BRIGHAM & EHRHARDT

# Financial Management 16e

## Theory & Practice

# Financial Management

## Theory & Practice

16e

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When we wrote the first edition of *Financial Management: Theory and Practice*, we had four goals: (1) to create a text that would help students make better financial decisions; (2) to provide a book that could be used in the introductory MBA course but that was complete enough for use as a reference text in follow-on case courses and after graduation; (3) to motivate students by demonstrating that finance is both interesting and relevant; and (4) to make the book clear enough so that students could go through the material without wasting either their time or their professors' time trying to figure out what we were saying. We have an additional goal for this edition: to explain and apply the 2017 Tax Cuts and Jobs Act to the topics in this book.

We accomplish our goals through the structure and material in the textbook. In addition, MindTap™ for *Financial Management* is a fully integrated online portfolio of teaching tools and learning solutions that facilitate our objectives.

## Intrinsic Valuation as a Unifying Theme

Our emphasis throughout the book is on the actions that a manager can and should take to increase the intrinsic value of the firm. Structuring the book around intrinsic valuation enhances continuity and helps students see how various topics are related to one another.

As its title indicates, this book combines theory and practical applications. An understanding of finance theory is essential for anyone developing and/or implementing effective financial strategies. But theory alone isn't sufficient, so we provide numerous examples in the book and the accompanying *Excel* spreadsheets to illustrate how theory is applied in practice. Indeed, we believe that the ability to analyze financial problems using *Excel* also is essential for a student's successful job search and subsequent career. Therefore, many exhibits in the book come directly from the accompanying *Excel* spreadsheets. Many of the spreadsheets also provide brief "tutorials" by way of detailed comments on *Excel* features that we have found to be especially useful, such as Goal Seek, Tables, and many financial functions.

The book begins with fundamental concepts, including background on the economic and financial environment, financial statements (with an emphasis on cash flows), the time value of money, bond valuation, risk analysis, and stock valuation. With this background, we go on to discuss how specific techniques and decision rules can be used to help maximize the value of the firm. This organization provides four important advantages:

1. Managers should try to maximize the intrinsic value of a firm, which is determined by cash flows as revealed in financial statements. Our early coverage of financial statements helps students see how particular financial decisions affect the various parts of the firm and the resulting cash flow. Also, financial statement analysis provides an excellent vehicle for illustrating the usefulness of spreadsheets.



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2. Covering the time value of money early helps students see how and why expected future cash flows determine the value of the firm. Also, it takes time for students to digest TVM concepts and to learn how to do the required calculations, so it is good to cover TVM concepts early and often.
3. Most students—even those who do not plan to major in finance—are interested in investments. The ability to learn is a function of individual interest and motivation, so *Financial Management*'s early coverage of securities and security markets is pedagogically sound.
4. Once basic concepts have been established, it is easier for students to understand both how and why corporations make specific decisions in the areas of capital budgeting, raising capital, working capital management, mergers, and the like.

# Intended Market and Use

*Financial Management* is designed primarily for use in the introductory MBA finance course and as a reference text in follow-on case courses and after graduation. There is enough material for two terms, especially if the book is supplemented with cases and/or selected readings. The book can also be used as an undergraduate introductory text for exceptionally good students or where the introductory course is taught over two terms.

# Improvements in the 16th Edition

As in every revision, we updated and clarified materials throughout the text, reviewing the entire book for completeness, ease of exposition, and currency. We made hundreds of small changes to keep the text up to date, with particular emphasis on updating the real-world examples and including the latest changes in the financial environment and financial theory. In addition, we made a number of larger changes. Some affect all chapters, some involve reorganizing sections among chapters, and some modify material covered within specific chapters.

## Changes That Affect All Chapters

Following are some of the changes that affect all chapters.

### THE 2017 TAX CUT AND JOBS ACT (TCJA)

This is a corporate finance book, and corporate taxes affect many topics. We have fully integrated the 2017 Tax Cut and Jobs Act (TCJA) into the text and all ancillaries.

### CHANGES IN MICRODRIVE

For many editions we have used a hypothetical company, MicroDrive, as a running example. This provides continuity in the examples from chapter to chapter and helps students apply the material more quickly. When we changed MicroDrive's tax rate to reflect the TCJA, we lost many of the learning points we had built into MicroDrive. To retain those learning points after incorporating the TCJA, we had to revise several other items in MicroDrive's financial statements.

### CONTINUED INTEGRATION WITH *EXCEL*

We have continued to integrate the textbook and the accompanying *Excel* ***Tool Kit*** spreadsheet models for each chapter. Many figures in the textbook show the appropriate area from the chapter's *Excel* ***Tool Kit*** model. This makes the analysis more transparent to the students and better enables them to follow the analysis in the *Excel* model.

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## Notable Changes within Selected Chapters

We made too many small improvements within each chapter to mention them all, but some of the more notable ones are discussed here.

### CHAPTER 1: AN OVERVIEW OF FINANCIAL MANAGEMENT AND THE FINANCIAL ENVIRONMENT

We added a brief discussion of income-wealth inequality in Section 1-4b (Intrinsic Stock Value Maximization and Social Welfare). We rewrote much of Section 1-4c (Ethics and Intrinsic Stock Value Maximization), including discussion of illegal actions, alleged unethical actions, and whistleblower protections. In Section 1-6a we describe upcoming changes in the London Interbank Offering Rate (LIBOR) due to recent scandals in how it was reported. Also, we describe the Federal Reserve Board's new alternative to LIBOR, the Secured Overnight Financing Rate (SOFR).

### CHAPTER 2: FINANCIAL STATEMENTS, CASH FLOW, AND TAXES

We added two new boxes. The first box, "A Matter of Opinion," highlights the leeway companies have in choosing how to present results and how that leeway complicates comparison. The second box, "Financial Statement Fraud," describes the SEC's Financial Reporting and Audit (FRAud) Group, including a recent case.

### CHAPTER 4: TIME VALUE OF MONEY

We replaced the opening vignette with one focused on purchasing a car and how time value of money concepts are vital when getting an auto loan. In Section 4-17c we now show how to determine directly the remaining balance on an amortizing loan without building an entire amortization schedule. We added Section 4-17e to explain how the calculation of monthly interest expenses for many auto loans differs from that of mortgages.

### CHAPTER 5: BONDS, BOND VALUATION, AND INTEREST RATES

We added a new box describing a 1648 perpetual bond, "You Can Take That to the Bank."

### CHAPTER 7: CORPORATE VALUATION AND STOCK VALUATION

We added a section, 7-7d, showing how to calculate the value of operations at each year, not just at the horizon and at t = 0. We also added several new end-of-chapter problems on free cash flow valuation that will be ideal for homework assignments using the algorithmic feature in MindTap.

### CHAPTER 9: THE COST OF CAPITAL

We added Section 9-3c, which discusses the difference between the yield to maturity and the expected rate of return based on projected default rates, showing that the difference between the yield and the expected rate of return is so small that it can be ignored for the vast majority of bonds. Sections 9-3d and 9-3e describe how to estimate the after-tax cost for newly issued debt that has large flotation costs.

### CHAPTER 11: CASH FLOW ESTIMATION AND RISK ANALYSIS

We revised the example company so that it reflects the TCJA but retains key learning points. We added a description of bonus depreciation to Appendix 11A and used the Scenario Manager to create scenarios in the ***Tool Kit*** showing the impact of

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different depreciation methods. We also added bonus depreciation to the Mini-Case and *PowerPoint* show because it is part of the TCJA.

## CHAPTER 15: CAPITAL STRUCTURE DECISIONS

We describe the impact that the TCJA's reduced corporate tax rate has on the value of the tax shield with respect to the M&M models and the Miller model. We incorporated the new tax rate into Section 15-6 and our discussion of the optimal capital structure. Due to the TCJA's lower corporate tax rate and its limitation on interest expense deductions, the optimal capital structure will have less debt than before the TCJA. We moved our discussion of bond refunding operations to the new ***Web Extension 15B***.

## CHAPTER 16: SUPPLY CHAINS AND WORKING CAPITAL MANAGEMENT

We added a new opening vignette focusing on the companies that are best at managing the cash conversion cycle.

## CHAPTER 17: MULTINATIONAL FINANCIAL MANAGEMENT

We added a new box, "Meet Me at the Car Wash," describing international bribery by several Brazilian companies. We reorganized and rewrote much of Section 17-3, "Exchange Rates," to explicitly describe exchanges among all combinations of direct and indirect currencies. Section 17-5a, "Determinants of Floating Exchange Rates," now includes Table 17-3 showing U.S. trade balances with key trading partners.

## CHAPTER 18: PUBLIC AND PRIVATE FINANCING: INITIAL OFFERINGS, SEASONED OFFERINGS, AND INVESTMENT BANKS

We expanded Section 18-1 to address carried interest, unicorns, investment firms that manage multiple venture capital funds, and publicly traded companies with divisions/subsidiaries that provide funding to start-ups.

## CHAPTER 19: LEASE FINANCING

We rewrote Sections 19-2 and 19-3 to reflect the virtual elimination of off-balance sheet accounting due to Accounting Standards Update (ASU) 2016-02. We added a new section, 19-7, to explicitly address the TCJA: "Leases, Taxes, and the 2017 Tax Cuts and Jobs Act."

## CHAPTER 20: HYBRID FINANCING: PREFERRED STOCK, WARRANTS, AND CONVERTIBLES

We added a new opening vignette discussing Tesla's convertible bonds, Elon Musk's tweets about going private, and the subsequent actions by the SEC and Tesla.

## CHAPTER 22: MERGERS AND CORPORATE CONTROL

We reorganized and rewrote much of the chapter to better integrate changes due to the TCJA. Parts of Section 22-1, "Rationale for Mergers," now include the impact of the TCJA regarding restrictions on carry-forward losses from potential targets and limits on interest expense deductions in highly levered acquisitions. Section 22-2, "Types of Mergers," now includes a brief explanation of roll-up mergers and a new section explaining the relationship between acquisition method (exchange of stock, cash offer to purchase assets, and cash offer to purchase shares) and responsibility for any hidden liabilities. We consolidated our coverage of takeover defenses into Section 22-4b, "Hostile Takeovers." Section 22-13, "Merger Tax Treatments," explains the tax treatments of the types of mergers from Section 22-4.

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## Digging Deeper with *Web Extensions*

Many chapters have Adobe PDF "appendices" that provide more detailed coverage of specialized topics related to the chapter's content. For example, ***Web Extension 9A*** explains how to estimate the required rate of return for stocks that have nonconstant dividends and repurchases prior to the forecast horizon.

Four additional chapters are available online for those instructors wishing to cover in depth several other financial issues. For example, a detailed discussion of pension plan management is in ***Web Chapter 29***.

## Digital Course Solutions for Instructors and Students

MindTap is Cengage Learning's fully online, highly personalized learning experience that combines readings, assessments, multimedia, and activities into a singular Learning Path. Using MindTap, an instructor can easily organize a course that guides students through the class with ease and engagement. Instructors can personalize the Learning Path for their students by customizing the robust suite of *Financial Management's* resources and adding their own content via apps that integrate into the MindTap framework seamlessly with Learning Management Systems.

**Instructors:** You can access all resources by going to **www.cengage.com/login**, logging in with a faculty account username and password, and using ISBN 9781337902601 to search for and add resources to your account.

## Enriching the Student Learning Experience

MindTap provides multiple learning resources that enable students to understand each chapter's concepts and financial applications.

### MBA Refresher Pre-/Post-Test

These diagnostic multiple-choice questions will allow students to review specific topics within key prerequisite disciplines—finance, accounting, statistics, economics, and algebra/math—while testing skills in using *Excel* and a financial calculator. Once feedback from the pre-test is reviewed, the post-test will confirm mastery of key topics.

### ConceptClips

Available in MindTap and its eBook, finance ConceptClips present fundamental key topics to students in an entertaining and memorable way via short animated video clips. Developed by Mike Brandl of The Ohio State University, these vocabulary animations provide students with a memorable auditory and visual representation of the important terminology for the course.

### *Excel* Tool Kits

Proficiency with spreadsheets is an absolute necessity for all MBA students. With that in mind, we created *Excel* spreadsheets for each chapter, called ***Tool Kits***, that calculate all numerical examples, tables, and figures. In addition to greater transparency within numerical examples, the ***Tool Kits*** explain in detail many of *Excel*'s most useful features and functions that students will find invaluable in their courses and careers.

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## *Excel* Online

In addition to the *Excel* ***Tool Kit*** files that directly explain examples in the text, **Microsoft® *Excel* Online** activities provide students with an opportunity to work auto-gradable, algorithmic homework problems directly in their browser. Students receive instant feedback on their *Excel* work, including the "by hand" calculations and a solution file containing a recommended way of solving the problem. Students' *Excel* work is saved in real time in the cloud; is platform, device, and browser independent; and is always accessible with their homework without cumbersome file uploads and downloads. This unique integration represents a direct collaboration between Cengage and Microsoft to strengthen and support the development of Microsoft Office education skills for success in the workplace.

## Blueprint Problems

**Blueprint Practice Problems** available in MindTap teach students finance concepts and their associated building blocks—going beyond memorization. By going through the problem step by step, they reinforce foundational concepts and allow students to demonstrate their understanding of the problem-solving process and business impact of each topic. Blueprints include rich feedback and explanations, providing students with an excellent learning resource to solidify their understanding.

## Exploring Finance

**Exploring Finance** offers instructors and students interactive visualizations that engage with "lean forward" interactivity. Instructors can use these visual, interactive tools to help students "see" the financial concept being presented directly within MindTap.

## Problem Walk-Through Videos

Nearly 260 **Problem Walk-Through** videos are embedded in the online homework. Each video walks students through solving a problem from start to finish, and students can play and replay the tutorials as they work through homework assignments or prepare for quizzes and tests, almost as though they had an instructor by their side the whole time.

## Adaptive Test Prep (ATP)

**Adaptive Test Prep** allows students to create practice quizzes covering multiple chapters in a low-stakes environment. Students receive immediate feedback so they know where they need additional help. In addition, the questions have the same formats as those in the actual test bank, prepare students for what to expect on an exam. With many questions offered per chapter, students can create multiple unique practice quizzes within MindTap.

# Classroom Activities

Many of the preceding resources provide an excellent basis for classroom discussions. In addition, each chapter has a Mini Case describing a business situation spanning the chapter's topics. Some professors choose to assign the Mini Cases as graded assignments due at the beginning of class, whereas others use the Mini Cases to provide structure for class discussions or lectures.

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## Mini Case *PowerPoint* Slides

Each chapter has a set of *PowerPoint* slides that present graphs, tables, lists, and calculations for use in lectures. Although the slides correspond to the Mini Cases at the end of the chapter, the slides are completely self-contained in the sense that they can be used for discussions and lectures regardless of whether students have read the Mini Cases. In fact, we often don't assign the Mini Case, but we do use the *PowerPoint* slides.

Instructors can easily customize the slides and convert them quickly into any *PowerPoint* Design Template.[1] If you add some of your own slides or modify the existing slides to better illustrate important concepts, please share your changes with us—many of our best learning points have come from instructors, and we appreciate all suggestions for ways to improve learning experiences for students.

## Mini Case *Excel* Spreadsheets

In addition to the *PowerPoint* slides, we also provide *Excel* spreadsheets that perform the calculations required in the Mini Cases. These spreadsheets are similar to the ***Tool Kits*** but with two differences. (1) The numbers correspond to the Mini Cases rather than to the chapter examples. (2) We added some features that enable what-if analysis on a real-time basis in class.

We usually begin class with the *PowerPoint* presentation, but after we have explained a basic concept, we "toggle" to the Mini Case *Excel* file and show how the analysis can be done in *Excel*.[2] For example, when teaching bond pricing, we begin with the *PowerPoint* show and cover the basic concepts and calculations. Then we toggle to *Excel* and use a sensitivity-based graph to show how bond prices change as interest rates and time to maturity vary. We encourage students to bring their laptops to class so that they can follow along and do the what-if analysis for themselves.

# Evaluating the Student Learning Experience

MindTap provides multiple resources enabling instructors to measure student learning. Some are ideal for online assignments, and others are best as hand-graded cases and exercises.

## Algorithmic Homework Assignments That Are Unique to Each Student

One of our favorite MindTap features allows us to quickly create a homework assignment drawn from end-of-chapter problems and test bank problems. We usually include numerical fill-in-the-blank problems that algorithmically generate different inputs for each student.

When our primary objective is to foster learning, we enable students to check their answer for a problem before moving on to the next problem. We allow either three attempts or unlimited attempts, depending on the problem's difficulty. Sometimes we allow a problem to provide hints and feedback if the student's answer is wrong.

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[1]To convert into a different design template in *PowerPoint* for Office 365, select Design, Theme, and choose a theme. Always double-check the conversion; some templates use fonts of different sizes, which can cause some slide titles to run over their allotted space.

[2]To toggle between two open programs, such as *Excel* and *PowerPoint*, hold the Alt key down and hit the Tab key until you have selected the program you want to show.

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When our primary objective is assessment, we disable the multiple attempts feature. We always allow feedback on each question after the assignment's due date.

MindTap automatically grades the assignment and posts grades to the MindTap gradebook. MindTap can also post grades to learning management systems such as Canvas.

We assign homework early and often: Each assignment covers only several class periods and is due shortly after covering those classes. We find that this encourages students to keep up with the course, which enhances their learning experience.

## Finance in Action

MindTap offers a series of Finance in Action analytical cases that assess students' ability to perform at a higher level of understanding, critical thinking, and decision making.

## End-of-Chapter Spreadsheet Problems

Each chapter has a *Build a Model* problem, where students start with a spreadsheet that contains financial data plus general instructions for solving a specific problem. The *Excel* model is available in MindTap and is partially completed, with headings but no formulas—the student must literally build a model. This structure guides the student through the problem, minimizes unnecessary typing and data entry, and also makes it easy to grade the work because all students' answers are in the same locations on the spreadsheet.

The completed solutions to the *Build a Model*s are located in the Instructor Resource Center.

## Cognero™ Test Bank and Testing Software

Cengage Learning Testing Powered by Cognero™ is a flexible online system that allows you to author, edit, and manage test bank content from multiple Cengage Learning solutions; create multiple test versions in an instant; deliver tests from your LMS, your classroom, or wherever you want. The Cognero™ Test Bank contains the same questions that are in the Microsoft *Word* Test Bank. All question content is now tagged according to Tier I (Business Program Interdisciplinary Learning Outcomes) and Tier II (finance-specific) standards topic, Bloom's Taxonomy, and difficulty level.

## CengageCompose

More than 100 cases, written by Eugene F. Brigham, Linda Klein, and Chris Buzzard, are available via CengageCompose, Cengage Learning's online case library. These cases are in a customized case database that allows instructors to select cases and create their own customized casebooks. Most of the cases have accompanying spreadsheet models that, while not essential for working the case, do reduce number crunching and thus leave more time for students to consider conceptual issues. The models also show students how computers can be used to make better financial decisions. Cases that we have found particularly useful for the different chapters are listed in the end-of-chapter references. The cases, case solutions, and spreadsheet models can be previewed and ordered by professors at **http://compose.cengage.com.**

## Cengage Learning Custom Solutions

Whether you need print, digital, or hybrid course materials, Cengage Learning Custom Solutions can help you create your perfect learning solution. Draw from Cengage Learning's extensive library of texts and collections, add your own original work, and/or

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create customized media and technology to match your learning and course objectives. Our editorial team will work with you through each step, allowing you to concentrate on the most important thing—your students. Learn more about all our services at **www.cengage.com/custom.**

## Solutions Manual

This comprehensive manual contains worked-out solutions to all end-of-chapter questions and problems. It also includes additional explanatory notes with its answers to the end-of-chapter Mini Cases. It is available at the Instructor Resource Center.

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## Errors in the Text

At this point, authors generally say something like this: "We appreciate all the help we received from the people just listed, but any remaining errors are, of course, our own responsibility." And in many books, there are plenty of remaining errors. Having experienced difficulties with errors ourselves, both as students and as instructors, we resolved to avoid this problem in *Financial Management*. As a result of our error-detection procedures, we are convinced that the book is relatively free of mistakes.

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Partly because of our confidence that few such errors remain, but primarily because we want to detect any errors in the textbook that may have slipped by so that we can correct them in subsequent printings, we decided to offer a reward of $10 per error to the first person who reports a textbook error to us. For purposes of this reward, errors in the textbook are defined as misspelled words, nonrounding numerical errors, incorrect statements, and any other error that inhibits comprehension. Typesetting problems such as irregular spacing and differences in opinion regarding grammatical or punctuation conventions do not qualify for this reward. Also, given the ever changing nature of the Internet, changes in Web addresses do not qualify as errors, although we would appreciate reports of changed Web addresses. Finally, any qualifying error that has follow-through effects is counted as two errors only. **Please report any errors to Michael C. Ehrhardt at the e-mail address shown next in the Conclusion.**

## Conclusion

Finance is, in a real sense, the cornerstone of the free enterprise system. Good financial management is therefore vitally important to the economic health of business firms, hence to the nation and the world. Because of its importance, corporate finance should be thoroughly understood. However, this is easier said than done—the field is relatively complex, and it is undergoing constant change in response to shifts in economic conditions. All of this makes corporate finance stimulating and exciting but also challenging and sometimes perplexing. We sincerely hope that *Financial Management: Theory and Practice* will help readers understand and solve the financial problems businesses face today.

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PART 1

# The Company and Its Environment


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CHAPTER 1

# An Overview of Financial Management and the Financial Environment

**WWW**

*See* **http://fortune.com/worlds-most-admired-companies** *for updates on the rankings.*

In a global beauty contest for companies, the winner is . . . Apple.

Or at least Apple is the most admired company in the world, according to *Fortune* magazine's annual survey. The others in the global top ten are Amazon.com, Starbucks, Berkshire Hathaway, Disney, Alphabet (formerly Google), General Electric, Southwest Airlines, Facebook, and Microsoft. What do these companies have that separates them from the rest of the pack?

Based on a survey of executives, directors, and security analysts, these companies have very high average scores across nine attributes: (1) innovativeness, (2) quality of management, (3) long-term investment value, (4) social responsibility, (5) people management, (6) quality of products and services, (7) financial soundness, (8) use of corporate assets, and (9) effectiveness in doing business globally. After culling weaker companies, the final rankings are then determined by over 3,800 experts from a wide variety of industries.

What makes these companies special? In a nutshell, they reduce costs by having innovative production processes, they create value for customers by providing high-quality products and services, and they create value for employees by training and fostering an environment that allows employees to utilize all of their skills and talents. As you will see throughout this book, the resulting cash flow and superior return on capital also create value for investors.



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**resource**

*The textbook's Web site has tools for teaching, learning, and conducting financial research.*

This chapter should give you an idea of what financial management is all about, including an overview of the financial markets in which corporations operate. Before going into details, let's look at the big picture.

## 1-1 The Five-Minute MBA

Okay, we realize you can't get an MBA in five minutes, but we can sketch the key elements of an MBA education. The primary objective of an MBA program is to provide managers with the knowledge and skills they need to run successful companies, so we start there.

First, *successful companies have skilled people* at all levels inside the company, including leaders, managers, and a capable workforce. Skilled people enable a company to identify, create, and deliver products or services that are highly valued by customers—so highly valued that customers choose to purchase from them rather than from their competitors.

Second, *successful companies have strong relationships* with groups outside the company. For example, successful companies develop win–win relationships with suppliers and excel in customer relationship management.

Third, *successful companies have enough funding* to execute their plans and support their growing operations. Companies can reinvest a portion of their earnings, but most growing companies also must raise additional funds externally by some combination of selling stock and/or borrowing in the financial markets. To do this, a company must provide investors with high enough returns to compensate them for the use of their money and their exposure to risk.

To help your company succeed, you must have the skills necessary to evaluate any proposal or idea, whether it relates to marketing, supply chains, production, strategy, mergers, or any other area. In a nutshell, that is what we will do in this book.

**SELF-TEST**

*What are three attributes of successful companies?*

*What financial skills must every successful manager have?*

## 1-2 Finance from 40,000 Feet Above

A bird's-eye view showing the big picture of finance will help you keep track of its individual components. It all starts with individuals or organizations that have more cash than they presently want to spend (i.e., providers of cash now) and others with opportunities to generate cash in the future (i.e., users of cash now). For example, providers of cash include individuals who are saving for retirement, banks willing to make loans, and many other types of investors. Users of cash include: (1) students wishing to borrow money for tuition and planning to repay it with future earnings after graduating, (2) entrepreneurs with ideas, and (3) corporations with growth plans.

Figure 1-1 shows the relationship between providers and users.

Two problems immediately present themselves. First, how do the providers and users identify one another and exchange cash now for claims on risky future cash? Second, how can potential providers evaluate the users' opportunities? In other words, are the claims on risky future cash flows sufficient to compensate the providers for giving up their cash today? At the risk of oversimplification, **financial markets** are simply ways of connecting providers with users, and **financial analysis** is a tool to evaluate risky opportunities.

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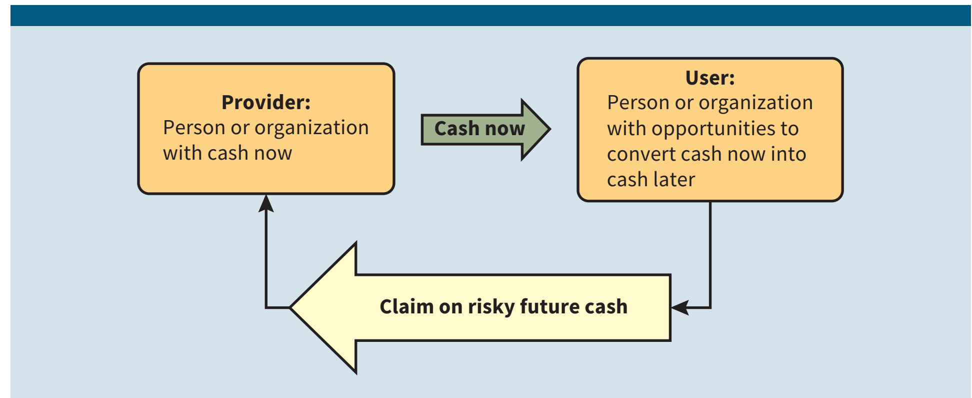
**FIGURE 1-1**
Providers and Users: Cash Now versus Claims on Risky Future Cash




We cover many topics in this book, and it can be easy to miss the forest for the trees. As you read about a particular topic, think about how the topic is related to the role played by financial markets or the tools used to evaluate claims on future cash flows.

We begin with an especially important type of user: companies that are incorporated.

**SELF-TEST**

*What do providers supply? What do providers receive?*

*What do users receive? What do users offer?*

*What two problems are faced by providers and users?*

# 1-3 The Corporate Life Cycle

Apple began life in a garage, and Facebook started in a dorm room. How is it possible for such companies to grow into the giants we see today? The following sections describe some typical stages in the corporate life cycle.

## 1-3a Starting Up as a Proprietorship

Many companies begin as a **proprietorship**, which is an unincorporated business owned by one individual. Starting a business as a proprietor is easy—obtain any required city or state business licenses and begin business operations. The proprietorship has three important advantages: (1) It is easy and inexpensive to start. (2) Relatively few government regulations affect it. (3) It pays no corporate income tax on profits—instead, they are included in the proprietor's personal taxable income.

However, the proprietorship also has three important limitations: (1) It may be difficult for a proprietorship to obtain the funding needed for growth. (2) The proprietor has unlimited personal liability for the business's debts, which can result in losses that exceed the money invested in the company. (Creditors may even be able to seize a proprietor's house or other personal property!) (3) The life of a proprietorship is limited to the life of its founder. Therefore, usually only small businesses operate as sole proprietorships. In fact, about 73% of all companies are proprietorships, accounting for less than 5% of all sales revenue.

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## 1-3b More Than One Owner: A Partnership

Some companies start with more than one owner, and some proprietors decide to add a partner as the business grows. A **partnership** exists whenever two or more persons or entities associate to conduct a noncorporate business for profit. Partnerships may operate under different degrees of formality, ranging from informal, oral understandings to formal agreements filed with the secretary of the state in which the partnership was formed. Partnership agreements define the ways any profits and losses are shared between partners. A partnership's advantages and disadvantages are similar to those of a proprietorship.

Regarding liability, partners potentially can lose all of their personal assets in the event of bankruptcy because each partner is liable for the business's debts. To avoid this, the liabilities of some of the partners can be limited by establishing a **limited partnership**. **Limited partners** can lose only the amount of their investment in the partnership, but the **general partners** have unlimited liability. However, the limited partners typically have no control—which rests solely with the general partners—and their returns are likewise limited. Limited partnerships are common in real estate, oil, equipment-leasing ventures, and venture capital. However, they are not widely used in other businesses because usually no partner is willing to be the general partner due to the risk, and no partners are willing to be limited partners with no control.

In regular and limited partnerships, at least one partner is liable for the partnership's debts. However, in a **limited liability partnership (LLP)** and a **limited liability company (LLC)**, all partners' (or members') potential losses are limited to their investment in the LLP. Of course, this arrangement increases the risk faced by an LLP's lenders, customers, and suppliers.

## 1-3c Many Owners: A Corporation

Most partnerships have difficulty attracting substantial amounts of capital to support growth. Thus, many growth companies begin as a proprietorship or partnership but subsequently convert to a corporation. Other companies, in anticipation of growth, actually begin as corporations.

A **corporation** is a legal entity created under state laws, and it is separate and distinct from its owners and managers. This separation gives the corporation three major advantages: (1) *unlimited life*—a corporation can continue after its original owners and managers are deceased; (2) *easy transfers of ownership interests*—ownership is divided into shares of stock, which can be transferred far more easily than ownership in a proprietorship or partnership; and (3) *limited liability*—losses are limited to the actual funds invested.

To illustrate limited liability, suppose you invested $10,000 in a partnership that then went bankrupt and owed $1 million. Because partners are liable, you could be held liable for the entire $1 million if your partners could not pay their shares. However, if you invested $10,000 in a corporation's stock, your potential loss in a bankruptcy would be limited to your $10,000 investment.

Unlimited life, easy transfers of ownership, and limited liability make it much easier for corporations to raise money in the financial markets and grow into large companies. Although the corporate form offers significant advantages relative to proprietorships and partnerships, it has two disadvantages: (1) Corporate earnings may be subject to double taxation—the earnings of the corporation are taxed at the corporate level, and then earnings paid out as dividends are taxed again as income to the stockholders. (2) Setting up a corporation involves preparing a charter, writing a set of bylaws, and filing the many

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required state and federal reports, which is more complex and time-consuming than creating a proprietorship or a partnership.

The **charter** includes the following information: (1) name of the proposed corporation, (2) types of activities it will pursue, (3) amount of capital stock, (4) number of directors, and (5) names and addresses of directors. The charter is filed with the secretary of the state in which the firm will be incorporated, and when it is approved, the corporation is officially in existence.[1] After the corporation begins operating, quarterly and annual employment, financial, and tax reports must be filed with state and federal authorities.

The **bylaws** are a set of rules drawn up by the founders of the corporation. Bylaws specify: (1) how directors are to be elected (all elected each year or perhaps one-third each year for 3-year terms), (2) whether the existing stockholders will have the first right to buy any new shares the firm issues, and (3) procedures for changing the bylaws themselves, should conditions require it.

There are several different types of corporations. Professionals such as doctors, lawyers, and accountants often form a **professional corporation (PC)** or a **professional association (PA)**. These types of corporations do not relieve the participants of professional (malpractice) liability. Indeed, the primary motivation behind the professional corporation was to provide a way for groups of professionals to avoid certain types of unlimited liability yet still be held responsible for professional liability.

Finally, some corporations can elect to be taxed as if the business were a proprietorship or partnership if the corporation meets certain requirements regarding size and number of stockholders. Such firms are called **S corporations**.

## 1-3d Growing a Corporation: Going Public

After a company incorporates, how does it evolve? When entrepreneurs start a company, they usually provide all the financing from their personal resources, which may include savings, home equity loans, or even credit cards. A fast-growing business must continue to invest in buildings, equipment, technology, and employees. Such investments usually deplete the founders' resources, so they turn to external financing. Many young companies are too risky for banks, so the founders must sell stock to outsiders, including friends, family, private investors (often called "angels"), or venture capitalists.

**WWW**

*For updates on IPO activity, see* **www.renaissancecapital.com/IPO-Center**. *Also, see Professor Jay Ritter's Web site for additional IPO data and analysis,* **https://site.warrington.ufl.edu/ritter/ipo-data/**.

Any corporation can raise funds by selling shares of its stock, but government regulations restrict the number and type of investors who can buy the stock. Also, the shareholders cannot subsequently sell their stock to the general public. Due to these limitations, the shares are called **closely held stock** and the company is a **closely held corporation**.

As it continues to grow, a thriving private corporation may decide to seek approval from the **Securities and Exchange Commission (SEC)**, which regulates stock trading, to sell shares in a public stock market.[2] It does so by filing a **prospectus** with the SEC, which provides relevant information about the company to investors and regulators. In addition to SEC approval, the company applies to be a **listed stock** on

[1]About 64% of major U.S. corporations are chartered in Delaware, which has, over the years, provided a favorable legal environment for corporations. It is not necessary for a firm to be headquartered or even to conduct operations in its state of incorporation or even in its country of incorporation.

[2]The SEC is a government agency created in 1934 to regulate matters related to investors, including the regulation of stock markets.

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an SEC-registered stock exchange. For example, the company might list on the **New York Stock Exchange (NYSE)**, which is the oldest registered stock exchange in the United States and is the largest exchange in the world when measured by the market value of its listed stocks. Or perhaps the company might list on the **NASDAQ Stock Market**, which has the most stock listings, especially among smaller, high-tech companies.

**Going public** is called an **initial public offering (IPO)** because it is the first time the company's shares are sold to the general public. In most cases, an **investment bank**, such as Goldman Sachs, helps with the IPO by advising the company. In addition, the investment bank's company usually has a **brokerage firm**, which employs **brokers** who are registered with the SEC to buy and sell stocks on behalf of clients.[3] These brokers help the investment banker sell the newly issued stock to investors.

Most IPOs raise proceeds in the range of $90 million to $140 million. However, some IPOs are huge, such as the $21.7 billion raised by Alibaba when it went public on the NYSE in 2014. Not only does an IPO raise additional cash to support a company's growth, but the IPO also makes it possible for the company's founders and investors to sell some of their own shares, either in the IPO itself or afterward as shares are traded in the stock market. For example, in Facebook's 2012 IPO, the company raised about $6.4 billion by selling 180 million new shares, and the owners received almost $9.2 billion by selling 241 million of their own shares.

Most IPOs are underpriced when they are first sold to the public, based on the initial price paid by IPO investors and the closing price at the end of the first day's trading. For example, in 2017 the average first-day return was around 15%.

Even if you are able to identify a "hot" issue, it is often difficult to purchase shares in the initial offering. In strong markets, these deals generally are oversubscribed, which means that the demand for shares at the offering price exceeds the number of shares issued. In such instances, investment bankers favor large institutional investors (who are their best customers), and small investors find it hard, if not impossible, to get in on the ground floor. They can buy the stock in the aftermarket, but evidence suggests that if you do not get in on the ground floor, the average IPO underperforms the overall market over the long run.[4]

Before you conclude that it isn't fair to let only the best customers have the stock in an initial offering, think about what it takes to become a best customer. Best customers are usually investors who have done lots of business in the past with the investment banking firm's brokerage department. In other words, they have paid large sums as commissions in the past, and they are expected to continue doing so in the future. As is so often true, there is no free lunch—most of the investors who get in on the ground floor of an IPO have, in fact, paid for this privilege.

After the IPO, it is easier for a public firm to raise additional funds to support growth than it is for a private company. For example, a public company raises more funds by selling (i.e., issuing) additional shares of stock through a **seasoned equity offering**, which is much simpler than the original IPO. In addition, publicly traded companies also have better access to the debt markets and can raise additional funds by selling bonds.

[3]For example, stockbrokers must register with the **Financial Industry Regulatory Authority (FINRA)**, a nongovernment organization that watches over brokerage firms and brokers. FINRA is the biggest, but there are other self-regulatory organizations (SROs). Be aware that not all self-advertised "investment advisors" are actually registered stockbrokers.

[4]See Jay R. Ritter, "The Long-Run Performance of Initial Public Offerings," *Journal of Finance*, March 1991, pp. 3–27.

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## 1-3e Managing a Corporation's Value

How can managers affect a corporation's value? To answer this question, we first need to ask, "What determines a corporation's value?" In a nutshell, it is *a company's ability to generate cash flows now and in the future*.

In particular, a company's value is determined by three properties of its cash flows: (1) The *size* of the expected future cash flows is important—bigger is better. (2) The *timing* of cash flows counts—cash received sooner is more valuable than cash that comes later. (3) The *risk* of the cash flows matters—safer cash flows are worth more than uncertain cash flows. Therefore, managers can increase their firm's value by increasing the size of the expected cash flows, by speeding up their receipt, and by reducing their risk.

The relevant cash flow is called **free cash flow (FCF)**, not because it is free, but because it is available (or free) for distribution to a company's investors, including creditors and stockholders. You will learn how to calculate free cash flows in Chapter 2, but for now you should know that free cash flow is:

$$\text{FCF} = \text{Sales revenues} - \text{Operating costs} - \text{Operating taxes} - \text{Required investments in new operating capital}$$

A company's value depends on its ability to generate free cash flows, but a company must spend money to make money. For example, cash must be spent on R&D, marketing research, land, buildings, equipment, employee training, and many other activities before the subsequent cash flows become positive. Where do companies get this cash? For start-ups, it comes directly from investors. For mature companies, some of it comes directly from new investors, and some comes indirectly from current shareholders when profit is reinvested rather than paid out as dividends. As stated previously, these cash providers expect a rate of return to compensate them for the timing and risk inherent in their claims on future cash flows. This rate of return from an investor's perspective is a cost from the company's point of view. Therefore, the rate of return required by investors is called the **weighted average cost of capital (WACC)**.

The following equation defines the relationship between a firm's value, its free cash flows, and its cost of capital:

$$\text{Value} = \frac{\text{FCF}_1}{(1 + \text{WACC})^1} + \frac{\text{FCF}_2}{(1 + \text{WACC})^2} + \frac{\text{FCF}_3}{(1 + \text{WACC})^3} + \cdots + \frac{\text{FCF}_\infty}{(1 + \text{WACC})^\infty} \quad \textbf{(1-1)}$$

We will explain how to use this equation in later chapters, but for now it is enough to understand that a company's value is determined by the size, timing, and risk of its expected future free cash flows.

If the expected future free cash flows and the cost of capital incorporate all relevant information, then the value defined in Equation 1-1 is called the **intrinsic value**; it is also called the **fundamental value**. If investors have all the relevant information, the **market price**, which is the price that we observe in the financial markets, should be equal to the intrinsic value. Whether or not investors have the relevant information depends on the quality and transparency of financial reporting for the company and for the financial markets. This is an important issue that we will address throughout the book.

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