Brigham & Ehrhardt

Financial Management

Theory and Practice • 15e

Frequently Used Symbols

Term for book	Definition
ACP	Average collection period
ADR	American Depository Receipt
AFN	Additional funds needed
APR	Annual percentage rate
AR	Accounts receivable
b	Beta coefficient in the CAPM
b_L	Levered beta
b_U	Unlevered beta
BEP	Basic earning power
BVPS	Book value per share
CAPM	Capital Asset Pricing Model
CCC	Cash conversion cycle
CF	Cash flow; CF_t is the cash flow in Period t
CFPS	Cash flow per share
COGS	Cost of goods sold
COV_{iM}	Covariance between stock i and the market
CR	(1) Capital requirement ratio
	(2) Conversion ratio
CV	Coefficient of variation
D/E	Debt-to-equity ratio
Δ	Difference, or change (uppercase delta)
d_i	Input to the Black-Scholes option pricing model
D_{ps}	Dividend of preferred stock
D_t	Dividend of common stock in Period t
DCF	Discounted cash flow
DPS	Dividends per share
DRIP	Dividend reinvestment plan
DRP	Default risk premium
DSO	Days sales outstanding
EAR	Effective annual rate, EFF%
EBIT	Earnings before interest and taxes; net operating income
EBITDA	Earnings before interest, taxes, depreciation, and amortization
EFF%	Effective annual rate, EAR
EPS	Earnings per share
EVA	Economic Value Added
F	(1) Flotation cost percentage
	(2) Fixed operating costs
FCF	Free cash flow
FVA_N	Future value of an annuity for N years
FV_N	Future value for Year N
g	Growth rate in earnings, dividends, and stock prices
g_L	Constant long-term growth rate in earnings, dividends, and stock prices
HV_T	Horizon value of stock or company at time T
I	Interest rate; also denoted by r
I/YR	Interest rate key on some calculators
INT	Interest payment in dollars
IP	Inflation premium
IPO	Initial public offering
IRR	Internal rate of return
LP	Liquidity premium
M/B	Market-to-book ratio
M	(1) Number of periods per year
	(2) Maturity value of a bond
	(3) Margin (profit margin)
MIRR	Modified Internal Rate of Return
MRP	Maturity risk premium
MVA	Market Value Added
n	Number of shares outstanding
N	Calculator key denoting number of periods
$N(d_i)$	Area under a standard normal distribution to the left of d_i
NOPAT	Net operating profit after taxes
NOWC	Net operating working capital
NPV	Net present value
OP	Operating profitability ratio

P/E	Price/earnings ratio
P	(1) Stock price; price in Period t = P_t; current price = P_0
	(2) Sales price per unit of product sold
P_c	Conversion price
$\hat{P}_0$	Expected stock price as PV of expected dividends
P_f	Price of good in foreign country
P_h	Price of good in home country
PI	Profitability index
P_N	A stock's horizon value
PM	Profit margin
PMT	Payment of an annuity
PPP	Purchasing power parity
PV	Present value
PVA_N	Present value of an annuity for N years
Q	Quantity produced or sold
Q_{BE}	Breakeven quantity
r	(1) Percentage interest rate
	(2) Required rate of return
$\bar{r}$	"r bar," actual rate of return
r^*	Real risk-free rate of return
$\hat{r}$	"r hat," expected rate of return
r_d	Required return on debt
r_e	Cost of new common stock including flotation costs
r_f	Interest rate in foreign country
r_h	Interest rate in home country
r_i	Required return for an individual firm or security
r_M	Required return for "the market" or for an "average" stock
r_{NOM}	Nominal rate of interest; also denoted by I_{NOM}
r_p	Required return on portfolio
r_{ps}	Required return on preferred stock
r_{PER}	Periodic rate of return
r_{RF}	Rate of return on a risk-free security
r_s	Required return on common stock
$\bar{r}_{SMB}$	Return on Fama-French small (size) minus big (size) portfolio
$\bar{r}_{HML}$	Return on Fama-French high (B/M) minus big (B/M) portfolio
ρ	Correlation coefficient (lowercase rho)
R	Estimated correlation coefficient for sample data
ROA	Return on assets
ROE	Return on equity
ROIC	Return on invested capital
RP_i	Risk premium for Stock i
RP_M	Market risk premium
RR	Retention rate
S	(1) Sales
	(2) Estimated standard deviation for sample data
	(3) Intrinsic value of stock (i.e., all common equity)
Σ	Summation sign (uppercase sigma)
σ	Standard deviation (lowercase sigma)
σ^2	Variance
SML	Security Market Line
t	Time period
T	Marginal income tax rate
TIE	Times interest earned
TV_N	A stock's horizon, or terminal, value
V	Variable cost per unit
V_B	Bond value
VC	Total variable costs
V_L	Total market value of a levered firm
V_{op}	Value of operations
V_{ps}	Value of preferred stock
V_U	Total market value of an unlevered firm
w	Proportion or weight
w_d	Weight of debt
w_{ps}	Weight of preferred stock
w_s	Weight of common stock
WACC	Weighted average cost of capital
X	Exercise price of option
YTC	Yield to call
YTM	Yield to maturity

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Financial Management

Theory & Practice

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15e

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Financial Management: Theory and Practice: Fifteenth Edition
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Brief Contents

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Preface

resource

Students: *Access the* Financial Management: Theory and Practice (15th Edition) *companion site and online student resources by visiting* **www.cengagebrain.com**, *searching ISBN 9781305632295, and clicking "Access Now" under "Study Tools" to go to the student textbook companion site.*

Instructors: *Access the* Financial Management: Theory and Practice (15th Edition) *companion site and instructor resources by going to* **login.cengage.com**, *logging in with your faculty account username and password, and using ISBN 9781305632295 to reach the site through your account.*

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 one 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.

The events precipitating the recession of 2007, the dramatic changes in financial technology at stock exchanges across the world, and the sovereign debt crisis in Greece make it more important than ever for students and managers to understand the role that finance plays in a global economy, in their own companies, and in their own lives. So in addition to the four goals listed above, this edition has a fifth goal: to prepare students for a changed world.

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 the 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.

2. Covering 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.

Improvements in the 15th 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 GREAT RECESSION OF 2007

In every chapter we use real-world examples to show how the chapter's topics are related to some aspect of the global economic crisis. In addition, many chapters have "Great Recession of 2007" boxes that focus on important issues related to the recent recession.

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.

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 below.

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

We added a new, short section, "1-2 Finance from 40,000 Feet Above," to give students an overview of the main issues in finance. We added more coverage of ethics in Section 1-4c, including a new box on benefit corporations, "Be Nice with a B-Corp," and a box on whistleblowing, "Taxes and Whistleblowing." We completely rewrote the sections on trading procedures (Section 1-9c) and the stock market (Section 1-10) to reflect the impact of Reg NMS and automated trading, including a section (1-10d) on high-frequency trading.

CHAPTER 2: FINANCIAL STATEMENTS, CASH FLOW, AND TAXES

In past editions, we introduced the operating profitability ratio and the capital requirement ratio in later chapters, but we now introduce them in our discussion of the return on invested capital (ROIC) in Section 2-8a because they provide insight into the sources of ROIC (i.e., profitability and capital utilization). We also use these ratios in our expanded coverage of the free cash flow valuation model in Chapter 7 (Corporate Valuation and Stock Valuation).

CHAPTER 5: BONDS, BOND VALUATION, AND INTEREST RATES

We added a new box on "Chocolate Bonds." We also streamlined and improved our discussions of the real risk-free rate and the nominal risk-free rate in Section 5-8.

CHAPTER 7: CORPORATE VALUATION AND STOCK VALUATION

We expanded the material on the free cash flow corporate valuation model and moved it so that it now precedes the dividend growth model. We did this because most companies don't pay a dividend and because most practitioners use the free cash flow corporate valuation model. The expanded coverage now illustrates the valuation of MicroDrive, which was formerly shown in Chapter 12 (Corporate Valuation and Financial Planning). This allows us to emphasize valuation (and value-based management) in Chapter 7 and to emphasize financial planning in Chapter 12. The expanded FCF valuation treatment in Chapter 7 now covers forecasting free cash flows and identifying value drivers in much more detail (we also included a corresponding Spreadsheet Problem in the end-of-chapter problems). We also use the FCF valuation model to frame the discussion of stock price volatility and the relative values of cash flows in the first four years versus the value of later cash flows (we illustrated these concepts using the dividend growth model in previous editions). We have been using this approach in our own classrooms for several years and have found it to be effective.

CHAPTER 11: CASH FLOW ESTIMATION AND RISK ANALYSIS

We added a new box, "Mistakes in Cash Flow Estimation Can Kill Innovation," describing common mistakes in project analysis that are made by many managers.

CHAPTER 12: CORPORATE VALUATION AND FINANCIAL PLANNING

We expanded our coverage of valuation and included an additional Spreadsheet Problem on valuation. We did this to reinforce our treatment of valuation in Chapter 7.

CHAPTER 15: CAPITAL STRUCTURE DECISIONS

We added a short section (15-8) discussing insights gained from comparing the equity in a risky levered firm with a call option written on the underlying value of the firm, with an expiration equal to the debt's maturity and a strike price equal to the debt's face value. We also included a short section (15-9) discussing the debt maturity choice and providing recent empirical evidence on the shift away from long-term debt. For those instructors wishing to cover the Modigliani and Miller proofs, we have added a new ***Web Extension*** (15B) and *PowerPoint* file showing the MM proofs.

CHAPTER 16: SUPPLY CHAINS AND WORKING CAPITAL MANAGEMENT

We improved our discussion of the cash conversion cycle and reduced its length by simplifying the example. To more quickly reinforce the concepts of the cash conversion cycle, we now follow it immediately with coverage of inventory management, receivables management, and payables management. We added a new section (16-9a) that explains the U.S. payment, clearing, and settlement infrastructure. We added a box on the recent phenomenon of banks charging corporate customers for cash deposit accounts, "Use It or Lose *Part of* It: Cash Can Be Costly!"

CHAPTER 17: MULTINATIONAL FINANCIAL MANAGEMENT

A new opening vignette uses Medtronic and Covidien to illustrate a tax inversion merger.

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

We added a new Spreadsheet Problem on setting IPO terms.

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

We added a new opening vignette discussing the convertible bonds issue by Tesla, Twitter, and Fiat Chrysler.

CHAPTER 21: DYNAMIC CAPITAL STRUCTURES

We have focused this chapter on valuation issues associated with the interest tax shield, including cases in which the capital structure changes during the forecast period. We provide a brief review of the free cash flow corporate valuation model, we describe the free cash flow to equity (FCFE) valuation model, and we show that these models are inappropriate for situations in which the capital structure is changing. We describe a very general version of the adjusted present

value (APV) approach and show how it can be used when the capital structure is changing. This provides a natural segue into the compressed adjusted present value (CAPV) model, in which the tax shield is discounted at the unlevered cost of equity.

We illustrate the valuation concepts using a hypothetical company, Tutwiler Controls. (We use this same company in Chapter 22 as the target of an acquisition, except we then include synergies and a different capital structure.) Discussing Tutwiler's valuation in Chapter 21 permits a natural extension into merger-related issues in Chapter 22.

As noted previously, we moved the material on viewing equity as an option on the assets of a levered firm to Chapter 15. We moved the MM proofs (including *PowerPoint* slides) into Chapter 15 as a new web extension, ***Web Extension 15B***. This consolidates important capital structure concepts in Chapter 15 and permits Chapter 21 to focus on valuation issues associated with capital structures.

CHAPTER 22: MERGERS AND CORPORATE CONTROL

We added a new opening vignette describing Verizon's buyout of Vodafone's holdings of Verizon Wireless. We moved the comparison of the FCF corporate valuation model, the free cash flow to equity model, and the compressed adjusted present value model to Chapter 21, allowing us to focus more on merger analysis in Chapter 22 rather than on the development of valuation models.

CHAPTER 25: PORTFOLIO THEORY AND ASSET PRICING MODELS

In Chapter 6, we estimated General Electric's beta using four years of monthly returns. In this chapter, we estimate betas using one year of weekly returns because this is another widely used approach. In addition to this change, we are using Apple, a high-tech company, to illustrate the estimation techniques for an individual company.

Learning Tools Available to Students and Instructors

Financial Management includes a broad range of ancillary materials designed to enhance students' learning and to make it easier for instructors to prepare for and conduct classes. All resources available to students are, of course, also available to instructors; in addition, instructors have access to the course management tools.

In addition to these resources and the items noted previously, many other resources are available on the Web at *Financial Management*'s Web site. These ancillaries include the following.

Excel Tool Kits

Proficiency with spreadsheets is an absolute necessity for all MBA students. With that in mind, for each chapter we created *Excel* spreadsheets, called ***Tool Kits***, to show how the calculations used in the chapter were done. The ***Tool Kit*** models include explanations that show students how to use many of the features and functions of *Excel*, enabling the ***Tool Kits*** to serve as self-taught tutorials.

Web Extensions

Many chapters have Adobe PDF "appendices" that provide more detailed coverage of topics that were addressed in the chapter.

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 about solving a specific problem. The model is partially completed, with headings but no formulas, so 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 partial spreadsheets for the ***Build a Model*** problems are available to students on the book's Web site; the completed models are in files on the Instructor's portion of the Web site.

Interactive Study Center

The textbook's Web site contains links to all Web sites that are cited in each chapter.

Course Management Tools Available Only to Instructors

Instructors have access to all of the materials listed above in addition to course management tools. These tools are available at *Financial Management*'s Instructor companion Web site. These materials include the following resources.

Solutions Manual

This comprehensive manual contains worked-out solutions to all end-of-chapter materials. It is available in electronic form at the Instructor's Web site.

PowerPoint Slides

For each chapter, we provide 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 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. Copies of these files are on the Instructor's Web site and the CengageNOW™ site.

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

[1]To convert into a different design template in *PowerPoint* for Office 2010, 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.

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.

In addition to the slides, there is a Mini Case at the end of each chapter. We assign the Mini Cases only for specific chapters, but some professors assign the Mini Cases for most chapters. These cases cover all the essential issues presented in the chapter, and they provide the structure for our class lectures even if we don't assign the Mini Case.

Mini Case 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 the chapter examples. (2) We added some features that enable "what if" analysis on a real-time basis in class.

We usually begin our lectures 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. More and more students are bringing their laptops to class—they can follow along and do the "what if" analysis for themselves.

Solutions to End-of-Chapter Spreadsheet Problems

The partial spreadsheets for the *Build a Model* problems are available to students, and the completed models are in files on the Instructor's Web site.

NEW! Test Banks in Cognero

The Test Bank for *Financial Management* is now available online in a new system named Cengage Learning Testing Powered by Cognero. This is a flexible, online system that allows instructors to:

- Author, edit, and manage test bank content.
- Use searchable metadata to ensure tests are complete and compliant.
- Create multiple test versions in an instant.
- Deliver tests from your Learning Management System (LMS), your classroom, or anywhere you have online access.

Cengage Learning Testing Powered by Cognero works on any operating system or browser with no special installs or downloads needed. With its intuitive tools and

[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.

familiar desktop drop-down menus, Cognero enables instructors to easily create and edit tests from school or home—anywhere with Internet access.

In addition to the Test Bank available online through Cognero, the Test Bank is also available in a number of file formats on the Instructor companion Web site. Each chapter's bank of questions includes dozens of True/False, Multiple Choice, and Essay questions. Instructors can retrieve the appropriate file formats to administer tests through their schools' learning management systems (Blackboard, Canvas, Moodle, Desire2Learn, etc.), or they can opt for Word documents.

The Test Bank contains more than 1,200 class-tested questions and problems. Information regarding the topic and degree of difficulty, along with the complete solution for all numerical problems, is provided with each question.

Additional Course Tools

MindTap Finance for *Financial Management: Theory and Practice*

Financial Management: Theory and Practice, 15th Edition, includes a brand new MindTap learning experience, powered by a rich array of online resources designed to deliver an all-in-one solution for learning and retaining the course topics. The following items are included in the MindTap learning path:

- A **media-rich e-version** of the text enhanced with Concept Clips (brief animated videos that describe and define key concepts) and Problem Walkthroughs (longer videos that demonstrate how to solve the most common problem types step by step).
- A comprehensive **digital homework problem set** designed to guide students from basic comprehension to real-world application of concepts and to facilitate preparation for exams. Practice problems, tutorials, and other learning modules are drawn from both Aplia and CNOW homework solutions.
- An **MBA Refresher Module**, including a pre-test, remediation, and a post-test, that provides those students who need it with a refresher of core concepts in Finance, Math/Algebra, Statistics, Accounting, and more.
- Group **case activities** designed to facilitate students working in teams to analyze short cases at a number of key points throughout the course.
- **Practice quizzes** to measure overall comprehension of chapter concepts.

CengageNOW™ for *Financial Management: Theory and Practice*

Designed by instructors for instructors, CengageNOW™ mirrors your natural workflow and provides time-saving, performance-enhancing tools for you and your students—all in one program! CengageNOW™ takes the best of current technology tools including online homework management and fully customizable algorithmic end-of-chapter problems and test bank to support your course goals and save you significant preparation and grading time!

- Plan student assignments with an easy online homework management component.
- Manage your grade book with ease.

- Teach today's student using valuable course support materials.
- Reinforce student comprehension with Personalized Study.
- Test with customizable algorithmic end-of-chapter problems that provide students with immediate feedback upon answer submission.
- Grade automatically for seamless, immediate results.

Aplia™ Finance

Aplia™ Finance, an interactive learning system, engages students in course concepts, ensures they practice on a regular basis, and helps them prepare to learn finance through a series of problems and tutorials. Created by an instructor to help students excel, book-specific problem sets have instant grades and detailed feedback, ensuring students have the opportunity to learn from and improve with every question.

Chapter assignments use the same language and tone of the course textbook, giving students a seamless experience in and out of the classroom. Problems are automatically graded and offer detailed explanations, helping students learn from every question.

Aplia™ Finance offers:

- Problem Sets: Chapter-specific problem sets ensure that students are completing finance assignments on a regular basis.
- Preparing for Finance Tutorials: Hands-on tutorials solve math, statistics, economics, and accounting roadblocks before they become a problem in the course, and financial calculator tutorials help students learn to use the tools needed in a finance course.
- Finance in Action: Exploratory modules help students understand how financial theories are applied in the real world, and how finance professionals synthesize, use, and apply financial information.
- Course Management System
- MindTap Reader: Aplia now features Cengage's premier e-book format. MindTap Reader is highly interactive, allows for inline note-taking and highlighting, and features a variety of apps to further assist students.

For more information, visit **www.aplia.com/finance**.

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 or create your own original work, and 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 of our custom services at **www.cengage.com/custom.**

The Cengage Global Economic Watch (GEW) Resource Center

This is your source for turning today's challenges into tomorrow's solutions. This online portal houses the most up-to-date content concerning the economic crisis.

Organized by discipline, the GEW Resource Center offers the solutions instructors and students need in an easy-to-use format. Included are an overview and time line of the historical events leading up to the crisis, links to the latest news and resources, discussion and testing content, an instructor feedback forum, and a Global Issues Database. Visit **www.cengage.com/thewatch** for more information.

Acknowledgments

This book reflects the efforts of a great many people over a number of years. In addition to our immediate colleagues, we appreciate very much the many helpful comments and suggestions we receive from professors who use our book in their classes. Professors Greg Faulk, Anthony Gu, Andrew Mose, Chee Ng, John Stieven, and Serge Wind have been especially helpful, providing many hints and tips for improving the learning points in our textbook.

Many professors and professionals who are experts on specific topics reviewed earlier versions of individual chapters or groups of chapters, and we are grateful for their insights; in addition, we would like to thank those whose reviews and comments on earlier editions and companion books have contributed to this edition:

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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 listed above, 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.

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 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

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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, Google, Berkshire Hathaway, Starbucks, Coca-Cola, Walt Disney, FedEx, Southwest Airlines, and General Electric. 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 3,900 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.

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. You're probably in school because you want an interesting, challenging, and rewarding career. To see where finance fits in, here's a five-minute MBA.

1-1 The Five-Minute MBA

Okay, we realize you can't get an MBA in five minutes. But just as an artist quickly sketches the outline of a picture before filling in the details, 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 our sketch with some common characteristics of successful companies.

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 operations. Most companies need cash to purchase land, buildings, equipment, and materials. 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. Therefore, all successful companies sell their products/services at prices that are high enough to cover costs and to compensate owners and creditors for the use of their money and their exposure to risk.

To help your company succeed, you must be able to evaluate any proposal or idea, whether it relates to marketing, supply chains, production, strategy, mergers, or any other area. In addition, you must understand the ways that value-adding proposals can be funded. Therefore, we will show you how to evaluate proposals and fund value-adding ideas, essential financial skills that will help you throughout your career.

SELF-TEST

What are three attributes of successful companies?

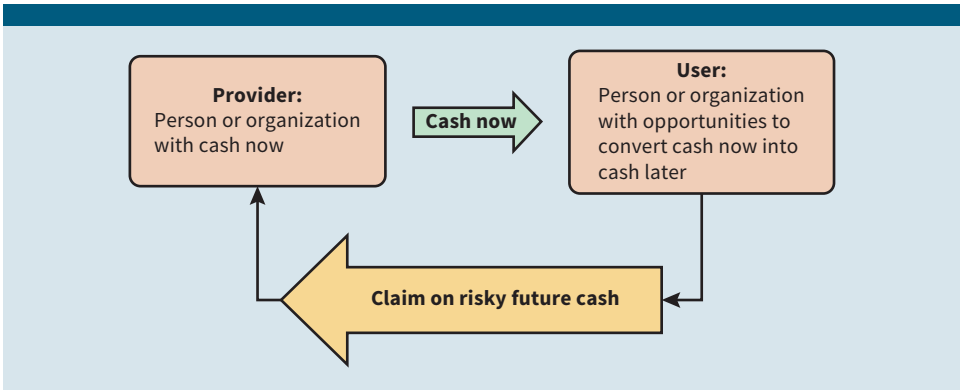
What two essential financial skills must every successful manager have?

1-2 Finance from 40,000 Feet Above

Seeing the big picture of finance from a bird's-eye view will help you keep track of the individual parts. It all starts with some individuals or organizations that have more cash than they presently want to spend. Other individuals or organizations have less cash than they currently want to spend, but they have opportunities to generate cash in the future.

Let's call the two groups providers and users: The providers have extra cash today and the users have opportunities to generate cash in the future. For example, a provider might be an individual who is spending less today in order to save for retirement. Another provider might be a bank with more cash on hand than it needs. In either case, the provider is willing to give up cash today for cash in the future.

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



A user might be a student who wants to borrow money for tuition and who plans to pay it back from future earnings after graduating. Another user might be an entrepreneur who has an idea for a new social media application that might generate cash in the future but requires cash today to pay for programmers.

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

As Figure 1-1 shows, providers supply cash now to users in exchange for a claim on future cash flows. For example, if you took out a student loan, the bank gave you cash, but you signed a document giving the bank a claim on future cash flows to be paid from you to the bank. This claim is risky, because there is some probability (hopefully small) that you will not be able to repay the loan.

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.

We cover many topics in this book, and it can be easy to miss the forest for the trees. So as you read about a particular topic, think about how the topic is related to the role played by financial markets in connecting providers with users or how the topic explains a tool for evaluating financial claims on risky future cash flows.

Later in this chapter we provide an overview of financial markets, but first we address 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

Many major corporations, including Apple and Hewlett-Packard, began life in a garage or basement. How is it possible for such companies to grow into the giants we see today? No two companies develop in exactly the same way, but 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—one merely begins business operations after obtaining any required city or state business licenses. The proprietorship has three important advantages: (1) It is easily and inexpensively formed. (2) It is subject to few government regulations. (3) Its income is not subject to corporate taxation but is taxed as part of the proprietor's personal 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. For these three reasons, sole proprietorships are used primarily for small businesses. In fact, proprietorships account for only about 4% of all sales, based on dollar values, even though about 72% of all companies are proprietorships.

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 generally similar to those of a proprietorship.

Regarding liability, the partners potentially can lose all of their personal assets, even assets not invested in the business, because under partnership law, each partner is liable for the business's debts. Therefore, in the event the partnership goes bankrupt, if any partner is unable to meet his or her pro rata liability then the remaining partners must make good on the unsatisfied claims, drawing on their personal assets to the extent necessary. To avoid this, it is possible to limit the liabilities of some of the partners by establishing a **limited partnership**, wherein certain partners are designated **general partners** and others **limited partners**. In a limited partnership, the limited partners can lose only the amount of their investment in the partnership, while the general partners have unlimited liability. However, the limited partners typically have no control—it 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 general business situations, because usually no partner is willing to be the general partner and thus accept the majority of the business's risk, and no partners are willing to be limited partners and give up all control.

In both regular and limited partnerships, at least one partner is liable for the debts of the partnership. However, in a **limited liability partnership (LLP)** and a **limited liability company (LLC)**, all partners (or members) enjoy limited liability with regard to the business's liabilities, and their 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. This is generally not a problem for a slow-growing business, but if a business's products or services really catch on, and if it needs to raise large sums of money to capitalize on its opportunities, then

the difficulty in attracting capital becomes a real drawback. Thus, many growth companies, such as Hewlett-Packard and Microsoft, began life as a proprietorship or partnership, and at some point their founders decided to convert to a corporation. On the other hand, some 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 transferability of ownership interest*—ownership interests are divided into shares of stock, which can be transferred far more easily than can proprietorship or partnership interests; 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 the owners are liable for the debts of a partnership, you could be assessed for a share of the company's debt, and you could be held liable for the entire $1 million if your partners could not pay their shares. On the other hand, if you invested $10,000 in the stock of a corporation that went bankrupt, your potential loss on the investment would be limited to your $10,000 investment. Unlimited life, easy transferability of ownership interest, and limited liability make it much easier for corporations than proprietorships or partnerships to raise money in the financial markets and grow into large companies.

The corporate form offers significant advantages over proprietorships and partnerships, but it also 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 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. Included are such points as: (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 incorporate in order to avoid certain types of unlimited liability yet still be held responsible for professional liability.

Finally, if certain requirements are met, particularly with regard to size and number of stockholders, owners can establish a corporation but elect to be taxed as if the business were a proprietorship or partnership. Such firms, which differ not in organizational form but only in how their owners are taxed, are called **S corporations**.

[1]More than 60% 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.

1-3d Growing a Corporation: Going Public

Once a corporation has been established, 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. As the corporation grows, it will need factories, equipment, inventory, and other resources to support its growth. In time, the entrepreneurs usually deplete their own resources and must 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/IPOHome/MarketWatch.aspx.** *Also, see Professor Jay Ritter's Web site for additional IPO data and analysis,* **http://bear.warrington.ufl.edu/ritter/ipodata.htm.**

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. Therefore, 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] In addition to SEC approval, the company applies to be a **listed stock** on 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 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 $120 million to $150 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 2014 the average first-day return was over 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]

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

[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 (SRO). 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.

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 though 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.

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 flows are called **free cash flows (FCF)**, not because they are free, but because they are available (or free) for distribution to all of the 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:

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

No matter what job you have, your decisions affect free cash flows. For example, brand managers and marketing managers can increase sales (and prices) by truly understanding their customers and then designing goods and services that customers want. Human resource managers can improve productivity through training and employee retention. Production and logistics managers can improve profit margins, reduce inventory, and improve throughput at factories by implementing supply chain management, just-in-time inventory management, and lean manufacturing. All employees, from the CEO down to the night janitor, have an impact on free cash flows.

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 we 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)**.