethical conduct and management pay.
	Sarbanes-Oxley.	Up-to-date discussion of Sarbanes-Oxley and its implications and impact.
	New: Finance and other disciplines, including fintech.	Discusses how finance interacts with other business disciplines. Also includes a discussion of fintech.
	Minicase: The McGee Cake Company.	Examines the choice of organization form for a small business.
CHAPTER 2 Financial Statements, Taxes, and Cash Flow	Cash flow vs. earnings.	Clearly defines cash flow and spells out the differences between cash flow and earnings.
	New: COVID-19 and cash flows.	Discussion of how COVID-19 has affected cash flows.
	Market values vs. book values.	Emphasizes the relevance of market values over book values.
	Brief discussion of average corporate tax rates.	Highlights the variation in corporate tax rates across industries in practice.
	New: Personal tax rates.	Discusses how personal tax rates affect sole proprietorships, partnerships, and LLCs.
	Minicase: Cash Flows and Financial Statements at Sunset Boards, Inc.	Reinforces key cash flow concepts in a small business setting.

Chapters	Selected Topics of Interest	Benefits to You
PART 2 Financial Statements and Long-Term Financial Planning		
CHAPTER 3 Working with Financial Statements	*New*: COVID-19 and financial ratios.	Discussion of COVID-19 and its affect on ratios.
	Expanded DuPont analysis.	Expands the basic DuPont equation to better explore the interrelationships between operating and financial performance.
	DuPont analysis for real companies using data from S&P *Market Insight*.	Analysis shows students how to get and use real-world data, thereby applying key chapter ideas.
	Ratio and financial statement analysis using smaller firm data.	Uses firm data from *RMA* to show students how to actually get and evaluate financial statement benchmarks.
	Understanding financial statements.	Thorough coverage of standardized financial statements and key ratios.
	The enterprise value-EBITDA ratio.	Defines enterprise value (EV) and discusses the widely used EV-EBITDA ratio.
	New: Ratios for various industries.	Discussion of ratios for various industries in practice.
	Minicase: Ratio Analysis at S&S Air, Inc.	Illustrates the use of ratios and some pitfalls in a small business context.
CHAPTER 4 Long-Term Financial Planning and Growth	Expanded discussion of sustainable growth calculations.	Illustrates the importance of financial planning in a small firm.
	Explanation of alternative formulas for sustainable and internal growth rates.	Explanation of growth rate formulas clears up a common misunderstanding about these formulas and the circumstances under which alternative formulas are correct.
	Thorough coverage of sustainable growth as a planning tool.	Provides a vehicle for examining the interrelationships between operations, financing, and growth.
	Long-range financial planning.	Covers the percentage of sales approach to creating pro forma statements.
	Minicase: Planning for Growth at S&S Air.	Discusses the importance of a financial plan and capacity utilization for a small business.
PART 3 Valuation of Future Cash Flows		
CHAPTER 5 Introduction to Valuation: The Time Value of Money	First of two chapters on time value of money.	Relatively short chapter introduces just the basic ideas on time value of money to get students started on this traditionally difficult topic.
CHAPTER 6 Discounted Cash Flow Valuation	Growing annuities and perpetuities.	Covers more advanced time value topics with numerous examples, calculator tips, and Excel spreadsheet exhibits. Contains many real-world examples.
	Second of two chapters on time value of money.	Explores the financial pros and cons of pursuing an MBA degree.
	Minicase: The MBA Decision.	

Chapters	Selected Topics of Interest	Benefits to You
CHAPTER 7 Interest Rates and Bond Valuation	Negative interest rates.	Chapter explores the recent phenomenon of negative interest on government bonds.
	Bond valuation.	Complete coverage of bond valuation and bond features.
	Interest rates.	Discusses real versus nominal rates and the determinants of the term structure.
	"Clean" vs. "dirty" bond prices and accrued interest.	Clears up the pricing of bonds between coupon payment dates and also bond market quoting conventions.
	TRACE system and transparency in the corporate bond market.	Up-to-date discussion of new developments in fixed income with regard to price, volume, and transactions reporting.
	"Make-whole" call provisions.	Up-to-date discussion of a relatively new type of call provision that has become very common.
	Islamic finance.	Provides basics of some important concepts in Islamic finance.
	New: COVID-19 and credit ratings	Discussion of the negative impact of COVID-19 on credit ratings.
	New: Corporate default rates.	Provides a discussion of default rates by credit rating.
	Minicase: Financing S&S Air's Expansion Plans with a Bond Issue.	Discusses the issues that come up in selling bonds to the public.
CHAPTER 8 Stock Valuation	Stock valuation.	Thorough coverage of constant and nonconstant growth models.
	NYSE market operations.	Up-to-date description of major stock market operations.
	Valuation using multiples.	Illustrates using PE and price/sales ratios for equity valuation.
	New: Valuation ratios for industries.	Provides a discussion of how valuation ratios vary between industries.
	Minicase: Stock Valuation at Ragan, Inc.	Illustrates the difficulties and issues surrounding small business valuation.

PART 4 Capital Budgeting

CHAPTER 9 Net Present Value and Other Investment Criteria	First of three chapters on capital budgeting.	Relatively short chapter introduces key ideas on an intuitive level to help students with this traditionally difficult topic.
	NPV, IRR, payback, discounted payback, MIRR, and accounting rate of return.	Consistent, balanced examination of advantages and disadvantages of various criteria.
	Minicase: Bullock Gold Mining.	Explores different capital budgeting techniques with nonstandard cash flows.
CHAPTER 10 Making Capital Investment Decisions	Project cash flow.	Thorough coverage of project cash flows and the relevant numbers for a project analysis.
	Alternative cash flow definitions.	Emphasizes the equivalence of various formulas, thereby removing common misunderstandings.
	Special cases of DCF analysis.	Considers important applications of chapter tools.
	Minicase: Conch Republic Electronics, Part 1.	Analyzes capital budgeting issues and complexities.

Chapters	Selected Topics of Interest	Benefits to You
CHAPTER 11 Project Analysis and Evaluation	Sources of value.	Stresses the need to understand the economic basis for value creation in a project.
	Scenario and sensitivity "what-if" analyses.	Illustrates how to actually apply and interpret these tools in a project analysis.
	Break-even analysis.	Covers cash, accounting, and financial break-even levels.
	Minicase: Conch Republic Electronics, Part 2.	Illustrates the use of sensitivity analysis in capital budgeting.
PART 5 Risk and Return		
CHAPTER 12 Some Lessons from Capital Market History	*New*: The stock market in 2020.	Discussion of the market turmoil in early 2020 caused by COVID-19.
	Expanded discussion of geometric vs. arithmetic returns.	Discusses calculation and interpretation of geometric returns. Clarifies common misconceptions regarding appropriate use of arithmetic vs. geometric average returns.
	Capital market history.	Extensive coverage of historical returns, volatilities, and risk premiums.
	Market efficiency.	Efficient markets hypothesis discussed along with common misconceptions.
	The equity risk premium.	Discusses the equity premium puzzle and latest international evidence.
	The 2008 experience.	Section on the stock market turmoil of 2008.
	Minicase: A Job at S&S Air.	Discusses selection of investments for a 401(k) plan.
CHAPTER 13 Return, Risk, and the Security Market Line	Diversification and systematic and unsystematic risk.	Illustrates basics of risk and return in a straightforward fashion.
	Beta and the security market line.	Develops the security market line with an intuitive approach that bypasses much of the usual portfolio theory and statistics.
	New: Covariance and correlation.	Online Appendix provides a more in-depth discussion of covariance and correlation.
	Minicase: The Beta for Colgate-Palmolive.	Detailed discussion of beta estimation.
PART 6 Cost of Capital and Long-Term Financial Policy		
CHAPTER 14 Cost of Capital	Cost of capital estimation.	Contains a complete, web-based illustration of cost of capital for a real company.
	Geometric vs. arithmetic growth rates.	Both approaches are used in practice. Clears up issues surrounding growth rate estimates.
	Firm valuation.	Develops the free cash flow approach to firm valuation.
	Minicase: Cost of Capital for Swan Motors.	Covers pure play approach to cost of capital estimation.

Chapters	Selected Topics of Interest	Benefits to You
CHAPTER 15 Raising Capital	*New*: Entrepreneurship and venture capital.	Discussion of entrepreneurship and the venture capital market.
	Dutch auction IPOs.	Explains uniform price auctions.
	Regulation CF.	Explains the new Regulation CF for crowdfunding and provides some examples.
	IPO "quiet periods."	Explains the SEC's quiet period rules.
	Rights vs. warrants.	Clarifies the optionlike nature of rights prior to their expiration dates.
	IPO valuation.	Extensive, up-to-date discussion of IPOs, including the 1999–2000 period.
	Minicase: S&S Air Goes Public.	Covers the key parts of the IPO process for a small firm.
CHAPTER 16 Financial Leverage and Capital Structure Policy	Basics of financial leverage.	Illustrates effect of leverage on risk and return.
	Optimal capital structure.	Describes the basic trade-offs leading to an optimal capital structure.
	Financial distress and bankruptcy.	Briefly surveys the bankruptcy process.
	Minicase: Stephenson Real Estate Recapitalization.	Discusses optimal capital structure for a medium-sized firm.
CHAPTER 17 Dividends and Payout Policy	New survey evidence on dividend policy.	New survey results show the most important (and least important) factors considered by financial managers in setting dividend policy.
	Effect of new tax laws.	Discusses implications of new, lower dividend and capital gains rates.
	Dividends and dividend policy.	Describes dividend payments and the factors favoring higher and lower payout policies.
	Optimal payout policy.	Extensive discussion of the latest research and survey evidence on dividend policy, including life-cycle theory.
	Stock repurchases.	Thorough coverage of buybacks as an alternative to cash dividends.
	Minicase: Electronic Timing, Inc.	Describes the dividend/share repurchase issue for a small company.
PART 7 Short-Term Financial Planning and Management		
CHAPTER 18 Short-Term Finance and Planning	Operating and cash cycles.	Stresses the importance of cash flow timing.
	Short-term financial planning.	Illustrates creation of cash budgets and potential need for financing.
	Purchase order financing.	Brief discussion of PO financing, which is popular with small and medium-sized firms.
	Minicase: Piepkorn Manufacturing Working Capital Management.	Illustrates the construction of a cash budget and short-term financial plan for a small company.

Chapters	Selected Topics of Interest	Benefits to You
CHAPTER 19 Cash and Liquidity Management	*New*: COVID and short-term finance.	Discussion of the COVID-19 crisis on short-term planning.
	Float management.	Thorough coverage of float management and potential ethical issues.
	Cash collection and disbursement.	Examination of systems used by firms to handle cash inflows and outflows.
	Minicase: Cash Management at Webb Corporation.	Evaluates alternative cash concentration systems for a small firm.
CHAPTER 20 Credit and Inventory Management	*New*: COVID-19 and inventory.	Discussion of excess inventory and inventory shortages due to COVID-19.
	Credit management.	Analysis of credit policy and implementation.
	Inventory management.	Brief overview of important inventory concepts.
	Minicase: Credit Policy at Howlett Industries.	Evaluates working capital issues for a small firm.
PART 8 Topics in Corporate Finance		
CHAPTER 21 International Corporate Finance	Foreign exchange.	Covers essentials of exchange rates and their determination.
	International capital budgeting.	Shows how to adapt basic DCF approach to handle exchange rates.
	Exchange rate and political risk.	Discusses hedging and issues surrounding sovereign risk.
	Brexit.	Uses “Brexit” as an illustration of political risk.
	Repatriation.	Chapter opener and in-chapter discussion of the immense overseas cash holdings by U.S. corporations.
	Minicase: S&S Air Goes International.	Discusses factors in an international expansion for a small firm.
CHAPTER 22 Behavioral Finance: Implications for Financial Management	Behavioral finance.	Unique and innovative coverage of the effects of biases and heuristics on financial management decisions. “In Their Own Words” box by Hersh Shefrin.
	Case against efficient markets.	Presents the behavioral case for market inefficiency and related evidence pro and con.
	Minicase: Your 401(k) Account at S&S Air.	Illustrates the considerations to be taken when selecting investment options.
CHAPTER 23 Enterprise Risk Management	Volatility and risk.	Illustrates need to manage risk and some of the most important types of risk.
	Hedging with forwards, options, and swaps.	Shows how many risks can be managed with financial derivatives.
	Minicase: Chatman Mortgage, Inc.	Analyzes hedging of interest rate risk.

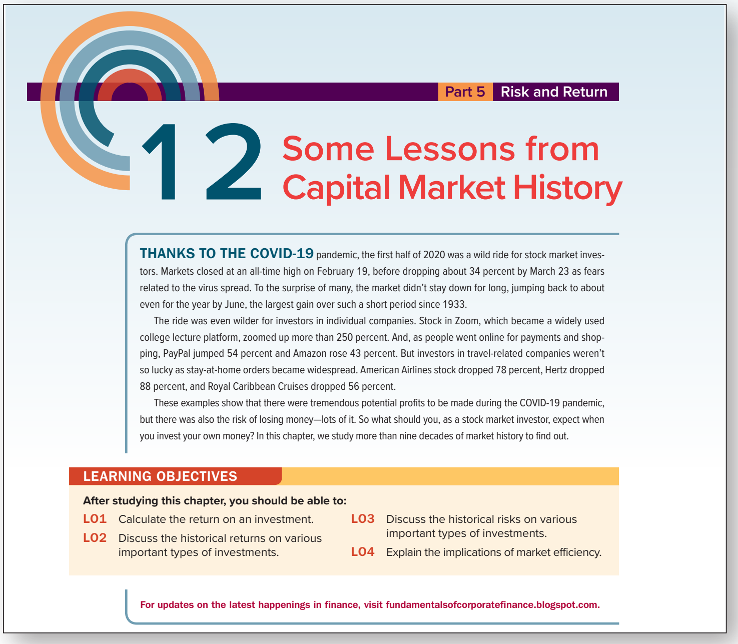
Chapters	Selected Topics of Interest	Benefits to You
CHAPTER 24 Options and Corporate Finance	Stock options, employee stock options, and real options.	Discusses the basics of these important option types.
	Option-embedded securities.	Describes the different types of options found in corporate securities.
	Minicase: S&S Air's Convertible Bond.	Examines security issuance issues for a small firm.
CHAPTER 25 Option Valuation	Put-call parity and Black-Scholes.	Develops modern option valuation and factors influencing option values.
	Options and corporate finance.	Applies option valuation to a variety of corporate issues, including mergers and capital budgeting.
	Minicase: Exotic Cuisines Employee Stock Options.	Illustrates complexities that arise in valuing employee stock options.
CHAPTER 26 Mergers and Acquisitions	Alternatives to mergers and acquisitions.	Covers strategic alliances and joint ventures and why they are important alternatives.
	Defensive tactics.	Expanded discussion of antitakeover provisions.
	Divestitures and restructurings.	Examines important actions such as equity carve-outs, spins-offs, and split-ups.
	Mergers and acquisitions.	Develops essentials of M&A analysis, including financial, tax, and accounting issues.
	Minicase: The Birdie Golf–Hybrid Golf Merger.	Covers small business valuation for acquisition purposes.
CHAPTER 27 Leasing	Changes in lease accounting.	Discusses recent changes in lease accounting rules and the curtailment of "off-balance-sheet" financing.
	Leases and lease valuation.	Examines essentials of leasing, good and bad reasons for leasing, and NPV of leasing.
	Minicase: The Decision to Lease or Buy at Warf Computers.	Covers lease-or-buy and related issues for a small business.

In-Text Study Features

To meet the varied needs of its intended audience, *Fundamentals of Corporate Finance* is rich in valuable learning tools and support.

CHAPTER-OPENING VIGNETTES

Vignettes drawn from real-world events introduce students to the chapter concepts.



Part 5 Risk and Return

12 Some Lessons from Capital Market History

THANKS TO THE COVID-19 pandemic, the first half of 2020 was a wild ride for stock market investors. Markets closed at an all-time high on February 19, before dropping about 34 percent by March 23 as fears related to the virus spread. To the surprise of many, the market didn't stay down for long, jumping back to about even for the year by June, the largest gain over such a short period since 1933.

The ride was even wilder for investors in individual companies. Stock in Zoom, which became a widely used college lecture platform, zoomed up more than 250 percent. And, as people went online for payments and shopping, PayPal jumped 54 percent and Amazon rose 43 percent. But investors in travel-related companies weren't so lucky as stay-at-home orders became widespread. American Airlines stock dropped 78 percent, Hertz dropped 88 percent, and Royal Caribbean Cruises dropped 56 percent.

These examples show that there were tremendous potential profits to be made during the COVID-19 pandemic, but there was also the risk of losing money—lots of it. So what should you, as a stock market investor, expect when you invest your own money? In this chapter, we study more than nine decades of market history to find out.

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Calculate the return on an investment.
- LO2 Discuss the historical returns on various important types of investments.
- LO3 Discuss the historical risks on various important types of investments.
- LO4 Explain the implications of market efficiency.

For updates on the latest happenings in finance, visit fundamentalsofcorporatefinance.blogspot.com.

CHAPTER LEARNING OBJECTIVES

This feature maps out the topics and learning goals in every chapter. Each end-of-chapter problem and test bank question is linked to a learning objective, to help you organize your assessment of knowledge and comprehension.

PEDAGOGICAL USE OF COLOR

This learning tool continues to be an important feature of *Fundamentals of Corporate Finance*. In almost every chapter, color plays an extensive, nonschematic, and largely self-evident role. A guide to the functional use of color is on page xlvi of this front matter.

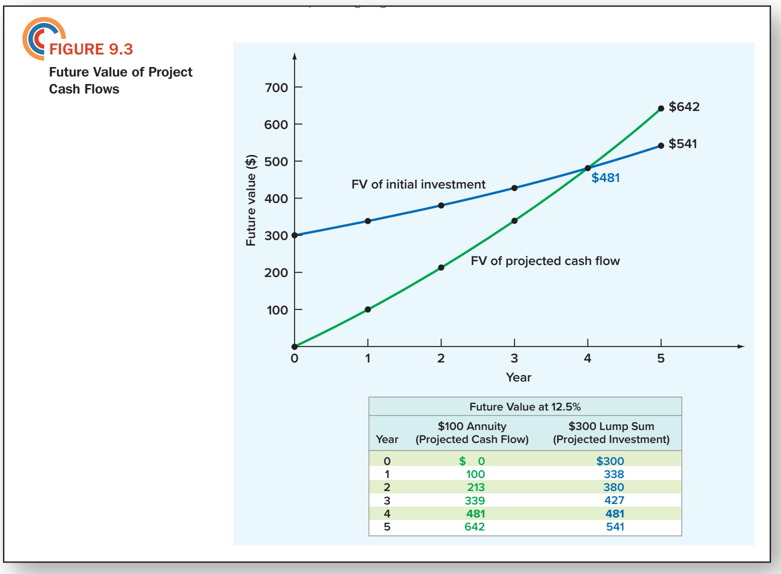


FIGURE 9.3 Future Value of Project Cash Flows

	Future Value at 12.5%	
Year	$100 Annuity (Projected Cash Flow)	$300 Lump Sum (Projected Investment)
0	$ 0	$300
1	100	338
2	213	380
3	339	427
4	481	481
5	642	541

IN THEIR OWN WORDS . . .

Robert C. Higgins on Sustainable Growth

Most financial officers know intuitively that it takes money to make money. Rapid sales growth requires increased assets in the form of accounts receivable, inventory, and fixed plant, which, in turn, require money to pay for assets. They also know that if their company does not have the money when needed, it can literally "grow broke." The sustainable growth equation states these intuitive truths explicitly.

Sustainable growth is often used by bankers and other external analysts to assess a company's creditworthiness. They are aided in this exercise by several sophisticated computer software packages that provide detailed analyses of the company's past financial performance, including its annual sustainable growth rate.

Bankers use this information in several ways. Quick comparison of a company's actual growth rate to its sustainable rate tells the banker what issues will be at the top of management's financial agenda. If actual growth consistently exceeds sustainable growth, management's problem will be where to get the cash to finance growth. The banker thus can anticipate interest in loan products. Conversely, if sustainable growth consistently exceeds actual, the banker had best be prepared to talk about investment products, because management's problem will be what to do with all the cash that keeps piling up in the till.

Bankers also find the sustainable growth equation useful for explaining to financially inexperienced small business owners and overly optimistic entrepreneurs that, for the long-run viability of their business, it is necessary to keep growth and profitability in proper balance.

Finally, comparison of actual to sustainable growth rates helps a banker understand why a loan applicant needs money and for how long the need might continue. In one instance, a loan applicant requested $100,000 to pay off several insistent suppliers and promised to repay in a few months when he collected some accounts receivable that were coming due. A sustainable growth analysis revealed that the firm had been growing at four to six times its sustainable growth rate and that this pattern was likely to continue in the foreseeable future. This alerted the banker to the fact that impatient suppliers were only a symptom of the much more fundamental disease of overly rapid growth, and that a $100,000 loan would likely prove to be only the down payment on a much larger, multiyear commitment.

Robert C. Higgins is a Professor Emeritus of Finance, at the Foster School of Business at the University of Washington. He pioneered the use of sustainable growth as a tool for financial analysis.

IN THEIR OWN WORDS BOXES

This series of boxes features popular articles on key topics in the text written by distinguished scholars and practitioners. Boxes include essays by Merton Miller on capital structure, Fischer Black on dividends, and Roger Ibbotson on capital market history. A complete list of In Their Own Words boxes appears on page xlv.

WORK THE WEB BOXES

These boxes show students how to research financial issues using the web and then how to use the information they find to make business decisions. Work the Web boxes also include interactive follow-up questions and exercises.

WORK THE WEB

As we discussed in this chapter, ratios are an important tool for examining a company's performance. Gathering the necessary financial statements to calculate ratios can be tedious and time-consuming. Fortunately, many sites on the web provide this information for free. One of these is www.reuters.com. We went there, entered the ticker symbol "HD" (for Home Depot), and then went to the "Key Metrics" page. Here is an abbreviated look at the results:

	Company	industry	sector
Quick Ratio (MRQ)	0.42	1.03	1.26
Current Ratio (MRQ)	1.34	1.91	1.58
LT Debt to Equity (MRQ)	397.33	84.80	34.40
Total Debt to Equity (MRQ)	406.99	98.04	64.39
Interest Coverage (TTM)	18.56	14.73	3.63

The website reports numerous ratios for each publicly traded company. We encourage you to have a look at your favorite company.

Questions

1. *Go to www.reuters.com and find the major ratio categories listed on this website. How do the categories differ from the categories listed in this textbook?*
2. *Go to www.reuters.com and look at the ratios. You will notice the ratios are reported for annual, quarterly, trailing twelve month, or 5-year numbers. Why might the ratios be calculated using different values?*

REAL-WORLD EXAMPLES

Actual events are integrated throughout the text, tying chapter concepts to real life through illustration and reinforcing the relevance of the material. Some examples tie into the chapter-opening vignette for added reinforcement.

SPREADSHEET STRATEGIES

How to Calculate Present Values with Multiple Future Cash Flows Using a Spreadsheet

Just as we did in our previous chapter, we can set up a basic spreadsheet to calculate the present values of the individual cash flows as follows. Notice that we have calculated the present values one at a time and added them up:

	A	B	C	D	E
1					
2	Using a spreadsheet to value multiple future cash flows				
3					
4	What is the present value of $200 in one year, $400 the next year, $600 the next year, and				
5	$800 the last year if the discount rate is 12 percent?				
6					
7	Rate:	.12			
8					
9	Year	Cash flows	Present values	Formula used	
10	1	$200	$178.57	=PV(B7,A10,0,−B10)	
11	2	$400	$318.88	=PV(B7,A11,0,−B11)	
12	3	$600	$427.07	=PV(B7,A12,0,−B12)	
13	4	$800	$508.41	=PV(B7,A13,0,−B13)	
14					
15		Total PV:	**$1,432.93**	=SUM(C10:C13)	
16					
17	Notice the negative signs inserted in the PV formulas. These just make the present values have				
18	positive signs. Also, the discount rate in cell B7 is entered as B7 (an "absolute" reference)				
19	because it is used over and over. We could have just entered ".12" instead, but our approach is				
20	more flexible.				
21					
22					

SPREADSHEET STRATEGIES

This feature introduces students to Excel and shows them how to set up spreadsheets in order to analyze common financial problems—a vital part of every business student's education.

CALCULATOR HINTS

Brief calculator tutorials appear in selected chapters to help students learn or brush up on their financial calculator skills. These complement the Spreadsheet Strategies.

CALCULATOR HINTS

How to Calculate Present Values with Multiple Future Cash Flows Using a Financial Calculator

To calculate the present value of multiple cash flows with a financial calculator, we will discount the individual cash flows one at a time using the same technique we used in our previous chapter, so this is not really new. However, we can show you a shortcut. We will use the numbers in Example 6.3 to illustrate.

To begin, of course, we first remember to clear out the calculator! Next, from Example 6.3, the first cash flow is $200 to be received in one year and the discount rate is 12 percent, so we do the following:

Enter	1	12			200
	N	**I/Y**	**PMT**	**PV**	**FV**
Solve for				−178.57	

Now, you can write down this answer to save it, but that's inefficient. All calculators have a memory where you can store numbers. Why not just save it there? Doing so cuts down on mistakes because you don't have to write down and/or rekey numbers, and it's much faster.

Next, we value the second cash flow. We need to change N to 2 and FV to 400. As long as we haven't changed anything else, we don't have to reenter I/Y or clear out the calculator, so we have:

Enter	2				400
	N	**I/Y**	**PMT**	**PV**	**FV**
Solve for				−318.88	

CONCEPT BUILDING

Chapter sections are intentionally kept short to promote a step-by-step, building block approach to learning. Each section is then followed by a series of short concept questions that highlight the key ideas just presented. Students use these questions to make sure they can identify and understand the most important concepts as they read.

Concept Questions

3.3a What are the five groups of ratios? Give two or three examples of each kind.

3.3b Given the total debt ratio, what other two ratios can be computed? Explain how.

3.3c Turnover ratios all have one of two figures as the numerator. What are these two figures? What do these ratios measure? How do you interpret the results?

3.3d Profitability ratios all have the same figure in the numerator. What is it? What do these ratios measure? How do you interpret the results?

SUMMARY TABLES

These tables succinctly restate key principles, results, and equations. They appear whenever it is useful to emphasize and summarize a group of related concepts. For an example, see Chapter 3, page 72.

6.4 **PV for a perpetuity = C/r**

For example, an investment offers a perpetual cash flow of $500 every year. The return you require on such an investment is 8 percent. What is the value of this investment? The value of this perpetuity is:

Perpetuity PV = C/r = $500/.08 = $6,250

For future reference, Table 6.2 contains a summary of the annuity and perpetuity basic calculations we have described in this section. By now, you probably think that you'll just use online calculators to handle annuity problems. Before you do, see our nearby *Work the Web* box!

EXAMPLE 6.7 **Preferred Stock**

Preferred stock (or preference stock) is an important example of a perpetuity. When a corporation sells preferred stock, the buyer is promised a fixed cash dividend every period (usually every quarter) forever. This dividend must be paid before any dividend can be paid to regular stockholders—hence the term *preferred.*

Suppose the Fellini Co. wants to sell preferred stock at $100 per share. A similar issue of preferred stock already outstanding has a price of $40 per share and offers a dividend of $1 every quarter. What dividend will Fellini have to offer if the preferred stock is going to sell?

LABELED EXAMPLES

Separate numbered and titled examples are extensively integrated into the chapters. These examples provide detailed applications and illustrations of the text material in a step-by-step format. Each example is completely self-contained so students don't have to search for additional information. Based on our classroom testing, these examples are among the most useful learning aids because they provide both detail and explanation.

KEY TERMS

Key terms are printed in bold type and defined within the text the first time they appear. They also appear in the margins with definitions for easy location and identification by the student.

EXPLANATORY WEB LINKS

These web links are provided in the margins of the text. They are specifically selected to accompany text material and provide students and instructors with a quick way to check for additional information using the internet.

1. A petition is filed in a federal court. Corporations may file a voluntary petition, or involuntary petitions may be filed against the corporation by several of its creditors.
2. A trustee-in-bankruptcy is elected by the creditors to take over the assets of the debtor corporation. The trustee will attempt to liquidate the assets.
3. When the assets are liquidated, after payment of the bankruptcy administration costs, the proceeds are distributed among the creditors.
4. If any proceeds remain, after expenses and payments to creditors, they are distributed to the shareholders.

The distribution of the proceeds of the liquidation occurs according to the following priority list:

The SEC has a good overview of the bankruptcy process in its "Online Publications" section at **www.sec.gov**.

KEY EQUATIONS

Called out in the text, key equations are identified by an equation number. The list in Appendix B shows the key equations by chapter, providing students with a convenient reference.

Based on our examples, we can now write the general expression for the value of a bond. If a bond has (1) a face value of *F* paid at maturity, (2) a coupon of *C* paid per period, (3) *t* periods to maturity, and (4) a yield of *r* per period, its value is:

$$\text{Bond value} = C \times [1 - 1/(1+r)^t]/r \quad + \quad F/(1+r)^t$$
$$\text{Bond value} = \begin{array}{c}\text{Present value}\\ \text{of the coupons}\end{array} + \begin{array}{c}\text{Present value}\\ \text{of the face amount}\end{array} \qquad (7.1)$$

HIGHLIGHTED CONCEPTS

Throughout the text, important ideas are pulled out and presented in a highlighted box—signaling to students that this material is particularly relevant and critical for their understanding. For examples, see Chapter 10, page 319; Chapter 13, page 441.

EXCEL MASTER

Icons in the margin identify concepts and skills covered in our unique, RWJ-created Excel Master program. For more training in Excel functions for finance, and for more practice, log on to McGraw Hill's *Connect Finance* for *Fundamentals of Corporate Finance* to access the Excel Master files. This pedagogically superior tool will help get your students the practice they need to succeed—and to exceed expectations.

12.3 Average Returns: The First Lesson

Excel Master

xlsx Excel Master coverage online

As you've probably begun to notice, the history of capital market returns is too complicated to be of much use in its undigested form. We need to begin summarizing all these numbers. Accordingly, we discuss how to go about condensing the detailed data. We start out by calculating average returns.

CALCULATING AVERAGE RETURNS

The obvious way to calculate the average returns on the different investments in Table 12.1 is to add up the yearly returns and divide by 94. The result is the historical average of the individual values.

For example, if you add up the returns for the large-company stocks in Figure 12.5 for the 94 years, you will get about 11.37. The average annual return is 11.37/94 = .121, or 12.1%. You interpret this 12.1 percent just like any other average. If you were to pick a year at random from the 94-year history and you had to guess what the return in that year was, the best guess would be 12.1 percent.

AVERAGE RETURNS: THE HISTORICAL RECORD

Table 12.2 shows the average returns for the investments we have discussed. As shown, in a typical year, the small-company stocks increased in value by 16.3 percent. Notice also how much larger the returns are for stocks, compared to the returns on bonds.

These averages are, of course, nominal because we haven't worried about inflation. Notice that the average inflation rate was 2.9 percent per year over this 94-year span. The nominal return on U.S. Treasury bills was 3.4 percent per year. The average real return on

CHAPTER SUMMARY AND CONCLUSIONS

Every chapter ends with a concise, but thorough, summary of the important ideas—helping students review the key points and providing closure to the chapter.

CHAPTER REVIEW AND SELF-TEST PROBLEM

2.1 Cash Flow for Mara Corporation This problem will give you some practice working with financial statements and figuring cash flow. Based on the following information for Mara Corporation, prepare an income statement for 2021 and balance sheets for 2020 and 2021. Next, following our U.S. Corporation examples in the chapter, calculate cash flow from assets, cash flow to creditors, and cash flow to stockholders for Mara for 2021. Use a 21 percent tax rate throughout. You can check your answers against ours, found in the following section.

	2020	2021
Sales	$4,203	$4,507
Cost of goods sold	2,422	2,633
Depreciation	785	952
Interest	180	196
Dividends	275	352
Current assets	2,205	2,429
Net fixed assets	7,344	7,650
Current liabilities	1,003	1,255
Long-term debt	3,106	2,085

CHAPTER REVIEW AND SELF-TEST PROBLEMS

Appearing after the Summary and Conclusions, each chapter includes a Chapter Review and Self-Test Problem section. These questions and answers allow students to test their abilities in solving key problems related to the chapter content and provide instant reinforcement.

CONCEPTS REVIEW AND CRITICAL THINKING QUESTIONS

This successful end-of-chapter section facilitates your students' knowledge of key principles, as well as their intuitive understanding of the chapter concepts. A number of the questions relate to the chapter-opening vignette—reinforcing student critical thinking skills and the learning of chapter material.

CONCEPTS REVIEW AND CRITICAL THINKING QUESTIONS

1. **Liquidity** [LO1] What does liquidity measure? Explain the trade-off a firm faces between high liquidity and low liquidity levels.
2. **Accounting and Cash Flows** [LO2] Why might the revenue and cost figures shown on a standard income statement not be representative of the actual cash inflows and outflows that occurred during a period?
3. **Book Values versus Market Values** [LO1] In preparing a balance sheet, why do you think standard accounting practice focuses on historical cost rather than market value?
4. **Operating Cash Flow** [LO2] In comparing accounting net income and operating cash flow, name two items you typically find in net income that are not in operating cash flow. Explain what each is and why it is excluded in operating cash flow.
5. **Book Values versus Market Values** [LO1] Under standard accounting rules, it is possible for a company's liabilities to exceed its assets. When this occurs, the owners' equity is negative. Can this happen with market values? Why or why not?
6. **Cash Flow from Assets** [LO4] Suppose a company's cash flow from assets is negative for a particular period. Is this necessarily a good sign or a bad sign?
7. **Operating Cash Flow** [LO4] Suppose a company's operating cash flow has been negative for several years running. Is this necessarily a good sign or a bad sign?
8. **Net Working Capital and Capital Spending** [LO4] Could a company's change in NWC be negative in a given year? (*Hint*: Yes.) Explain how this might come about. What about net capital spending?
9. **Cash Flow to Stockholders and Creditors** [LO4] Could a company's cash flow to stockholders be negative in a given year? (*Hint*: Yes.) Explain how this might come about. What about cash flow to creditors?
10. **Firm Values** [LO1] Referring back to the Procter & Gamble example used at the beginning of the chapter, note that we suggested that Procter & Gamble's stockholders probably didn't suffer as a result of the reported loss. What do you think was the basis for our conclusion?

END-OF-CHAPTER QUESTIONS AND PROBLEMS

Students learn better when they have plenty of opportunity to practice; therefore, *Fundamentals,* 13e, provides extensive end-of-chapter questions and problems. The end-of-chapter support greatly exceeds typical introductory textbooks. The questions and problems are separated into three learning levels: Basic, Intermediate, and Challenge. Answers to selected end-of-chapter material appear in Appendix C. Also, most problems are available in McGraw Hill's Connect—see page xxiv for details.

QUESTIONS AND PROBLEMS

BASIC
(Questions 1–11)

1. **Building a Balance Sheet [LO1]** Bing, Inc., has current assets of $5,400, net fixed assets of $28,100, current liabilities of $4,100, and long-term debt of $10,600. What is the value of the shareholders' equity account for this firm? How much is net working capital?
2. **Building an Income Statement [LO1]** Nataro, Inc., has sales of $742,000, costs of $316,000, depreciation expense of $39,000, interest expense of $34,000, and a tax rate of 21 percent. What is the net income for this firm?
3. **Dividends and Retained Earnings [LO1]** Suppose the firm in Problem 2 paid out $125,000 in cash dividends. What is the addition to retained earnings?
4. **Per-Share Earnings and Dividends [LO1]** Suppose the firm in Problem 3 had 75,000 shares of common stock outstanding. What is the earnings per share, or EPS, figure? What is the dividends per share figure?
5. **Calculating Taxes [LO3]** 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?
6. **Calculating OCF [LO4]** Graff, Inc., has sales of $49,800, costs of $23,700, depreciation expense of $2,300, and interest expense of $1,800. If the tax rate is 22 percent, what is the operating cash flow, or OCF?

END-OF-CHAPTER CASES

Located at the end of the book's chapters, these minicases focus on real-life 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 from each chapter.

MINICASE

Bullock Gold Mining

Seth Bullock, the owner of Bullock Gold Mining, is evaluating a new gold mine in South Dakota. Dan Dority, the company's geologist, has just finished his analysis of the mine site. He has estimated that the mine would be productive for eight years, after which the gold would be completely mined. Dan has taken an estimate of the gold deposits to Alma Garrett, the company's financial officer. Alma has been asked by Seth to perform an analysis of the new mine and present her recommendation on whether the company should open the new mine.

Alma has used the estimates provided by Dan to determine the revenues that could be expected from the mine. She has also projected the expense of opening the mine and the annual operating expenses. If the company opens the mine, it will cost $745 million today, and it will have a cash outflow of $55 million nine years from today in costs associated with closing the mine and reclaiming the area surrounding it. The expected cash flows each year from the mine are shown in the table. Bullock Mining has a required return of 12 percent on all of its gold mines.

Year	Cash Flow
0	−$745,000,000
1	127,000,000
2	135,000,000
3	145,000,000
4	185,000,000
5	225,000,000
6	165,000,000
7	155,000,000
8	134,000,000
9	− 55,000,000

QUESTIONS

1. Construct a spreadsheet to calculate the payback period, internal rate of return, modified internal rate of return, and net present value of the proposed mine.
2. Based on your analysis, should the company open the mine?
3. Bonus question: Most spreadsheets do not have a built-in formula to calculate the payback period. Write a VBA script that calculates the payback period for a project.

WEB EXERCISES (ONLINE ONLY)

For instructors interested in integrating even more online resources and problems into their course, these web activities show students how to learn from the vast amount of financial resources available on the internet. In the 13th edition of *Fundamentals,* these web exercises are available to students and instructors through Connect.

Comprehensive Teaching and Learning Package

This edition of *Fundamentals* has several options in terms of the textbook, instructor supplements, student supplements, and multimedia products. Mix and match to create a package that is perfect for your course!

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Customize your version of *Fundamentals*, 13e, through McGraw Hill's *Create* platform. Teach the chapters you want in the order you want—your rep can show you how!

INSTRUCTOR RESOURCES

Keep all the supplements in one place! Your Connect Library contains all the necessary supplements—Teaching Resource Manual, Solutions, Test Bank, Computerized Test Bank, and PowerPoint—all in one easy-to-find, easy-to-use, integrated place: Your *Connect Finance* course.

- **Teaching Resource Manual (TRM)**
  The TRM is a full-service implementation guide designed to support you in the delivery of your curriculum and assist you in integrating Connect.
- **Solutions Manual (SM)**
  Prepared by Brad Jordan, University of Florida, and Joe Smolira, Belmont University
  The *Fundamentals* Solutions Manual provides detailed solutions to the extensive end-of-chapter material, including concept review questions, quantitative problems, and cases.
- **Test Bank**
  Prepared by Heidi Toprac
  Over 100 questions and problems per chapter! Each chapter includes questions that test the understanding of key terms in the book; questions patterned after learning objectives, concept questions, chapter-opening vignettes, boxes, and highlighted phrases; multiple-choice problems patterned after end-of-chapter questions at a variety of skill levels; and essay questions to test problem-solving skills and more advanced understanding of concepts.
- **Excel Simulations**
  Expanded for this edition! With 180 Excel simulation questions now included in Connect, RWJ is the unparalleled leader in offering students the opportunity to practice using the Excel functions they will use throughout their careers in finance.
- **Corporate Finance Videos**
  These brief and engaging conceptual videos (and accompanying questions) help students to master the building blocks of the Corporate Finance course.
- **PowerPoint Presentations**
  The PowerPoint slides for the 13th edition have been revised to include a wealth of instructor material, including lecture tips, real-world examples, and international notes. Each presentation also includes slides dedicated entirely to ethics notes that relate to the chapter topics.
- **Test Builder in Connect**
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Test Builder allows you to:

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- Determine your preferred treatment of algorithmic questions.
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Test Builder provides a secure interface for better protection of content and allows for just-in-time updates to flow directly into assessments.

- **Tegrity: Lectures 24/7**

  Tegrity in Connect is a tool that makes class time available 24/7 by automatically capturing every lecture. With a simple one-click start-and-stop process, you capture all computer screens and corresponding audio in a format that is easy to search, frame by frame. Students can replay any part of any class with easy-to-use, browser-based viewing on a PC, Mac, iPod, or other mobile device.

  Educators know that the more students can see, hear, and experience class resources, the better they learn. In fact, studies prove it. Tegrity's unique search feature helps students efficiently find what they need, when they need it, across an entire semester of class recordings. Help turn your students' study time into learning moments immediately supported by your lecture. With Tegrity, you also increase intent listening and class participation by easing students' concerns about note-taking. Using Tegrity in Connect will make it more likely you will see students' faces, not the tops of their heads.

- **Remote Proctoring and Browser-Locking Capabilities**

  Mc Graw Hill connect + proctorio

  New remote proctoring and browser-locking capabilities, hosted by Proctorio within Connect, provide control of the assessment environment by enabling security options and verifying the identity of the student.

  Seamlessly integrated within Connect, these services allow instructors to control students' assessment experience by restricting browser activity, recording students' activity, and verifying students are doing their own work.

  Instant and detailed reporting gives instructors an at-a-glance view of potential academic integrity concerns, thereby avoiding personal bias and supporting evidence-based claims.

STUDENT RESOURCES

Student resources for this edition can be found through the Library tab in your *Connect Finance* course. If you aren't using Connect, visit us at **connect.mheducation.com** to learn more, and ask your professor about using it in your course for access to a great group of supplement resources!

- **Excel Resources**

  For those seeking additional practice, students can access Excel template problems and Excel Master, designed by Brad Jordan and Joe Smolira.

- **Narrated Lecture Videos**
  Updated for this edition, the Narrated Lecture videos provide real-world examples accompanied by step-by-step instructions and explanations for solving problems presented in the chapter. The Concept Checks from the text are also integrated into the slides to reinforce the key topics in the chapter. Designed specifically to appeal to the different learning methods of students, the slides provide a visual and audio explanation of topics and problems.

TEACHING SUPPORT

Along with having access to all of the student resource materials through the Connect Library tab, you also have password-protected access to the Instructor's Manual, solutions to end-of-chapter problems and cases, Instructor's PowerPoint, Excel Template Solutions, video clips, and video projects and questions.

HOW THE MARKET WORKS

Students receive free access to this web-based portfolio simulation with a hypothetical brokerage account to buy and sell stocks and mutual funds. Students can use the real data found at this site in conjunction with the chapters on investments. They can also compete against students in their class and around the United States to run the most successful portfolio. This site is powered by Stock-Trak, the leading provider of investment simulation services to the academic community.

AVAILABLE FOR PURCHASE AND PACKAGING

FinGame Online 5.0
By LeRoy Brooks, John Carroll University
(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. The game is now tied to the text by exercises found on the Connect Student Library. 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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Assurance of Learning is an important element of many accreditation standards. *Fundamentals of Corporate Finance,* 13e, is designed specifically to support your assurance of learning initiatives. Each chapter in the book begins with a list of numbered learning

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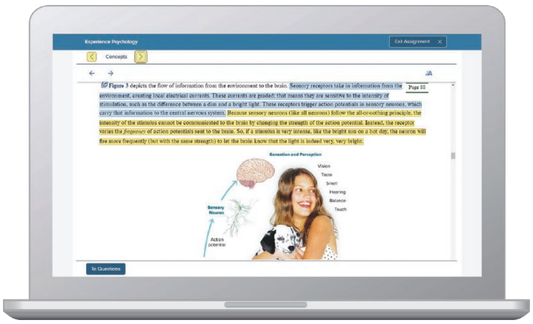

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> ***"I really liked this app—it made it easy to study when you don't have your text-book in front of you."***
>
> - Jordan Cunningham, Eastern Washington University

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Top: Jenner Images/Getty Images, Left: Hero Images/Getty Images, Right: Hero Images/Getty Images objectives that appear throughout the chapter, as well as in the end-of-chapter problems and exercises. Every test bank question is also linked to one of these objectives, in addition to level of difficulty, topic area, Bloom's Taxonomy level, and AACSB skill area. With Connect, McGraw Hill's online homework solution, and EZ Test, McGraw Hill's easy-to-use test bank software, you can search the test bank using these and other categories, providing an engine for targeted Assurance of Learning analysis and assessment.

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The statements contained in *Fundamentals of Corporate Finance,* 13e, are provided only as a guide for the users of this text. The AACSB leaves content coverage and assessment within the purview of individual schools, the mission of the school, and the faculty. While *Fundamentals of Corporate Finance,* 13e, and the teaching package make no claim of any specific AACSB qualification or evaluation, we have, within the test bank, labeled selected questions according to the eight general knowledge and skills areas.

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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, 1120 S. Riverside Plaza, Chicago, IL 60606.

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Pedagogical Use of Color

Throughout the 13th edition of *Fundamentals of Corporate Finance,* we make color a functional dimension of the discussion. In almost every chapter, color plays an extensive and largely self-evident role. Color in these chapters alerts students to the relationship between numbers in a discussion and an accompanying table or figure.

CHAPTER 2

Blue: Identifies net capital spending and change in net working capital
Green: Identifies cash flow numbers

CHAPTERS 3 AND 4

Throughout the chapter
Blue: Identifies income statements
Green: Identifies balance sheets (Also see all 23 ratios in Chapter 3)

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Blue: Identifies the implicit interest expense
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CHAPTER 9

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Blue: Identifies Project A
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Blue: Identifies Stock L
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Blue: Receipts and deposits
Green: Total float
End-of-chapter Appendix
Blue: Identifies contributing costs
Green: Identifies the opportunity, trading, and total costs

CHAPTER 20

Section 20.8
Blue: Identifies numbers exceeding the cost-minimizing restock quantity
Green: Identifies numbers falling below the cost-minimizing restock quantity
Bold Black: Identifies cost-minimizing quantity

CHAPTER 21

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Blue: Identifies cash flows
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Green: Identifies the risk profile
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CHAPTER 24

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Blue: Identifies puts
Green: Identifies calls
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Blue: Identifies Firm A and Global Resources
Green: Identifies Firm B and Regional Enterprises
Bold Black: Identifies the merged firm, Firm AB, and the merged identity of Global Resources

CHAPTER 27

Tables 27.2 and 27.3
Blue: Identifies cash flow components
Green: Identifies total cash flow

1 Introduction to Corporate Finance

IN 2009, Adam Neumann and a business partner opened the first WeWork space in New York's Little Italy. WeWork provided shared office space for businesses, who would rent space as needed, sometimes only for a day. By 2019, WeWork operated in more than 111 cities in 29 countries. Revenues had grown to about $3 billion, but the company was still losing money. Early in 2019, the giant tech investor SoftBank made a major bet on WeWork, which valued the company at $47 billion.

Unfortunately, everything was not rosy at WeWork. In the middle of 2019, the company filed to go public in an IPO, but then changed its mind. In late 2019, Softbank agreed to another major investment, but it pulled the deal in 2020. What happened? Among other things, the COVID-19 pandemic hit, calling into question the company's entire business model of shared, face-to-face meeting spaces.

Understanding WeWork's story as it progressed from a start-up to a multi-billion dollar enterprise and its subsequent struggles takes us into issues involving the corporate form of organization, corporate goals, and corporate control, all of which we discuss in this chapter.

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

LO1 Define the basic types of financial management decisions and the role of the financial manager.

LO2 Explain the goal of financial management.

LO3 Articulate the financial implications of the different forms of business organization.

LO4 Explain the conflicts of interest that can arise between managers and owners.

For updates on the latest happenings in finance, visit fundamentalsofcorporatefinance.blogspot.com.

To begin our study of modern corporate finance and financial management, we need to address two central issues. First, what is corporate finance and what is the role of the financial manager in the corporation? Second, what is the goal of financial management? To describe the financial management environment, we consider the corporate form of organization and discuss some conflicts that can arise within the corporation. We also take a brief look at financial markets in the United States.

1.1 Finance: A Quick Look

Before we plunge into our study of "corp fin," we think a quick overview of the finance field might be a good idea. Our goal is to clue you in on some of the most important areas in finance and some of the career opportunities available in each. We also want to illustrate some of the ways finance fits in with other areas such as marketing, management, accounting, and technology.

FINANCE: THE FIVE MAIN AREAS

Financial topics are usually grouped into five main areas:

1. Corporate finance
2. Investments
3. Financial institutions
4. International finance
5. Fintech

We discuss each of these next.

For job descriptions in finance and other areas, visit **www.careers-in-business.com**.

Corporate Finance The first of these five areas, corporate finance, is the main subject of this book. We begin covering this subject in our next section, so we will wait until then to get into any details. One thing we should note is that the term *corporate finance* seems to imply that what we cover is only relevant to corporations, but almost all of the topics we consider are broader than that. Maybe *business finance* would be more descriptive, but even this is too narrow because at least half of the subjects we discuss in the pages ahead are basic financial ideas and principles applicable across all the various areas of finance and beyond.

Investments Broadly speaking, the investments area deals with financial assets such as stocks and bonds. Some of the more important questions include:

1. What determines the price of a financial asset, such as a share of stock?
2. What are the potential risks and rewards associated with investing in financial assets?
3. What is the best mixture of financial assets to hold?

Students who specialize in the investments area have various career opportunities. Being a financial advisor is one of the most common. Advisors often work for large companies such as Merrill Lynch, advising customers on what types of investments to consider and helping them make buy and sell decisions.

Portfolio management is a second investments-related career path. Portfolio managers, as the name suggests, manage money for investors. For example, individual investors frequently buy into mutual funds. Such funds are a means of pooling money that is then invested by a portfolio manager. Portfolio managers also invest and manage money for pension funds, insurance companies, and many other types of institutions.

Security analysis is a third area. A security analyst researches individual investments, such as stock in a particular company, and makes a determination as to whether the price is right. To do so, an analyst delves deeply into company and industry reports, along with a variety of other information sources. Frequently, financial advisors and portfolio managers rely on security analysts for information and recommendations.

These investments-related areas, like many areas in finance, share an interesting feature. If they are done well, they can be very rewarding financially (translation: You can make a lot of money). The bad news, of course, is that they can be demanding and competitive, so they are not for everybody.

Financial Institutions Financial institutions are businesses that deal primarily in financial matters. Banks and insurance companies would probably be the most familiar to you. Institutions such as these employ people to perform a variety of finance-related tasks. For example, a commercial loan officer at a bank would evaluate whether a particular business has a strong enough financial position to warrant extending a loan. At an insurance company, an analyst would decide whether a particular risk was suitable for insuring and what the premium should be.

International Finance International finance isn't so much an area as it is a specialization within one of the main areas we described earlier. In other words, careers in international finance generally involve international aspects of either corporate finance, investments, or financial institutions. For example, some portfolio managers and security analysts specialize in non-U.S. companies. Similarly, many U.S. businesses have extensive overseas operations and need employees familiar with such international topics as exchange rates and political risks. Banks frequently are asked to make loans across country lines, so international specialists are needed there as well.

Fintech Finance has always been an early adopter of faster, cheaper technologies. The combination of technology and finance is called *fintech.* Fintech is a broad term for a company that uses the internet, mobile phones, software, and/or cloud services to provide a financial service. We discuss fintech in more detail in the next section.

WHY STUDY FINANCE?

Who needs to know finance? In a word, you. In fact, there are many reasons you need a working knowledge of finance even if you are not planning a finance career. We explore some of these reasons next.

Marketing and Finance If you are interested in marketing, you need to know finance because, for example, marketers constantly work with budgets, and they need to understand how to get the greatest payoff from marketing expenditures and programs. Analyzing costs and benefits of projects of all types is one of the most important aspects of finance, so the tools you learn in finance are vital in marketing research, the design of marketing and distribution channels, and product pricing, to name a few areas.

Financial analysts rely heavily on marketing analysts, and the two frequently work together to evaluate the profitability of proposed projects and products. As we will see in a later chapter, sales projections are a key input in almost every type of new product analysis, and such projections are often developed jointly between marketing and finance.

Beyond this, the finance industry employs marketers to help sell financial products such as bank accounts, insurance policies, and mutual funds. Financial services marketing is one of the most rapidly growing types of marketing, and successful financial services marketers are very well compensated. To work in this area, you obviously need to understand financial products.

Accounting and Finance For accountants, finance is required reading. In smaller businesses in particular, accountants often are required to make financial decisions as well as perform traditional accounting duties. Further, as the financial world continues to grow more complex, accountants have to know finance to understand the implications of many of the newer types of financial contracts and the impact they have on financial statements. Beyond this, cost accounting and business finance are particularly closely related, sharing many of the same subjects and concerns.

Financial analysts make extensive use of accounting information; they are some of the most important end users. Understanding finance helps accountants recognize what types of information are particularly valuable and, more generally, how accounting information is actually used (and abused) in practice.

Management and Finance One of the most important areas in management is strategy. Thinking about business strategy without simultaneously thinking about financial strategy is an excellent recipe for disaster, and, as a result, management strategists must have a very clear understanding of the financial implications of business plans.

In broader terms, management employees of all types are expected to have a strong understanding of how their jobs affect profitability, and they also are expected to be able to work within their areas to improve profitability. This is precisely what studying finance teaches you: What are the characteristics of activities that create value?

Technology and Finance STEM (Science, Technology, Engineering, and Math) classes have become more important in recent years. Finance is considered a STEM discipline, especially at the graduate level. As we discussed, fintech is the area in finance that focuses on the STEM side of things. We'll consider a few examples next. As we'll see, fintech companies can often provide cheaper, faster, and more convenient services than brick-and-mortar setups.

Banking Fintech Fintech companies are beginning to compete with traditional bank roles. Mobile payments are a fast-growing form of fintech. Companies such as Venmo and PayPal permit users to transfer money directly from one person to another. These companies have reduced the need for more traditional payment methods, such as checks. In 2019, more than $1 trillion was transferred by mobile payment companies.

Crowdfunding companies like Kickstarter and GoFundMe allow users to raise money directly from other people. Variations exist in these crowdfunding companies: Kickstarter participants are often buying a product before it comes to market, while GoFundMe is used to raise money for a cause.

Fintechs such as Kabbage, Lendio, and Accion have been created to establish marketplaces to provide companies with working capital. These companies have a more streamlined process compared to banks and are willing to fund working capital for start-ups, which are often unable to find funding through more traditional means.

Other fintech companies, such as Upstart and Prosper, have become marketplaces for direct lending to consumers. Customers of these companies apply for loans, which are funded directly by other participants, usually individuals. In a traditional bank loan, much of the decision is determined by a credit score and previous credit history. These marketplaces allow for loans to be funded based off other factors.

Blockchain and Cryptocurrency Blockchain is at the heart of many new fintech services. Blockchain is a list of records, called blocks, that are used to record transactions. Each block contains a cryptographic hash of the previous block, a time stamp, and transaction data. By design, blockchain is resistant to alteration and thus provides an accurate record of transactions.

Cryptocurrency is a digital asset designed to act like currency but is not controlled by any centralized monetary authority. Bitcoin, the first cryptocurrency, was released in 2009. Since then, more than 4,000 variations have been released.

Insurance Insurance technology, or *insurtech,* allows customers to research, compare, and purchase insurance online without physically visiting an insurance agent. Insurtech has streamlined the processes of claims management and evaluating and pricing risks, driving down costs. Insurtech companies are expanding into all areas of insurance, from Lemonade, which offers homeowners and renters insurance, and Oscar Health, which specializes in health insurance, to Trōv, which allows you to insure a single item for any time period right from your mobile phone.

Robo-advising and Stock Trading Traditionally, if you invested through a broker, the broker would advise you on a good asset allocation. Robo-advisors provide investment advice based on mathematical rules or algorithms. This means there is minimal human interaction between the investor and an advisor.

Stock trading apps, such as Robinhood, allow investors to trade stocks commission free. Other apps, like Acorns, allow investors to invest small amounts, often as low as $1. These apps allow small investors to participate in the stock market much more easily (and cheaply).

Budgeting Apps Perhaps the most common use of fintech is through budgeting apps used by consumers. Budgeting apps allow people to keep track of income, monthly payments, expenditures, and more, right on a mobile phone. These apps allow people more insight into their finances and help with creating financial plans for the future.

You and Finance Perhaps the most important reason to know finance is that you will have to make financial decisions that will be important to you personally. Today, for example, when you go to work for almost any type of company, you will be asked to decide how you want to invest your retirement funds. We'll see in a later chapter that what you choose to do can make an enormous difference in your future financial well-being.

On a different note, is it your dream to start your own business? Good luck if you don't understand basic finance before you start; you'll end up learning it the hard way. Want to know how big your student loan payments are going to be before you take out that next loan? Maybe not, but we'll show you how to calculate them anyway.

These are just a few of the ways that finance will affect your personal and business lives. Whether you want to or not, you are going to have to examine and understand financial issues, and you are going to have to make financial decisions. We want you to do so wisely, so keep reading.

Concept Questions

1.1a What are the major areas in finance?

1.1b Besides wanting to pass this class, why do you need to understand finance?

Corporate Finance and the Financial Manager 1.2

In this section, we discuss where the financial manager fits in the corporation. We start by defining *corporate finance* and the financial manager's job.

WHAT IS CORPORATE FINANCE?

Imagine that you were to start your own business. No matter what type you started, you would have to answer the following three questions in some form or another:

1. What long-term investments should you take on? That is, what lines of business will you be in and what sorts of buildings, machinery, and equipment will you need?
2. Where will you get the long-term financing to pay for your investment? Will you bring in other owners or will you borrow the money?
3. How will you manage your everyday financial activities such as collecting from customers and paying suppliers?

These are not the only questions by any means, but they are among the most important. Corporate finance, broadly speaking, is the study of ways to answer these three questions. Accordingly, we'll be looking at each of them in the chapters ahead.

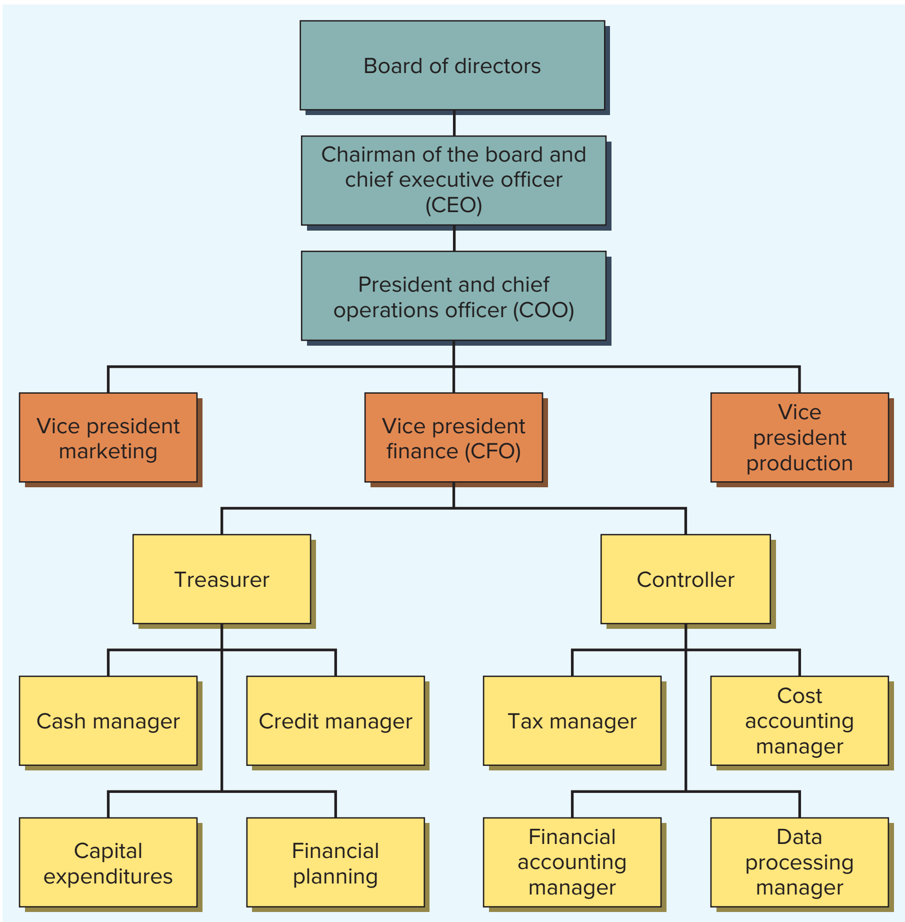
THE FINANCIAL MANAGER

For current issues facing CFOs, see **ww2.cfo.com**.

A striking feature of large corporations is that the owners (the stockholders) are usually not directly involved in making business decisions, particularly on a day-to-day basis. Instead, the corporation employs managers to represent the owners' interests and make decisions on their behalf. In a large corporation, the financial manager would be in charge of answering the three questions we raised in the preceding section.

The financial management function is usually associated with a top officer of the firm, such as a vice president of finance or the chief financial officer (CFO). Figure 1.1 is a simplified organizational chart that highlights the finance activity in a large firm. As shown, the vice president of finance coordinates the activities of the treasurer and the controller. The controller's office handles cost and financial accounting, tax payments, and management information systems. The treasurer's office is responsible for managing the firm's cash and credit, financial planning, and capital expenditures. These treasury activities are all related to the three general questions raised earlier, and the chapters ahead deal primarily with these issues. Our study thus bears mostly on activities usually associated with the treasurer's office.

FIGURE 1.1
A Sample Simplified Organizational Chart



FINANCIAL MANAGEMENT DECISIONS

As the preceding discussion suggests, the financial manager must be concerned with three basic types of questions. We consider these in greater detail next.

Capital Budgeting The first question concerns the firm's long-term investments. The process of planning and managing a firm's long-term investments is called **capital budgeting**. In capital budgeting, the financial manager tries to identify investment opportunities that are worth more to the firm than they cost to acquire. Loosely speaking, this means that the value of the cash flow generated by an asset exceeds the cost of that asset.

capital budgeting
The process of planning and managing a firm's long-term investments.

The types of investment opportunities that would typically be considered depend in part on the nature of the firm's business. For a large retailer such as Walmart, deciding whether to open another store would be an important capital budgeting decision. Similarly, for a software company such as Oracle or Microsoft, the decision to develop and market a new spreadsheet program would be a major capital budgeting decision. Some decisions, such as what type of computer system to purchase, might not depend so much on a particular line of business.

Regardless of the specific nature of an opportunity under consideration, financial managers must be concerned not only with how much cash they expect to receive, but also with when they expect to receive it and how likely they are to receive it. Evaluating the *size, timing,* and *risk* of future cash flows is the essence of capital budgeting. In fact, as we will see in the chapters ahead, whenever we evaluate a business decision, the size, timing, and risk of the cash flows will be by far the most important things we will consider.

Capital Structure The second question for the financial manager concerns ways in which the firm obtains and manages the long-term financing it needs to support its long-term investments. A firm's **capital structure** (or financial structure) is the specific mixture of long-term debt and equity the firm uses to finance its operations. The financial manager has two concerns in this area. First, how much should the firm borrow? That is, what mixture of debt and equity is best? The mixture chosen will affect both the risk and the value of the firm. Second, what are the least expensive sources of funds for the firm?

capital structure
The mixture of debt and equity maintained by a firm.

If we picture the firm as a pie, then the firm's capital structure determines how that pie is sliced—in other words, what percentage of the firm's cash flow goes to creditors and what percentage goes to shareholders. Firms have a great deal of flexibility in choosing a financial structure. The question of whether one structure is better than any other for a particular firm is the heart of the capital structure issue.

In addition to deciding on the financing mix, the financial manager has to decide exactly how and where to raise the money. The expenses associated with raising long-term financing can be considerable, so different possibilities must be carefully evaluated. Also, corporations borrow money from a variety of lenders in a number of different, and sometimes exotic, ways. Choosing among lenders and among loan types is another job handled by the financial manager.

Working Capital Management The third question concerns **working capital** management. The term *working capital* refers to a firm's short-term assets, such as inventory, and its short-term liabilities, such as money owed to suppliers. Managing the firm's working capital is a day-to-day activity that ensures that the firm has sufficient resources to continue its operations and avoid costly interruptions. This involves a number of activities related to the firm's receipt and disbursement of cash.

working capital
A firm's short-term assets and liabilities.

Some questions about working capital that must be answered are the following: (1) How much cash and inventory should we keep on hand? (2) Should we sell on credit? If so, what terms will we offer, and to whom will we extend them? (3) How will we obtain any needed short-term financing? Will we purchase on credit, or will we borrow in the short term and pay cash? If we borrow in the short term, how and where should we do it? These are just a small sample of the issues that arise in managing a firm's working capital.

Conclusion The three areas of corporate financial management we have described—capital budgeting, capital structure, and working capital management—are very broad categories. Each includes a rich variety of topics, and we have indicated only a few questions that arise in the different areas. The chapters ahead contain greater detail.

Concept Questions

1.2a What is the capital budgeting decision?

1.2b What do you call the specific mixture of long-term debt and equity that a firm chooses to use?

1.2c Into what category of financial management does cash management fall?

1.3 Forms of Business Organization

Large firms in the United States, such as Ford and Microsoft, are almost all organized as corporations. We examine the three different legal forms of business organization—sole proprietorship, partnership, and corporation—to see why this is so. Each form has distinct advantages and disadvantages for the life of the business, the ability of the business to raise cash, and taxes. A key observation is that as a firm grows, the advantages of the corporate form may come to outweigh the disadvantages.

SOLE PROPRIETORSHIP

sole proprietorship
A business owned by a single individual.

A **sole proprietorship** is a business owned by one person. This is the simplest type of business to start and is the least regulated form of organization. Depending on where you live, you might be able to start a proprietorship by doing little more than getting a business license and opening your doors. For this reason, there are more proprietorships than any other type of business, and many businesses that later become large corporations start out as small proprietorships.

The owner of a sole proprietorship keeps all the profits. That's the good news. The bad news is that the owner has *unlimited liability* for business debts. This means that creditors can look beyond business assets to the proprietor's personal assets for payment. Similarly, there is no distinction between personal and business income, so all business income is taxed as personal income. However, with the passage of the Tax Cuts and Jobs Act of 2017, up to 20 percent of business income may be exempt from taxation (the specific rules are too complex to cover here).

The life of a sole proprietorship is limited to the owner's life span, and the amount of equity that can be raised is limited to the amount of the proprietor's personal wealth. This limitation often means that the business is unable to exploit new opportunities because of insufficient capital. Ownership of a sole proprietorship may be difficult to transfer because this transfer requires the sale of the entire business to a new owner.

PARTNERSHIP

partnership
A business formed by two or more individuals or entities.

A **partnership** is similar to a proprietorship except that there are two or more owners (partners). In a *general partnership,* all the partners share in gains or losses, and all have unlimited liability for *all* partnership debts, not just some particular share. The way partnership gains (and losses) are divided is described in the *partnership agreement.* This agreement can be an informal oral agreement, such as "let's start a lawn mowing business," or a lengthy, formal written document.

In a *limited partnership,* one or more *general partners* will run the business and have unlimited liability, but there will be one or more *limited partners* who will not actively participate in the business. A limited partner's liability for business debts is limited to the amount that partner contributes to the partnership. This form of organization is common in real estate ventures, for example.

The advantages and disadvantages of a partnership are basically the same as those of a proprietorship. Partnerships based on a relatively informal agreement are easy and inexpensive to form. General partners have unlimited liability for partnership debts, and the partnership terminates when a general partner wishes to sell out or dies. Ownership of a general partnership is not easily transferred because a transfer requires that a new partnership be formed. A limited partner's interest can be sold without dissolving the partnership, but finding a buyer may be difficult. All income is taxed as personal income to the partners, and the amount of equity that can be raised is limited to the partners' combined wealth. As with sole proprietorships, beginning in 2018, up to 20 percent of a partner's income may be exempt depending on various rules spelled out in the Tax Cuts and Jobs Act of 2017.

Because a partner in a general partnership can be held responsible for all partnership debts, having a written agreement is very important. Failure to spell out the rights and duties of the partners frequently leads to misunderstandings later on. Also, if you are a limited partner, you must not become deeply involved in business decisions unless you are willing to assume the obligations of a general partner. The reason is that if things go badly, you may be deemed to be a general partner even though you say you are a limited partner.

Based on our discussion, the primary disadvantages of sole proprietorships and partnerships as forms of business organization are (1) unlimited liability for business debts on the part of the owners, (2) limited life of the business, and (3) difficulty of transferring ownership. These three disadvantages add up to a single, central problem: The ability of such businesses to grow can be seriously limited by an inability to raise cash for investment.

CORPORATION

The **corporation** is the most important form (in terms of size) of business organization in the United States. A corporation is a legal "person," separate and distinct from its owners, and it has many of the rights, duties, and privileges of an actual person. Corporations can borrow money and own property, sue and be sued, and enter into contracts. A corporation can even be a general partner or a limited partner in a partnership, and a corporation can own stock in another corporation.

corporation
A business created as a distinct legal entity composed of one or more individuals or entities.

Not surprisingly, starting a corporation is somewhat more complicated than starting the other forms of business organizations. Forming a corporation involves preparing *articles of incorporation* (or a charter) and a set of *bylaws.* The articles of incorporation must contain a number of things, including the corporation's name, its intended life (which can be forever), its business purpose, and the number of shares that can be issued. This information must normally be supplied to the state in which the firm will be incorporated. For most legal purposes, the corporation is a "resident" of that state.

The bylaws are rules describing how the corporation regulates its existence. For example, the bylaws describe how directors are elected. These bylaws may be a simple statement of a few rules and procedures, or they may be quite extensive for a large corporation. The bylaws may be amended or extended from time to time by the stockholders.

In a large corporation, the stockholders and the managers are usually separate groups. The stockholders elect the board of directors, who then select the managers. Managers are charged with running the corporation's affairs in the stockholders' interests. In principle, stockholders control the corporation because they elect the directors.