THIRTEENTH EDITION

Financial Management

PRINCIPLES & APPLICATIONS

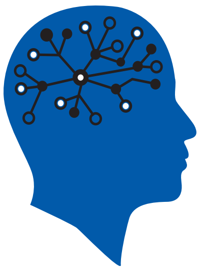
Titman | Keown | Martin

Pearson

Prepare, Apply, and Confirm

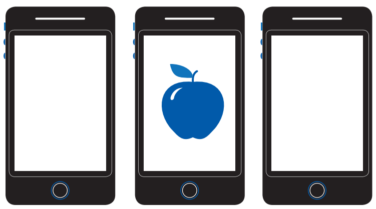
- **Auto-Graded Excel Projects**—Using proven, field-tested technology, MyFinanceLab's new auto-graded Excel Projects allow instructors to seamlessly integrate Excel content into their course without having to manually grade spreadsheets. Students have the opportunity to practice important Finance skills in Microsoft Excel, helping them to master key concepts and gain proficiency with Excel. Available with select titles.

- **Enhanced eText**—The Pearson eText gives students access to their textbook anytime, anywhere. In addition to note-taking, highlighting, and bookmarking, the Pearson eText offers interactive and sharing features. Students actively read and learn through author videos and more. Instructors can share comments or highlights, and students can add their own, for a tight community of learners in any class.



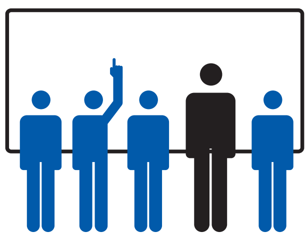
- **Dynamic Study Modules**—With a focus on key topics, these modules work by continuously assessing student performance and activity in real time and, using data and analytics, provide personalized content to reinforce concepts that target each student's particular strengths and weakness.

- **Hallmark Features**—Personalized Learning Aids, like Help Me Solve This, View an Example, and instant feedback are available for further practice and mastery when students need the help most!



- **Learning Catalytics**—Generates classroom discussion, guides lecture, and promotes peer-to-peer learning with real-time analytics. Now, students can use any device to interact in the classroom.

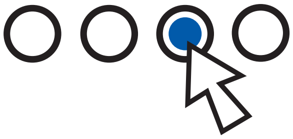
- **Personalized Study Plan**—Assists students in monitoring their own progress by offering them a customized study plan based on Homework, Quiz, and Test results. Includes regenerated exercises with unlimited practice, as well as the opportunity to earn mastery points by completing quizzes on recommended learning objectives.



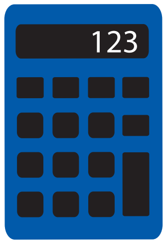
Pearson

with MyFinanceLab™

- **Worked Solutions**—Provide step-by-step explanations on how to solve select problems using the exact numbers and data that were presented in the problem. Instructors will have access to the Worked Solutions in preview and review mode.

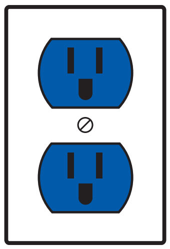


- **Algorithmic Test Bank**—Instructors have the ability to create multiple versions of a test or extra practice for students. Available with select titles.

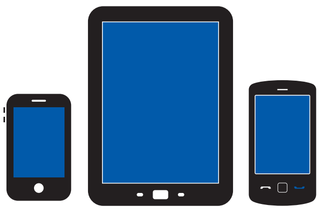


- **Financial Calculator**—The Financial Calculator is available as a smartphone application, as well as on a computer, and includes important functions such as cash flow, net present value, and internal rate of return. Fifteen helpful tutorial videos show the many ways to use the Financial Calculator in MyFinanceLab.

- **Reporting Dashboard**—View, analyze, and report learning outcomes clearly and easily. Available via the Gradebook and fully mobile-ready, the Reporting Dashboard presents student performance data at the class, section, and program levels in an accessible, visual manner.



- **LMS Integration**—Link from any LMS platform to access assignments, rosters, and resources, and synchronize MyLab grades with your LMS gradebook. For students, new direct, single sign-on provides access to all the personalized learning MyLab resources that make studying more efficient and effective.



- **Mobile Ready**—Students and instructors can access multimedia resources and complete assessments right at their fingertips, on any mobile device.

The Pearson Series in Finance

Berk/DeMarzo
*Corporate Finance**
*Corporate Finance: The Core**

Berk/DeMarzo/Harford
*Fundamentals of Corporate Finance**

Brooks
*Financial Management: Core Concepts**

Copeland/Weston/Shastri
Financial Theory and Corporate Policy

Dorfman/Cather
Introduction to Risk Management and Insurance

Eakins/McNally
*Corporate Finance Online**

Eiteman/Stonehill/Moffett
*Multinational Business Finance**

Fabozzi
Bond Markets: Analysis and Strategies

Foerster
*Financial Management: Concepts and Applications**

Frasca
Personal Finance

Gitman/Zutter
*Principles of Managerial Finance**
*Principles of Managerial Finance---Brief Edition**

Haugen
The Inefficient Stock Market: What Pays Off and Why
Modern Investment Theory

Holden
Excel Modeling in Corporate Finance
Excel Modeling in Investments

Hughes/MacDonald
International Banking: Text and Cases

Hull
Fundamentals of Futures and Options Markets
Options, Futures, and Other Derivatives

Keown
*Personal Finance: Turning Money into Wealth**

Keown/Martin/Petty
*Foundations of Finance: The Logic and Practice of Financial Management**

Madura
*Personal Finance**

Marthinsen
Risk Takers: Uses and Abuses of Financial Derivatives

McDonald
Derivatives Markets
Fundamentals of Derivatives Markets

Mishkin/Eakins
Financial Markets and Institutions

Moffett/Stonehill/Eiteman
Fundamentals of Multinational Finance

Pennacchi
Theory of Asset Pricing

Rejda/McNamara
Principles of Risk Management and Insurance

Smart/Gitman/Joehnk
*Fundamentals of Investing**

Solnik/McLeavey
Global Investments

Titman/Keown/Martin
*Financial Management: Principles and Applications**

Titman/Martin
Valuation: The Art and Science of Corporate Investment Decisions

Weston/Mitchell/Mulherin
Takeovers, Restructuring, and Corporate Governance

*denotes titles with MyFinanceLab. Log onto **www.myfinancelab.com** to learn more.

Financial Management

Principles and Applications

This page intentionally left blank

Thirteenth Edition

Financial Management

Principles and Applications

Sheridan Titman
University of Texas at Austin
Walter W. McAllister Centennial Chair in Financial Services

Arthur J. Keown
Virginia Polytechnic Institute and State University
Alumni Distinguished Professor and R. B. Pamplin Professor of Finance

John D. Martin
Baylor University
Carr P. Collins Chair in Finance

Pearson

New York, NY

Vice President, Business Publishing: Donna Battista
Director of Portfolio Management: Adrienne D'Ambrosio
Portfolio Manager: Kate Fernandes
Editorial Assistant: Kathryn Brightney
Vice President, Product Marketing: Roxanne McCarley
Director of Strategic Marketing: Brad Parkins
Strategic Marketing Manager: Deborah Strickland
Product Marketer: Kaylee Carlson
Field Marketing Manager: Ramona Elmer
Product Marketing Assistant: Jessica Quazza
Vice President, Production and Digital Studio, Arts and Business: Etain O'Dea
Director of Production, Business: Jeff Holcomb
Managing Producer, Business: Alison Kalil
Content Producer: Carolyn Philips
Operations Specialist: Carol Melville
Creative Director: Blair Brown
Manager, Learning Tools: Brian Surette
Content Developer, Learning Tools: Lindsey Sloan
Managing Producer, Digital Studio, Arts and Business: Diane Lombardo
Digital Studio Producer: Melissa Honig
Digital Studio Producer: Alana Coles
Digital Content Team Lead: Noel Lotz
Digital Content Project Lead: Miguel Leonarte
Full-Service Project Management and Composition: Cenveo® Publisher Services
Interior Design: Cenveo® Publisher Services
Cover Design: Jon Boylan
Printer/Binder: LSC Communications
Cover Printer: Phoenix Color

PHOTO CREDITS: Cover: Mbolina/Shutterstock; Tarik Kizilkaya/iStock/Getty Images; Caro Sheridan/Splityarn/Moment/Getty Images; Elnur /Shutterstock; Mantinov /Shutterstock; **pp. ix top, 3:** Dbimages/Alamy Stock Photo; **pp. ix bottom, 19:** Crocodile Images/Alamy Stock Photo; **pp. x top, 39:** Alamy; **pp. x bottom, 79:** 3dfoto/Shutterstock; **pp. xi top, 129:** Stillfx/Fotolia; **pp. xi bottom, 159:** Jokerpro/Fotolia; **pp. xii top, 193:** Pixelbliss/Fotolia;pp. **xii bottom, 223:** Deftrender/Shutterstock; **pp. xiii top, 255:** Hudyma Natallia/Shutterstock; **pp. xiii bottom, 301:** Flag illustrations/Alamy; **pp. xiv top, 329:** Andy Dean Photography/Shutterstock; **pp. xiv bottom, 373:** AstroBoi/Fotolia; **pp. xv top, 409:** Alx/Fotolia; **pp. xv bottom, 445:** Alamy; **pp. xvi, 483:** Subbotina Anna/Shutterstock; **pp. xvii top, 527:** Islandstock/Alamy Stock Photo; **pp. xvii middle, 553:** Bertold Werkmann/Shutterstock; **pp. xvii bottom, 577:** VladFree/Shutterstock; **pp. xviii top, 607:** Adam james/Alamy; **pp. xviii bottom, 633:** Gl0ck/Fotolia; **pp. 24, 56, 102, 139, 172, 206, 263, 303, 352, 513, 541, 561, 595, 620, 638:** Sashkin/Shutterstock; **p. 39:** Djma/Fotolia; **pp. 40, 194, 330, 484, 608:** Runzelkorn/Shutterstock; **pp. 80, 160, 224, 302, 374, 446, 528, 578, 634:** Yuri Arcurs/Fotolia; **pp. 130, 256, 410:** Monart Design/Fotolia.

Library of Congress Cataloging-in-Publication Data

Names: Titman, Sheridan, author. | Keown, Arthur J., author. | Martin, John D., author.
Title: Financial management: principles and applications / Sheridan Titman, University of Texas at Austin Walter W. McAllister Centennial Chair in Financial Services, Arthur J. Keown, Virginia Polytechnic Institute and State University, R.B. Pamplin Professor of Finance, John D. Martin, Baylor University Carr P. Collins Chair in Finance.
Description: Thirteenth Edition. | Boston: Pearson, [2016] | Revised edition of | Includes bibliographical references and index.
Identifiers: LCCN 2016035806 | ISBN 9780134417219 | ISBN 0134417216
Subjects: LCSH: Business enterprises—Finance. | Corporations—Finance.
Classification: LCC HG4026 .T58 2016 | DDC 658.15—dc23
LC record available at hjps://lccn.loc.gov/2016035806

1 16

Pearson

ISBN 10: 0-13-441721-6
ISBN 13: 978-0-13-441721-9

The thirteenth edition of *Financial Management: Principles and Applications* is dedicated to our families—the ones who love us the most.

To my parents, wife (Meg), and sons (Trevor, Elliot, and Gordon)
Sheridan Titman

Barb, Emily, and Artie
Arthur J. Keown

To the Martin women (my wife, Sally, and daughter-in-law Mel), men (sons David and Jess), and boys (grandsons Luke and Burke)
John D. Martin

Brief Contents

Part 3: Capital Budgeting

Part 4: Capital Structure and Dividend Policy

Part 5: Liquidity Management and Special Topics in Finance

This page intentionally left blank

Contents

CHAPTER 3

CHAPTER 4

Part 2: Valuation of Financial Assets

CHAPTER 5

CHAPTER 6


RISK
REWARD

Part 3: Capital Budgeting

CHAPTER 11

CHAPTER 12

CHAPTER 13
Risk Analysis and Project Evaluation 408

CHAPTER 14
The Cost of Capital 444

Teaching Students the

Logic of Finance

The Five Principles of Finance

Many finance books show students only the mechanics of finance problem solving, but students learn better when given the intuition behind complex concepts. *Financial Management* shows students the reasoning behind financial decisions and connects all topics in the book to five key principles—the **Five Principles of Finance.** P Principle 1, P Principle 2, P Principle 3, P Principle 4, P Principle 5

Principles P1, P2, P3, P4, and P5 Applied

This book examines a wide range of financial decisions that people make in their business lives as well as in their personal lives. In this chapter, we lay a foundation for the entire book by describing the boundaries of the study of finance, the different ways that businesses are organized, and the role that the financial manager plays within the firm. We also address some of the ethical dilemmas that the financial manager must face daily.

Finally, we take an in-depth look at the five principles of finance that underlie all financial decisions: P Principle 1: **Money Has a Time Value,** P Principle 2: **There Is a Risk-Return Tradeoff,** P Principle 3: **Cash Flows Are the Source of Value,** P Principle 4: **Market Prices Reflect Information,** and P Principle 5: **Individuals Respond to Incentives**.

Each chapter opens with a helpful preview of those **Principles of Finance** that are illustrated in the coming chapter so students see the underlying and connecting themes and learn to recognize patterns. Principles are color-coded for quick recognition.

On any given day, Apple, Inc. (AAPL), will sell thousands of iPhones, iPods, iPads, and personal computers. In addition to making a myriad of production and pricing decisions, Apple must evaluate potential new products, make personnel choices, and consider new locations for Apple retail stores. Because each of these decisions affects the risk and timing of Apple's operations as well as the cash they generate, we can view all of them as financial decisions.

Like Apple, you face financial decisions in your personal life. Whether evaluating the terms of credit card offers or weighing whether to go to graduate school right after graduation or to work full-time for a year or two, you will find that the same fundamental principles that guide business decisions are useful to you in making personal financial decisions.

3

The chapter-opening vignette provides a **real-world example** of the Principles of Finance applied in the chapter, many times reinforcing them by showing how "forgetting" a principle might lead to financial troubles.

Applying the Principles of Finance to Chapter 17

P Principle 2: **There Is a Risk-Return Tradeoff** arises in the financial planning process because planning enables the firm to prepare for alternate possible levels of firm sales and correspondingly different financing requirements. By being prepared, the firm reduces the risk to its shareholders and increases the value of its common stock.

567

CHAPTER 17

Chapter Summaries

17.1 Understand the goals of financial planning. (pgs. 554–555)

SUMMARY: The goal of financial planning is the development of a plan that a firm can use as a guide to the future. Such a plan provides the firm with estimates of its financing requirements. However, financial planning has a second and more subtle goal. The very fact that the firm's management team goes through a careful and thoughtful planning exercise is useful in itself. That is, the very act of thinking systematically about the future helps the firm's management develop an understanding of what may happen, and this is in itself a valuable exercise.

KEY TERMS

Cash budget, page 555 A plan for a future period that details the sources of cash a firm anticipates receiving and the amounts and timing of cash it plans to spend.

Long-term financial plan, page 555 A detailed estimate of a firm's sources and uses of financing for a period that extends three to five years into the future.

Short-term financial plan, page 555 A forecast of a firm's sources of cash and planned uses of cash spanning the next 12 months or less.

Strategic plan, page 554 A general description of the firm, its products and services, and how it plans to compete with other firms in order to sell those products and services.

Concept Check | 17.1

1. What are the fundamental benefits of financial planning?
2. Distinguish among a firm's short-term financial plan, long-term financial plan, and strategic plan.

17.2 Use the percent-of-sales method to forecast the financing requirements of a firm, including its discretionary financing needs. (pgs. 555–564)

SUMMARY: The most common technique for forecasting a firm's pro forma financial statements, including both income statements and balance sheets, is the percent-of-sales method, which expresses expenses, assets, and liabilities for a future period as percentages of sales. The percentages used to make the forecast can come from the most recent financial statements, from an average computed over several years, from the judgment of the analyst, or from some combination of these methods.

The primary objective of forecasting a firm's financing needs is to identify the amount of new financing that the firm will need to seek from discretionary sources. By discretionary sources, we mean those sources of financing that require the firm's management to make a conscious decision to use them. These sources contrast with spontaneous sources of financing (such as accounts payable), which arise naturally in the course of doing business. For example, when the firm orders more products to replenish its inventories, the firm's suppliers automatically extend credit to the firm in the form of accounts payable.

KEY TERMS

Discretionary financing needs (DFN), page 558 The total amount of financing a firm estimates it will need for a future period that will not be funded by the retention of earnings or by increases in the firm's accounts payable and accrued expenses.

Discretionary sources of financing, page 558 Sources of financing that require explicit action by the firm's management. For example, the decision to borrow money from a bank is an example of discretionary financing, whereas the automatic financing of inventory purchases from an existing supplier that increases the firm's accounts payable is not a discretionary source of financing.

Percent-of-sales method, page 556 A financial forecasting technique that uses the proportion of the item being forecast (e.g., accounts

The **Summaries** that conclude each chapter review the Principles of Finance in context, promoting deeper understanding and greater retention of chapter concepts.

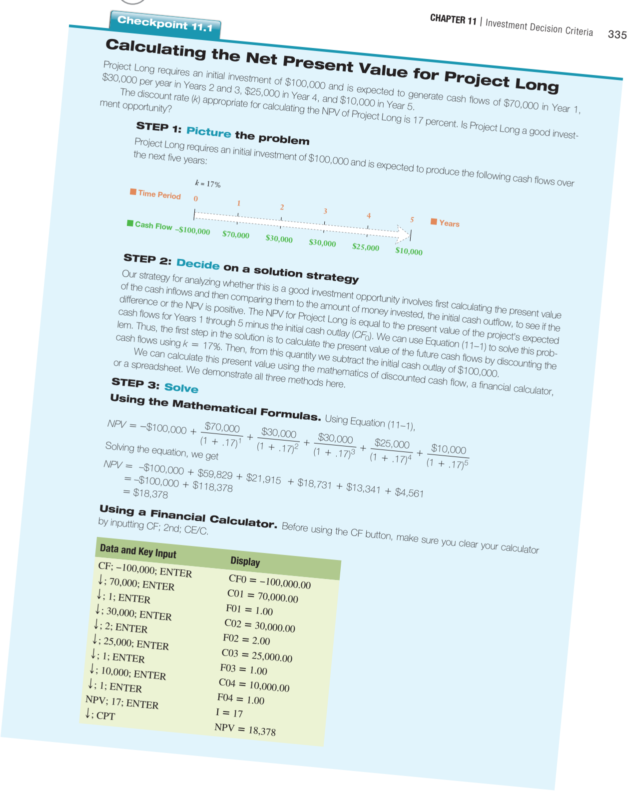
Within the chapter, the authors draw on the Five Principles of Finance to illustrate concepts and explain the rationale behind financial decision making. Look for P, P, P, P, P

P Principle 1: **Money Has a Time Value**
P Principle 2: **There Is a Risk-Return Tradeoff**
P Principle 3: **Cash Flows Are the Source of Value**
P Principle 4: **Market Prices Reflect Information**
P Principle 5: **Individuals Respond to Incentives**

Tools for Developing Study Skills

To be successful, finance students need hands-on opportunities to apply what they have learned in ways that go beyond rote memorization of formulas. By focusing on basic principles of finance, students develop the skills needed to extend their understanding of finance tools beyond formulas and canned answers. The authors' objective is to equip students, no matter what their major or business responsibility might be, to contribute to an analysis of the financial implications of practical business decisions.

Checkpoints provide a consistent problem-solving technique that walks through each problem in five steps, including an analysis of the solution reached. Each Checkpoint concludes with an additional practice problem and its solution on the same topic so students can test their mastery of the problem-solving approach. Then students can put their knowledge to the test by completing the linked end-of-chapter Study Problem(s).



CHAPTER 11 | Investment Decision Criteria 335

Checkpoint 11.1

Calculating the Net Present Value for Project Long

Project Long requires an initial investment of \$100,000 and is expected to generate cash flows of \$70,000 in Year 1, \$30,000 per year in Years 2 and 3, \$25,000 in Year 4, and \$10,000 in Year 5.

The discount rate (k) appropriate for calculating the NPV of Project Long is 17 percent. Is Project Long a good investment opportunity?

STEP 1: Picture the problem

Project Long requires an initial investment of \$100,000 and is expected to produce the following cash flows over the next five years:

$k = 17\%$

Time Period	0	1	2	3	4	5	Years
Cash Flow	–\$100,000	\$70,000	\$30,000	\$30,000	\$25,000	\$10,000	

STEP 2: Decide on a solution strategy

Our strategy for analyzing whether this is a good investment opportunity involves first calculating the present value of the cash inflows and then comparing them to the amount of money invested, the initial cash outflow, to see if the difference or the NPV is positive. The NPV for Project Long is equal to the present value of the project's expected cash flows for Years 1 through 5 minus the initial cash outlay (CF_0). We can use Equation (11–1) to solve this problem. Thus, the first step in the solution is to calculate the present value of the future cash flows by discounting the cash flows using $k = 17\%$. Then, from this quantity we subtract the initial cash outlay of \$100,000.

We can calculate this present value using the mathematics of discounted cash flow, a financial calculator, or a spreadsheet. We demonstrate all three methods here.

STEP 3: Solve

Using the Mathematical Formulas. Using Equation (11–1),

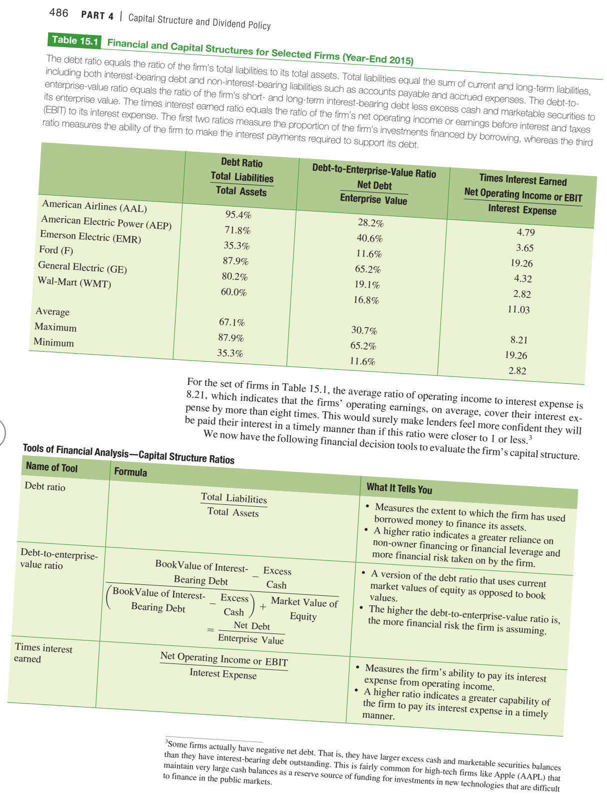
$$NPV = -\$100{,}000 + \frac{\$70{,}000}{(1+.17)^1} + \frac{\$30{,}000}{(1+.17)^2} + \frac{\$30{,}000}{(1+.17)^3} + \frac{\$25{,}000}{(1+.17)^4} + \frac{\$10{,}000}{(1+.17)^5}$$

Solving the equation, we get

$$\begin{aligned} NPV &= -\$100{,}000 + \$59{,}829 + \$21{,}915 + \$18{,}731 + \$13{,}341 + \$4{,}561 \\ &= -\$100{,}000 + \$118{,}378 \\ &= \$18{,}378 \end{aligned}$$

Using a Financial Calculator. Before using the CF button, make sure you clear your calculator by inputting CF; 2nd; CE/C.

Data and Key Input	Display
CF; –100,000; ENTER	CF0 = –100,000.00
↓; 70,000; ENTER	C01 = 70,000.00
↓; 1; ENTER	F01 = 1.00
↓; 30,000; ENTER	C02 = 30,000.00
↓; 2; ENTER	F02 = 2.00
↓; 25,000; ENTER	C03 = 25,000.00
↓; 1; ENTER	F03 = 1.00
↓; 10,000; ENTER	C04 = 10,000.00
↓; 1; ENTER	F04 = 1.00
NPV; 17; ENTER	I = 17
↓; CPT	NPV = 18,378



486 PART 4 | Capital Structure and Dividend Policy

Table 15.1 Financial and Capital Structures for Selected Firms (Year-End 2015)

The debt ratio equals the ratio of the firm's total liabilities to its total assets. Total liabilities equal the sum of current and long-term liabilities, including both interest-bearing debt and non-interest-bearing liabilities such as accounts payable and accrued expenses. The debt-to-enterprise-value ratio equals the ratio of the firm's short- and long-term interest-bearing debt less excess cash and marketable securities to its enterprise value. The times interest earned ratio equals the ratio of the firm's net operating income or earnings before interest and taxes (EBIT) to its interest expense. The first two ratios measure the proportion of the firm's investments financed by borrowing, whereas the third ratio measures the ability of the firm to make the interest payments required to support its debt.

	Debt Ratio $\frac{\text{Total Liabilities}}{\text{Total Assets}}$	Debt-to-Enterprise-Value Ratio $\frac{\text{Net Debt}}{\text{Enterprise Value}}$	Times Interest Earned $\frac{\text{Net Operating Income or EBIT}}{\text{Interest Expense}}$
American Airlines (AAL)	95.4%	28.2%	4.79
American Electric Power (AEP)	71.8%	40.6%	3.65
Emerson Electric (EMR)	35.3%	11.6%	19.26
Ford (F)	87.9%	65.2%	4.32
General Electric (GE)	80.2%	19.1%	2.82
Wal-Mart (WMT)	60.0%	16.8%	11.03
Average	67.1%	30.7%	8.21
Maximum	87.9%	65.2%	19.26
Minimum	35.3%	11.6%	2.82

For the set of firms in Table 15.1, the average ratio of operating income to interest expense is 8.21, which indicates that the firms' operating earnings, on average, cover their interest expense by more than eight times. This would surely make lenders feel more confident they will be paid their interest in a timely manner than if this ratio were closer to 1 or less.[3]

We now have the following financial decision tools to evaluate the firm's capital structure.

Tools of Financial Analysis—Capital Structure Ratios

Name of Tool	Formula	What It Tells You
Debt ratio	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$	• Measures the extent to which the firm has used borrowed money to finance its assets. • A higher ratio indicates a greater reliance on non-owner financing or financial leverage and more financial risk taken on by the firm.
Debt-to-enterprise-value ratio	$\frac{\text{Book Value of Interest-Bearing Debt} - \text{Excess Cash}}{\left(\text{Book Value of Interest-Bearing Debt} - \text{Excess Cash}\right) + \text{Market Value of Equity}} = \frac{\text{Net Debt}}{\text{Enterprise Value}}$	• A version of the debt ratio that uses current market values of equity as opposed to book values. • The higher the debt-to-enterprise-value ratio is, the more financial risk the firm is assuming.
Times interest earned	$\frac{\text{Net Operating Income or EBIT}}{\text{Interest Expense}}$	• Measures the firm's ability to pay its interest expense from operating income. • A higher ratio indicates a greater capability of the firm to pay its interest expense in a timely manner.

[3]Some firms actually have negative net debt. That is, they have larger excess cash and marketable securities balances than they have interest-bearing debt outstanding. This is fairly common for high-tech firms like Apple (AAPL) that maintain very large cash balances as a reserve source of funding for investments in new technologies that are difficult to finance in the public markets.

"Tools of Financial Analysis" feature boxes provide the students with a quick reference source for the decision tools used in financial analysis. This feature appears throughout the book and names each calculation or formula, displays it in equation form, and summarizes what it tells you.

Preface

The thirteenth edition of *Financial Management: Principles and Applications* updates our materials and further refines our pedagogical approach in ways that make the material much more engaging to all undergraduate students, regardless of their major.

Our Approach to Financial Management

First-time students of finance will find that financial management builds on both economics and accounting. Economics provides much of the theory that underlies our techniques, whereas accounting provides the input or data on which decision making is based. Unfortunately, it is all too easy for students to lose sight of the logic that drives finance and to focus instead on memorizing formulas and procedures. As a result, they have a difficult time understanding how the various topics covered in an introductory course tie together, and they do not appreciate how the financial insights may be useful for them personally. More importantly, later in life when students encounter problems that do not fit neatly into the textbook presentation, they may not be able to apply what they have learned.

Our book is designed to overcome these problems. The opening chapter presents five basic principles of finance that are woven throughout the book, creating a text tightly bound around these guiding principles. In essence, students are presented with a cohesive, interrelated subject they can use when approaching future, as yet unknown, problems. We also recognize that most students taking introductory financial management are not finance majors, and we include two features that help keep them engaged. At the beginning of each chapter, we include a "Regardless of Your Major" feature box that explains why the issues raised in the chapter are relevant to those students who are not finance majors. In addition, throughout the book we have "Finance for Life" feature boxes that address issues like whether to buy or lease a car and illustrate how students will be using the tools of financial analysis for personal decisions throughout their lives.

Teaching an introductory finance class while faced with an ever-expanding discipline puts additional pressures on the instructor. What to cover, what to omit, and how to make these decisions while maintaining a cohesive presentation are inescapable questions. In dealing with these questions, we have attempted to present the chapters in a stand-alone fashion so that they can easily be rearranged to fit almost any desired course structure and course length. Because the principles are woven into every chapter, the presentation of the text remains tight, regardless of whether or not the chapters are rearranged. Again, our goal is to provide an enduring understanding of the basic tools and fundamental principles on which finance is based. This foundation will give students beginning their studies in finance a strong base on which to build future studies, and it will give students who take only one finance class a lasting understanding of the basics of finance.

Although historical developments, like the 2008 financial crisis, influence the topics that are included in the introductory finance class, the underlying principles that guide financial analysis remain the same. These principles are presented in an intuitively appealing manner in Chapter 1 and thereafter are tied to all that follows. With a focus on these principles, we provide an introduction to financial decision making rooted in financial theory. This focus can be seen in a number of ways, perhaps the most obvious being the attention paid both to valuation and to the capital markets as well as their influence on corporate financial decisions. What results is an introductory treatment of a discipline rather than the treatment of a series of isolated finance problems. Our goal is to go beyond teaching the tools of financial analysis and help students gain a complete understanding of the subject so they will be able to apply what they have learned to new and unforeseen problems—in short, to educate students in finance.

New to This Edition

The thirteenth edition includes the following key updates:

- A Guided Solution Video for each Checkpoint in the text
- "Finance for Life" feature boxes that analyze the text discussion of financial management using real-world examples
- Updated end-of-chapter Study Problem sets
- Examples that use actual companies and reflect current conditions
- Expanded coverage of the impact of changes in exchange rates
- Data and current events updates throughout

A Total Learning Package

Financial Management is not simply another introductory finance text. It is a total learning package that reflects the vitality of an ever-expanding discipline. Specifically, the thirteenth edition of *Financial Management: Principles and Applications* was revised to include features with benefits designed to address the seven key criteria outlined on the next page.

Learning Aids in the Text

The Five Principles of Finance Together, the five principles, Money Has a Time Value, There Is a Risk-Return Tradeoff, Cash Flows Are the Source of Value, Market Prices Reflect Information, and Individuals Respond to Incentives, represent the economic theory that makes up the foundation of financial decision making and are woven throughout the chapters of the book, providing the basis for focusing students on understanding the economic intuition rather than just the mechanics of solving problems. They are integrated throughout the text in the following ways:

- The five principles are introduced in Chapter 1 using examples that students can relate to personally.
- They are revisited in the chapter openers with reference to their application to each chapter's content.
- Specific reference is made throughout the text where the principles come to bear on the discussion.

A Focus on Valuation Although many instructors make valuation the central theme of their course, students often lose sight of this focus when reading their text. We have revised this edition to reinforce this focus in the content and organization of our text in some very concrete ways:

- First, as we mentioned earlier, we have built our discussion around five finance principles that provide the foundation for the valuation of any investment.
- Second, we have introduced new topics in the context of "What is the value proposition?" and "How is the value of the enterprise affected?"

NEW! Guided Solutions Videos These videos, which are available in MyFinanceLab, have been prepared for each of the Checkpoint examples in the text. They walk students through the solution to each example exercise and allow them to stop and rewatch as many times as needed to grasp the problem solution.

"Finance for Life" A new feature box has been introduced that provides students with analysis parallel to the text discussion of financial management but using examples they will likely experience in their personal lives. Once again, this pedagogical tool is designed to make the study of finance relevant to all students, regardless of their major.

NEW! Expanded Study Problem Sets Focusing on chapters with high problem usage, the end-of-chapter Study Problem sets have been strategically expanded to provide better

Challenge	Solution
1. Finance books often show the mechanics of finance but do not present the intuition.	• The thirteenth edition utilizes five key principles to help students understand financial management so that they can focus on the intuition behind the mechanics of solving problems.
2. Students learn best when they are actively engaged.	• A five-step problem-solving technique is used in fully worked-out examples called Checkpoints. These Checkpoints give students an opportunity to pause and test their comprehension of the key quantitative concepts as they are presented. In the fifth step ("Check Yourself"), students are given a practice problem similar to the preceding example to attempt on their own. In addition, the "Check Yourself" steps are presented in Lecture Capture Videos that are available on MyFinanceLab. These videos walk students through each practice problem, clearing up any questions they might have.
3. Student understanding and motivation are improved when concepts are applied to topics that have relevance to their lives.	• The feature box "Finance for Life" links important finance concepts to personal finance decisions that will be relevant throughout students' lives. • The feature box "Regardless of Your Major" illustrates that financial decision making often requires a team that includes not only financial analysts but also engineers, operations people, marketing people, and accountants. Just like finance majors need to know more than just finance, students pursuing these other majors need to know basic financial management to serve effectively on these teams. • The feature box "Finance in a Flat World" highlights international examples of financial management concepts. • End-of-chapter Study Questions are linked to these feature boxes to ensure that students have the opportunity to actively engage with the ideas presented.
4. An undergraduate textbook should provide meaningful pedagogical aids to ensure student comprehension and retention.	• "Tools of Financial Analysis" feature boxes are provided throughout the text; they name the tool being studied, provide its formula, and then explain what it tells students. • Each pedagogical feature in the chapter has significance and relevance to the chapter topics, and students are held accountable for the information therein. • Designated end-of-chapter Study Questions key off the in-chapter feature boxes. • Company scenarios used in chapter-opening vignettes are woven into the chapter body itself. • The end-of-chapter Study Problems are labeled by major chapter section heads to guide students to the relevant chapter content.
5. Students often struggle with the mathematical rigor of the introductory finance course and need an accessible presentation of the mathematics.	• The "Tools of Financial Analysis" feature boxes provide students with clearly stated descriptions of what the essential equations or formulas tell them. • We minimize the use of formulas when we can spell things out in plain English. • We use a five-step procedure in our problem examples (called Checkpoints) that begins by visualizing the problem graphically, describes a solution methodology, lays out all the necessary steps in the solution, and then interprets the solution by analyzing the underlying content of the problem situation. In addition, the practice problems in the "Check Yourself" steps are presented in Lecture Capture Videos that are available on MyFinanceLab. These videos walk students through each practice problem, clearing up any questions they might have. • Financial management is a problem-solving course, so we provide lots of worked-out examples and have sorted the end-of-chapter materials by major chapter sections to guide students to the relevant segment of the chapter. • Figures are enhanced with notes and "talking boxes" that step students through the graphs and highlight key points.
6. Instructors find assigning and grading homework too time-consuming.	• MyFinanceLab allows instructors to create and assign tests, quizzes, or graded assignments with ease. • MyFinanceLab handles the grading.
7. Students often miss the big picture, viewing finance as a presentation of several loosely connected topics.	• The opening chapter presents five underlying principles of finance that serve as a springboard for the chapters and topics that follow. In essence, students are presented with a cohesive, interrelated perspective from which future problems can be approached. • The core of finance involves trying to assess the valuation consequences of business decisions in a wide variety of situations. Unfortunately, students often become so enmeshed in the details of a business problem that they have difficulty identifying the valuation consequences of its choices. To give students a context for their analysis, we use five guiding principles that underlie the valuation of any investment. • With a focus on the big picture, we provide an introduction to financial decision making rooted in current financial theory and in the current state of world economic conditions. What results is an introductory treatment of a discipline rather than the treatment of a series of isolated problems that face the financial manager. The goal of this text is not merely to teach the tools of a discipline or trade but also to enable students to apply what is learned to new and as yet unforeseen problems—in short, to educate students in finance.

problem choices for the instructor. As in the previous edition, all Study Problem sets are organized by chapter section so that both instructors and students can readily align text and problem materials. Where actual company examples are used, problems have been updated to reflect current conditions.

Real-World Examples To enhance the relevance of the topics discussed, we have made extensive use of real-world examples. We provide ticker symbols in parentheses following the names of real companies throughout the text. This makes it possible for students to easily recognize examples that deal with actual companies.

NEW! Expanded Coverage of the Impact of Changes in Exchange Rates A new section titled "What a Change in the Exchange Rate Means for Business" examines how exchange rate changes impact imports and exports and the profitability of multinational firms.

A Multistep Approach to Problem Solving and Analysis As anyone who has taught the core undergraduate finance course knows, students vary across a wide range in terms of their math comprehension and skills. Students who do not have the math skills needed to master the subject end up memorizing formulas rather than focusing on the analysis of business decisions using math as a tool. We address this problem in terms of both text content and pedagogy.

- First, we present math only as a tool to help us analyze problems—and only when necessary. We do not present math for its own sake.
- Second, finance is an analytical subject and requires that students be able to solve problems. To help with this process, numbered chapter examples called Checkpoints appear throughout the book. Each of these examples follows a very detailed, multistep approach to problem solving that helps students develop their own problem-solving skills.

1. **Step 1: Picture the problem.** For example, if the problem involves a cash flow, we will first sketch the timeline. This step also entails writing down everything we know about the problem, which includes any relationships such as what fraction of the cash flow is to be distributed to each of the parties involved and when it is to be received or paid.
2. **Step 2: Decide on a solution strategy.** For example, what is the appropriate formula to apply? How can a calculator or spreadsheet be used to "crunch the numbers"?
3. **Step 3: Solve**. Here we provide a completely worked-out, step-by-step solution. We first present a description of the solution in prose and then provide a corresponding mathematical implementation.
4. **Step 4: Analyze.** We end each solution with an analysis of what the solution means. This emphasizes the point that problem solving is about analysis and decision making. Moreover, at this step we emphasize the fact that decisions are often based on incomplete information, which requires the exercise of managerial judgment, a fact of life that is often learned on the job.
5. **Step 5: Check yourself.** Immediately following the presentation of each new problem type, we include a practice problem that gives students the opportunity to practice the type of calculation used in the example. For students wanting more help, the solutions to these "Check Yourself" problems are available as Lecture Capture Videos in MyFinanceLab.

Content-Enriched Tables and Figures Students today are visual learners. They are used to scanning Internet sites to learn at a glance without the need to ferret out the meaning of a printed page. Rather than seeing this as a negative, we think, instead, that students (and we) are all the beneficiaries of a media revolution that allows us to learn quickly and easily using graphic design and interactive software. Textbooks have been slow to respond to this new way of absorbing information. In this text, the key elements of each chapter in the book can quite literally be gleaned (reviewed) from the chapter tables, figures, and examples. This means that all tables and figures are "content-enriched." They are captioned, labeled in detail, and carefully linked so as to make them useful as a stand-alone tool for reviewing the chapter content.

"Finance for Life" These feature boxes apply the chapter concepts to personal financial problems that students encounter in their daily lives.

"Finance in a Flat World" These feature boxes demonstrate how the chapter content applies to international business.

Figure Call-Outs Many figures include floating call-outs with descriptive annotations designed to highlight key points in the figures and facilitate student learning.

Figure and Table Captions Detailed captions describe the objective of each figure or table and provide necessary background information so that its content can be easily understood. This allows students to review the chapter content by scanning the figures and tables directly.

Equations Equations are written out in plain English with minimal use of acronyms and abbreviations. In addition, "Tools of Financial Analysis" feature boxes are used throughout the book to provide a quick review and reference guide for critical equations used to support financial decision making.

Financial Spreadsheets and Calculators The use of financial spreadsheets and calculators has been integrated throughout the text. Thus, students have access to both methods of problem solving. An appendix is provided that guides students through the use of both the HP and the TI financial calculators. Excel files are available for worked-out examples and end-of-chapter solutions.

Chapter Summaries The Chapter Summaries have been rewritten and are organized around the chapter objectives.

Study Questions These end-of-chapter questions review the main concepts in the chapter and are presented in the order in which these concepts were discussed in the chapter for easy student reference.

Content Updating

In response to the continued development of financial thought, reviewer comments, and the recent economic crisis, changes have been made in the text. The following list highlights some of the important changes that were made in each of the book's 20 chapters:

Chapter 1

GETTING STARTED—PRINCIPLES OF FINANCE

- The discussion of the five principles of finance has been revised, increasing its currency.
- This chapter has been updated and revised to make it as intuitive as possible.
- New examples—including GM's partnership with Lyft, Disney's Star Wars franchise, Fitbit, Netflix, and Chesapeake Energy—have been added.

Chapter 2

FIRMS AND THE FINANCIAL MARKETS

- This chapter has been revised to reflect the recent changes in interest rates and in the financial markets.
- The discussion of how securities markets bring corporations and investors together has been revised to reflect the current financial markets.
- The Study Questions have been updated and revised.

Chapter 3

UNDERSTANDING FINANCIAL STATEMENTS

- Lecture Capture Videos have been prepared for each of the Checkpoint examples in the chapter.

- Chapter Checkpoint example content has been updated to include current data and rewritten to reflect changing financial conditions.
- Company examples used in the problem exercises have been updated to reflect current information.

Chapter 4

FINANCIAL ANALYSIS—SIZING UP FIRM PERFORMANCE

- Lecture Capture Videos have been prepared for each of the Checkpoint examples in the chapter.
- Chapter Checkpoint example content has been updated to include current data and rewritten to reflect changing conditions.

Chapter 5

THE TIME VALUE OF MONEY—THE BASICS

- The coverage of payday loans and the coverage of the equivalent annual return have been updated, reflecting an example from Advance America in 2016.
- This chapter has been revised with an eye toward making it more accessible to math-phobic students.
- The Study Questions have been updated and revised.

Chapter 6

THE TIME VALUE OF MONEY—ANNUITIES AND OTHER TOPICS

- The chapter discussion has been reworked to make it more accessible to those students who are math-phobic.

Chapter 7

AN INTRODUCTION TO RISK AND RETURN—HISTORY OF FINANCIAL MARKET RETURNS

- Lecture Capture Videos have been prepared for each of the Checkpoint examples in the chapter.
- All tables and figures have been updated to reflect historical rates of return that investors have earned for different types of security investments.
- The discussion of the geometric and arithmetic means has been revised to make the importance of the type of mean used in our analysis of historical returns more transparent.
- Selected Study Problems have been revised.

Chapter 8

RISK AND RETURN—CAPITAL MARKET THEORY

- Lecture Capture Videos have been prepared for each of the Checkpoint examples in the chapter.
- The discussion of beta and its estimation from historical return data has been revised. The example company used for this discussion is now Home Depot.
- Selected Study Problems have been revised.

Chapter 9

DEBT VALUATION AND INTEREST RATES

- The examples have been updated and revised to reflect the current level of interest rates with new examples of borrowing by GE, Disney, and AT&T.
- This chapter has been revised to incorporate the very low interest rate levels in the financial markets.
- The discussion of the bond valuation relationship has been revised.

Chapter 10

STOCK VALUATION

- The discussion of the stock market, which is also covered in Chapter 2, has been dropped due to its redundancy.
- The Study Questions have been updated and revised.

Chapter 11

INVESTMENT DECISION CRITERIA

- Lecture Capture Videos have been prepared for each of the Checkpoint examples in the chapter.
- The modified internal rate of return (MIRR) discussion has been revised to focus on the origins of the situations in which the analyst will find the MIRR helpful in making an investment decision.
- The Study Problem set has been substantially revised.

Chapter 12

ANALYZING PROJECT CASH FLOWS

- Lecture Capture Videos have been prepared for each of the Checkpoint examples in the chapter.
- The Quick Reference tool for free cash flow was replaced with an expanded "Tools of Financial Analysis" feature box.
- The Study Problem set has been substantially revised.

Chapter 13

RISK ANALYSIS AND PROJECT EVALUATION

- Lecture Capture Videos have been prepared for each of the Checkpoint examples in the chapter.
- The Study Problem set has been substantially revised.

Chapter 14

THE COST OF CAPITAL

- Lecture Capture Videos have been prepared for each of the Checkpoint examples in the chapter.
- The Study Problem set has been substantially revised.

Chapter 15

CAPITAL STRUCTURE POLICY

- Lecture Capture Videos have been prepared for each of the Checkpoint examples in the chapter.
- The Study Problem set has been substantially revised.

Chapter 16

DIVIDEND AND SHARE REPURCHASE POLICY

- Figure 16.1, which looks at corporate earnings, cash dividends, and share repurchases for a broad cross-section of U.S. firms, has been updated and now covers the period between 2009 and 2015.
- A number of the chapter's Study Problems have been revised.

Chapter 17

FINANCIAL FORECASTING AND PLANNING

- Lecture Capture Videos have been prepared for each of the Checkpoint examples in the chapter.
- The Study Problem set has been substantially revised.
- Six Study Problems have been revised.

Chapter 18

WORKING-CAPITAL MANAGEMENT

- Lecture Capture Videos have been prepared for each of the Checkpoint examples in the chapter.
- The Study Problem set has been substantially revised.

Chapter 19

INTERNATIONAL BUSINESS FINANCE

- This chapter has been revised and updated to reflect dramatic changes in exchange rates and in the global financial markets in general.
- A new section titled "What a Change in the Exchange Rate Means for Business" has been added.

Chapter 20

CORPORATE RISK MANAGEMENT

- This chapter has been revised to reflect changes in the area of corporate risk management and to allow for a more intuitive presentation.

Learning Aids Supplemental to the Text

Financial Management integrates the most advanced technology available to assist students and instructors. Not only does this make *Financial Management* come alive with the most current information, but also it fosters total understanding of all the tools and concepts necessary to master the course. *Financial Management*'s complete support package for students and instructors includes these essentials.

MyFinanceLab

This fully integrated online homework system gives students the hands-on practice and tutorial help they need to learn finance efficiently. Ample opportunities for online practice and assessment in MyFinanceLab are seamlessly integrated into each chapter.

- **Auto-Graded Excel Projects** Auto-graded Excel Projects allow instructors to seamlessly integrate Excel content into their course without having to manually grade spreadsheets. Students have the opportunity to practice important Finance skills in Microsoft Excel, helping them to master key concepts and gain proficiency with Excel.
- **Guided Solutions Videos** These videos, which are available in MyFinanceLab, have been prepared for each of the Checkpoint examples in the text. They walk students through the solution to each example exercise and allow them to stop and rewatch as many times as needed to grasp the problem solution.
- **Financial Calculator** The Financial Calculator is available as a smartphone application, as well as on a computer, and includes important functions such as cash flow, net present value, and internal rate of return. Fifteen helpful tutorial videos show the many ways to use the Financial Calculator in MyFinanceLab.

- **Interactive Figures** Select in-text graphs and figures have been digitally enhanced to allow students to interact with variables to affect outcomes and bring concepts to life.
- **Enhanced eText** The Enhanced eText keeps students engaged in learning on their own time, while helping them achieve greater conceptual understanding of course material. The worked examples, animations, and interactive tutorials bring learning to life, and algorithmic practice allows students to apply the very concepts they are reading about. Combining resources that illuminate content with accessible self-assessment, MyLab with Enhanced eText provides students with a complete digital learning experience—all in one place. And with the Pearson eText 2.0 mobile app (available for select titles) students can now access the Enhanced eText and all of its functionality from their computer, tablet, or mobile phone. Because students' progress is synced across all of their devices, they can stop what they're doing on one device and pick up again later on another one—without breaking their stride.

Instructor's Manual with Solutions The complete text of the Solutions Manual is included within the Instructor's Manual for easy reference. The Instructor's Manual was written by Wendell Licon of Arizona State University and contains annotated chapter outlines, lecture tips, and further questions for class discussion. The complete solutions to the chapter-ending Study Questions, Study Problems, and Mini-Case problems are also included. The Instructor's Manual with Solutions is available for download as Microsoft Word and Adobe PDF files from the Instructor Resource Center (www.pearsonhighered.com/irc).

Test Bank The Test Bank provides multiple-choice, true/false, and short-answer questions with complete and detailed answers. As an additional resource, the Test Bank indicates questions that map to the standards set by the Association to Advance Collegiate Schools of Business so that instructors can track students' mastery of these standards. Every question in the Test Bank is also available in the TestGen software for both Windows and Macintosh computers. This easy-to-use testing software is a valuable test preparation tool that allows instructors to view, edit, and add questions. The Test Bank is available for download from the Instructor Resource Center, and all questions can be assigned via MyFinanceLab.

PowerPoint Presentation Lecture notes have been prepared by Philip Russel of Philadelphia University. These electronic slides include full-color presentations of chapter overviews and examples coordinated with *Financial Management*, 13th Edition. The PowerPoint slides are available to download from the Instructor Resource Center.

Acknowledgments

We gratefully acknowledge the assistance, support, and encouragement of those individuals who have contributed to *Financial Management*. Specifically, we wish to recognize the very helpful insights provided by many of our colleagues. For their careful comments and helpful reviews of this edition of the text, we are indebted to

Nazli Sila Alan, *Fairfield University*
Ross N. Dickens, *University of Tennessee at Martin*
Caren Fullerton, *Lubbock Christian University*
Tuncer Gocmen, *Shepherd University*
Sonali Hazarika, *Baruch College, City University of New York*
Jamie McCracken, *Saint Mary-of-the-Woods College*
Keith Rhodd, *SUNY Empire State College—Metropolitan Center*
Thomas Secrest, *Coastal Carolina University*

We would also like to thank those who have provided helpful insights through their comments on and reviews of past editions:

Kamal Abouzeid, V. T. Alaganan, Michael T. Alderson, Alexander Amati, Dwight C. Anderson, Robert Antenucci, Nasser Arshadi, Curt Bacon, Nina Baranchuk, William Barbee, Edward Baryla, Sung C. Bea, Laura Beal, Kenneth Beller, Gary Benesh, Laura Berk, Sam G. Berry, Rafiqul Bhuyan, Randy Billingsley, Eric Blazer, Laurence E. Blouse, Russell P. Boisjoly, Robert Boldin, Michael Bond, Richard Borghesi, Waldo L. Born, Virgil L. Brewer, Jozelle Brister, Ted Bryley, Paul Burzik, John Byrd, Shelly Canterbury, Michael W. Carter, Janice Caudill, Mary Chaffin, Don M. Chance, Perikolam Raman Chandy, Haiwei Chen, K. C. Chen, Santosh Choudhury, Jeffrey S. Christensen, Ting-Heng Chu, M. C. Chung, Albert H. Clark, Chris Clifford, David W. Cole, Roger Collier, Diane Coogan-Pushner, Douglas O. Cook, Mariano Croce, Jay Dahya, Steven M. Dawson, Jared DeLisle, Yashwant S. Dhatt, Prakash Dheeriya, Bernard C. Dill, Mark Dorfman, Robert Dubil, John W. Ellis, Suzanne Erickson, Jocelyn Evans, Marjorie Evert, Slim Feriani, Greg Filbeck, Sidney R. Finkel, Randy Fisher, Fredrick G. Floss, Lyn Fraser, Mitchell Franklin, Eric Fricke, Lei Gao, Lucia Silva Gao, John Gawryk, R. Philip Giles, John Glister, Devra Golbe, Ed Graham, Sharon S. Graham, Jack Griggs, Roxane M. Gunser, Nancy Lee Halford, Ken Halsey, Wendy D Habegger, Mary Hartman, James D. Harris, William R. Henry, Richard Herron, Dr. Linda C. Hittle, Stephen M. Horan, Keith Howe, Xiaoqing Hu, Charles R. Idol, Abu Jalal, Vahan Janjigian, Timothy Jares, Nancy Jay, Jeff Jenkins, William Jens, Brad Johnson, Steve A. Johnson, Kyle Jones, Kathleen Kahle, Ravi Kamath, Djavad Kashefinejad, Terry Keele, Jim Kehr, Eric Kelley, James D. Keys, Robert Kleiman, David R. Klock, Chet Lakhani, Reinhold P. Lamb, Larry Lang, George B. F. Lanigan, Mark Laplante, William R. Lasher, Howard C. Launstein, Edward Lawrence, Rick LeCompte, Jeong Lee, Adam Lei, David E. Letourneau, Qian Li, Ralph Lim, Yixin Liu, Lynda Livingston, Leonard T. Long, Yulong Ma, Richard MacMinn, Judy E. Maese, William Mahnic, Abbas Mamoozadeh, Terry S. Maness, Balasundram Maniam, Surendra K. Mansinghka, Leslie Mathis, Eric McLaughlin, James Milanese, James A. Miller, Michael Milligan, Todd Mitton, Naval Modani, Eric J. Moon, Mark Moore, Scott Moore, Anastasios Moysidis, M. P. Narayan, Willliam E. O'Connell, Jr., Kevin Okoeguale, Carrie Pan, Donna Paul, Shalini Perumpral, Jeffrey H. Peterson, Mario Picconi, Ted R. Pilger, John M. Pinkerton, Eric Powers, Mark Pyles, Mahmud Rahman, Arnold Redman, Eric Reiner, Foster Roden, Stuart Rosenstein, Camelia Rotaru, Ivan C. Roten, Marjorie A. Rubash, Jack H. Rubens, Todd Schank, Martina Schmidt, Oliver Schnusenberg, Tayyeb Shabbir, Peter A. Sharp, Michael Sher, Jackie Shu, Michael Solt, Raymond F. Spudeck, Suresh Srivastava, Joseph Stanford, John Stansfield, Edward Stendardi, Donald L. Stevens, Glenn L. Stevens, Diane Suhler, David Suk, Elizabeth Sun, Janikan Supanvanij, L. E. Sweeney, Philip R. Swensen, R. Bruce Swensen, Amir Tavakkol, Lee Tenpao, John G. Thatcher, Gary L. Trennepohl, Ronald Tsang, Paul A. Vanderheiden, K. G. Viswananthan, Gwendolyn Webb, Al Webster, Patricia Webster, Paul Weinstock, Herbert Weintraub, Kenneth L. Westby, Susan White, Matthew Will, Sandra Williams, Herbert Witt, Alan Wolk, Lawrence C. Wolken, Annie Wong, Kevin Woods, Steve B. Wyatt, Jasmine Yur-Austin, Kenneth Yung, Wold Zemedkun, Marc Zenner, Zhong-guo Zhou, and Kermit C. Zieg, Jr.

We also thank our friends at Pearson. They are a great group of folks. We offer our personal expression of appreciation to Donna Battista, Vice President, Business Publishing at Pearson. She has provided leadership from the top and has kept all the parts moving. To Kate Fernandes, our Portfolio Manager, we owe an immeasurable debt of gratitude. She continued to push us to make sure that we delivered the finest textbook and supplementary package possible, continuously offering insight and direction and often serving as a sounding board for revisions and new ideas. She is the best. Her efforts went well beyond what one might expect from the best of editors. On top of this, Kate is just a great person—thanks, Kate. We also owe a special word of thanks to Kathryn Brightney, our Editorial Assistant, for her administrative deftness. She is superb. With Kathryn watching over us, there was no way the ball could be dropped. We would also like to thank Carolyn Philips, who served as our Content Producer and guided this book through a very complex production process. She kept us on schedule while maintaining extremely high quality and through all of it was a delight to work with. Our thanks also go to Heidi Allgair of Cenveo® Publisher Services, who served as the Project Manager and did a superb job. Miguel Leonarte, who worked on MyFinanceLab, also deserves a word of thanks for making MyFinanceLab flow so seamlessly with the book. He has continued to refine and improve MyFinanceLab, and as a result of his efforts, it has become a learning tool without equal. We also thank Melissa Honig, our Digital Producer, who did a great job of making sure we are on the cutting edge in terms of web applications and offerings.

As a final word, we express our sincere thanks to those who are using *Financial Management: Principles and Applications* in the classroom. We thank you for making us a part of your teaching-learning team. Please feel free to contact any member of the author team should you have questions or needs.

Financial Management

Principles and Applications

CHAPTER 1

Getting Started

Principles of Finance

Chapter **Outline**

Principles P1, P2, P3, P4, and P5 Applied

This book examines a wide range of financial decisions that people make in their business lives as well as in their personal lives. In this chapter, we lay a foundation for the entire book by describing the boundaries of the study of finance, the different ways that businesses are organized, and the role that the financial manager plays within the firm. We also address some of the ethical dilemmas that the financial manager must face daily. Finally, we take an in-depth look at the five principles of finance that underlie all financial decisions: P Principle 1: **Money Has a Time Value**, P Principle 2: **There Is a Risk-Return Tradeoff**, P Principle 3: **Cash Flows Are the Source of Value**, P Principle 4: **Market Prices Reflect Information**, and P Principle 5: **Individuals Respond to Incentives**.

On any given day, Apple, Inc. (AAPL), will sell thousands of iPhones, iPods, iPads, and personal computers. In addition to making a myriad of production and pricing decisions, Apple must evaluate potential new products, make personnel choices, and consider new locations for Apple retail stores. Because each of these decisions affects the risk and timing of Apple's operations as well as the cash they generate, we can view all of them as financial decisions.

Like Apple, you face financial decisions in your personal life. Whether evaluating the terms of credit card offers or weighing whether to go to graduate school right after graduation or to work full-time for a year or two, you will find that the same fundamental principles that guide business decisions are useful to you in making personal financial decisions.

Regardless of Your Major…

"Welcome to the World of Finance"

For the rest of your life, you will be both working and living in a world where you will be making choices that have financial consequences. Corporations make money by introducing new products, opening new sales outlets, hiring the best people, and improving productivity. All of these actions involve investing or spending money today with the hope of generating more money in the future. Regardless of your major, after graduation you are likely to be working for an organization where your choices have uncertain costs and benefits, both now and in the future. This will be the case if you are working for a major corporation such as General Electric (GE), starting your own firm, or working for a nonprofit organization such as St. Jude Children's Research Hospital. Moreover, you will be faced with a variety of personal choices—whether you can afford a new car or a mortgage or how much to begin investing in a retirement fund—that also require you to evaluate alternatives that involve uncertain future payoffs. Regardless of your major, there is simply no getting around the fact that you will be making financial choices throughout your life.

Your Turn: See Study Question 1–1.

1.1 Finance: An Overview

To begin our study of business finance, we present an overview of the field and define the types of decisions addressed by the study of business finance. We also discuss the motivation for studying finance and briefly introduce the five principles of finance.

What Is Finance?

Finance is the study of how people and businesses evaluate investments and raise capital to fund them. Our interpretation of an investment is quite broad. In 2016, when Fitbit introduced the Fitbit Blaze, an activity-focused smartwatch, it was clearly making a long-term investment. The firm had to devote considerable expense to designing, producing, and marketing the smartwatch with the hope that it would eventually capture a sufficient amount of market share from the Apple Watch and Android Wear smartwatch to make the investment worthwhile. But Fitbit also makes an investment decision whenever it hires a fresh new graduate, knowing that it will be paying a salary for at least six months before the employee will have much to contribute.

Thus, three basic questions are addressed by the study of finance:

1. What long-term investments should the firm undertake? This area of finance is generally referred to as **capital budgeting**.
2. How should the firm raise money to fund these investments? The firm's funding choices are generally referred to as **capital structure** decisions.
3. How can the firm best manage its cash flows as they arise in its day-to-day operations? This area of finance is generally referred to as **working capital management**.

We'll be looking at each of these three areas of business finance—capital budgeting, capital structure, and working capital management—in the chapters ahead.

Why Study Finance?

Even if you are not planning a career in finance, a working knowledge of finance will take you far in both your personal and your professional lives.

Those interested in management will need to study topics such as strategic planning, personnel, organizational behavior, and human relations, all of which involve spending money today in the hope of generating more money in the future. For example, in 2016 GM made a strategic decision to invest $500 million in Lyft, the ride-hailing start-up. GM and Lyft have joined together to develop a network of self-driving cars that riders can call up on demand, and in the short run, GM will provide cars to Lyft drivers through short-term rentals in key U.S. cities. To say the least, this was a major strategic decision that will impact both GM and Lyft for many years. Similarly, marketing majors will need to understand how to price products, when to price them aggressively, and how much to spend on advertising them. Because aggressive marketing costs money today but generates rewards in the future, it should be viewed as an investment that the firm needs to finance. Production and operations management majors will need to understand how best to manage a firm's production and control its inventory and supply chain. All these topics involve risky choices that relate to the management of money over time, which is the central focus of finance.

Although finance is primarily about the management of money, a key component of finance is the management and interpretation of information. Indeed, if you pursue a career in management information systems or accounting, finance managers are likely to be your most important clients.

For the student with entrepreneurial aspirations, an understanding of finance is essential—after all, if you can't manage your finances, you won't be in business very long.

Finally, an understanding of finance is important to you as an individual. The fact that you are reading this book indicates that you understand the importance of investing in yourself. By obtaining a college degree, you are clearly making sacrifices in the hope of making yourself more employable and improving your chances of having a rewarding and challenging career. Some of you are relying on your own earnings and the earnings of your parents to finance your education, whereas others are raising money or borrowing it from the **financial markets**, institutions that facilitate financial transactions.

Financial decisions are everywhere, both in your personal life and in your career. Although the primary focus of this book is on developing the corporate finance tools and techniques that are used in the business world, you will find that much of the logic and many of the tools we develop and explore along the way will also apply to decisions you will be making in your personal life. In the future, both your business and your personal lives will be spent in the world of finance. Because you're going to be living in that world, it's time to learn about its basic principles.

We will take an in-depth look at these principles at the end of this chapter. As you will see, you do not need an extensive knowledge of finance to understand these principles, and, once you know and understand them, they will help you understand the rest of the concepts presented in this book. When you are looking at more complex financial concepts, think of these principles as taking you back to the roots of finance.

Before you move on to 1.2

Concept Check | 1.1

1. What are the three basic types of issues that arise in business that are addressed by the study of business finance?
2. List three nonfinance careers to which the study of finance applies.

1.2 Three Types of Business Organizations

Although numerous and diverse, the legal forms of business organization fall into three categories: the sole proprietorship, the partnership, and the corporation. Figure 1.1 provides a quick reference guide for these organizational forms.

Sole Proprietorship

The **sole proprietorship** is a business owned by a single individual who is entitled to all of the firm's profits and who is also responsible for all of the firm's **debt**—that is, what the firm owes. In effect, there is no separation between the business and the owner when it comes to being liable for debts or being sued. If sole proprietors are sued, they can lose not only all they invested in the proprietorship but also all their personal assets. A sole proprietorship is often

Figure 1.1

Characteristics of Different Forms of Business

Business Form	Number of Owners	Are Owners Liable for the Firm's Debts?	Do Owners Manage the Firm?	Does an Ownership Change Dissolve the Firm?	Access to Capital	Taxation
Sole Proprietorship	One	Yes	Yes	Yes	Very limited	Personal Taxes
Partnership	Unlimited	Yes; each partner has unlimited liability	Yes	Yes	Very limited	Personal Taxes
Limited Partnership (with General Partners [GPs] and Limited Partners [LPs])	At least one GP, but no limit on LPs	GPs—unlimited liability LPs—limited liability	GPs—manage the firm LPs—no role in management	GPs—yes LPs—no, can change[1]	Limited	Personal Taxes
Limited Liability Company (LLC)	Unlimited	No	Yes	No	Dependent on size	Personal Taxes
Corporation	Unlimited	No	No—although managers generally have an ownership stake[2]	No	Very easy access	Double Taxation: Earnings taxed at corporate level Dividends taxed at personal level

[1]It is common for LPs to require approval from the other partners before a partner's ownership can be transferred.

[2]Owners are not prohibited from managing the corporation.

>> END FIGURE 1.1

used in the initial stages of a firm's life. This is in part because forming a sole proprietorship is very easy; there are no forms to file and no partners to consult—the founder of the business is the sole owner. However, these organizations usually have limited access to outside sources of financing. The owner of a sole proprietorship typically raises money by investing his or her own funds and by borrowing from a bank. However, because there is no difference between the sole proprietor and the business, there is no difference between personal borrowing and business borrowing. The owner of the business is personally liable for the debts of that business while profits are taxed at the owner's tax rate. In addition to bank loans, personal loans from friends and family are important sources of financing for sole proprietorships.

Partnership

A **general partnership** is an association of two or more persons who come together as co-owners for the purpose of operating a business for profit. Just as with the sole proprietorship, there is no separation between the general partnership and its owners with respect to being liable for debts or being sued. Its primary point of distinction from a sole proprietorship is that the **partnership** has more than one owner. Just like with a "sole proprietorship," the profits of the partnership are taxed as personal income. An important advantage of the partnership is that it provides access to **equity**, or ownership, as well as financing from multiple owners in return for partnership **shares**, or units of ownership.

In a **limited partnership**, there are two classes of partners: general and limited. The **general partner** actually runs the business and faces unlimited liability for the firm's debts, whereas the **limited partner** is liable only up to the amount the limited partner invested. The life of the partnership is tied to the life of the general partner, just as that of the sole proprietorship is tied to the life of the owner. In addition, it is difficult to transfer ownership of the general partner's interest in the business—this generally requires the formation of a new partnership. However, the limited partner's shares can be transferred to another owner without the need to dissolve the partnership, although finding a buyer may be difficult.

Corporation

If very large sums of money are needed to build a business, then the typical organizational form chosen is the **corporation**. As early as 1819, U.S. Supreme Court Chief Justice John Marshall set forth the legal definition of a corporation as "an artificial being, invisible, intangible, and existing only in the contemplation of law."[1] The corporation legally functions separately and apart from its owners (the **shareholders**, also referred to as the **stockholders**). As such, the corporation can individually sue and be sued and can purchase, sell, or own property, and its personnel are subject to criminal punishment for crimes committed in the name of the corporation.

There are three primary advantages of this separate legal status. First, the owners' liability is confined to the amount of their investment in the company. In other words, if the corporation goes under, the owners can lose only their investment. This is an extremely important advantage of a corporation. After all, would you be willing to invest in American Airlines if you would be held personally liable if one of its planes crashed? The second advantage of separate legal status for the corporation is that the life of the business is not tied to the status of the investors. The death or withdrawal of an investor does not affect the continuity of the corporation. The management continues to run the corporation when the ownership shares are sold or passed on through inheritance. For example, the inventor Thomas Edison founded General Electric (GE) over a century ago. Edison died in 1931, but the corporation lives on. Finally, these two advantages result in a third advantage, the ease of raising capital. It is much easier to convince investors to put their money in a corporation when they know that the most they can lose is what they invest and that they can easily sell their stock if they wish to do so.

The corporation is legally owned by its current set of stockholders, or owners, who elect a board of directors. The directors then appoint managers who are responsible for determining the firm's direction and policies. Although even very small firms can be organized as corporations, it is usually the larger firms that need to raise large sums of money for investment and expansion that use this organizational form. As such, this is the legal form of business that we will be examining most frequently in this textbook.

One of the drawbacks of the corporate form is the double taxation of earnings that are paid out in the form of **dividends**. When a corporation earns a profit, it pays taxes on that profit (the first taxation of earnings) and pays some of that profit back to the shareholders in the form of dividends. Then the shareholders pay personal income taxes on those dividends (the second taxation of earnings). In contrast, the earnings of proprietorships and partnerships are not subject to double taxation. Needless to say, this is a major disadvantage of corporations.[2]

When entrepreneurs and small business owners want to expand, they face a tradeoff between the benefits of the corporate form and the potential loss of control and higher taxes that accompany it. For this reason, an attractive alternative to the corporation for such a small business is the **limited liability company (LLC)**, a cross between a partnership and a corporation. An LLC combines the tax benefits of a partnership (no double taxation of earnings) with the limited liability benefit of a corporation (the owners' liability is limited to what they invested).[3] Thus, unlike with a proprietorship or partnership, there is a separation

---

[1]*The Trustees of Dartmouth College v. Woodward*, 4 Wheaton 518, 636 (1819).

[2]Currently, qualified dividends from domestic corporations and qualified foreign corporations are taxed at a maximum rate of 20 percent, with some high-income investors owing an additional 3.8 percent surtax on their net investment income. However, if you're in the 10 percent or 15 percent rate bracket, your tax rate on these dividends drops to 0 percent.

[3]In addition, there is the S-type corporation, which provides limited liability while allowing the business owners to be taxed as if they were a partnership; that is, distributions back to the owners are not taxed twice, as is the case with dividends in the standard corporate form. Unfortunately, a number of restrictions that accompany the S-type corporation detract from the desirability of this business form. As a result, the S-type corporation has been losing ground in recent years in favor of the limited liability company.

between the LLC and the owners with respect to being liable for debts or being sued. As a result, the most an LLC owner can lose is what he or she invested. Because LLCs operate under state laws, both the states and the Internal Revenue Service (IRS) have rules for what qualifies as an LLC, and different states have different rules. The bottom line is that if an LLC looks too much like a corporation, it will be taxed as one.

As you can see in Figure 1.1, the corporation is the business form that provides the easiest access to capital. As a result, it is the most common choice for firms that are growing and need to raise money.

How Does Finance Fit into the Firm's Organizational Structure?

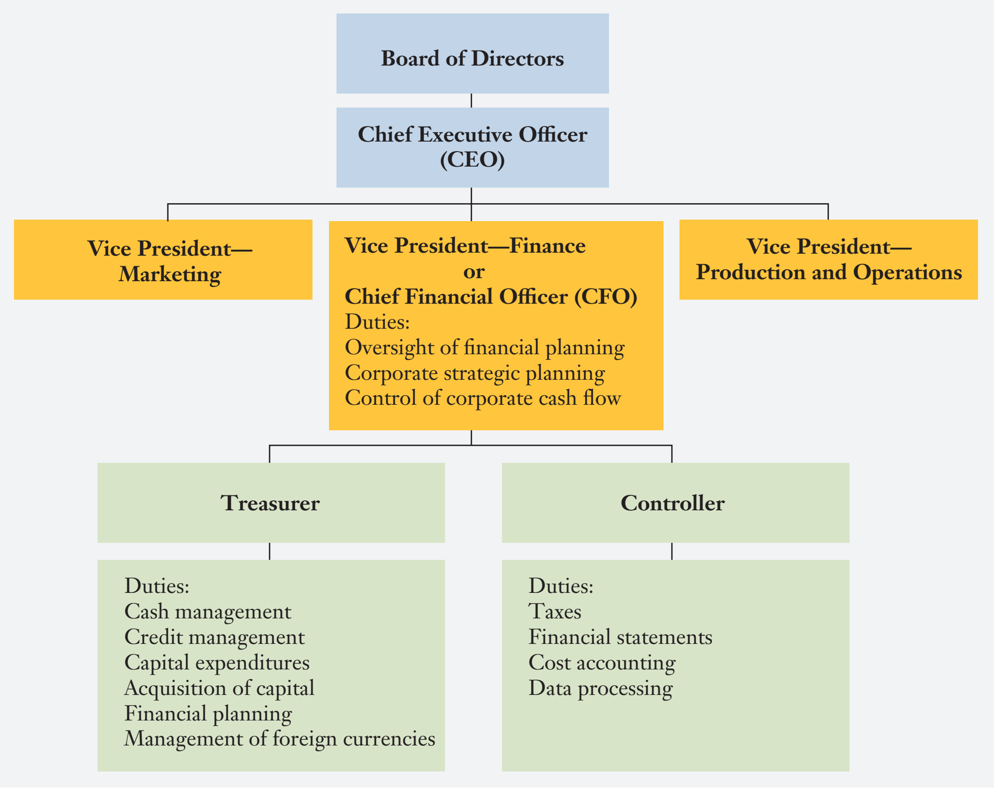
Finance is intimately woven into any aspect of the business that involves the payment or receipt of money in the future. For this reason, it is important that everyone in a business have a good working knowledge of the basic principles of finance. However, within a large business organization, the responsibility for managing the firm's financial affairs falls to the firm's chief financial officer (CFO).

Figure 1.2 shows how the finance function fits into a firm's organizational chart. In the typical large corporation, the CFO serves under the corporation's chief executive officer (CEO) and is responsible for overseeing the firm's finance-related activities. Typically, both

Figure 1.2

How the Finance Area Fits into a Corporation

A firm's vice president of finance is many times called its chief financial officer, or CFO. This person oversees all of the firm's financial activities through the offices of the firm's treasurer and controller.



>> END FIGURE 1.2

a treasurer and a controller serve under the CFO, although in a small firm the same person may fulfill both roles. The treasurer generally handles the firm's financing activities. These include managing the firm's cash and credit, exercising control over its major spending decisions, raising money, developing financial plans, and managing any foreign currency it receives. The controller is responsible for managing the firm's accounting duties. These include producing financial statements, paying taxes, and gathering and monitoring data that the firm's executives need to oversee its financial well-being.

Before you move on to 1.3

Concept Check | 1.2

1. What are the primary differences among a sole proprietorship, a partnership, and a corporation?
2. Explain why large and growing firms tend to choose the corporate form of organization.
3. What are the duties of a corporate treasurer?
4. What are the duties of a corporate controller?

1.3 The Goal of the Financial Manager

In 2001, Tony Fadell turned to Apple, Inc. (AAPL), to develop his idea for a new MP3 player. Fadell's idea had already been rejected by his previous employer and another company, but the executives at Apple were enthusiastic about it. They hired Fadell, and the rest is history. The successful sales of the new iPod MP3 player, coupled with efficient uses of financing and day-to-day funding, raised the firm's stock price. This exemplifies how a management team appointed by a corporate board made an important investment decision that had a very positive effect on the firm's total value.

As previously mentioned, we can characterize the financial activities of a firm's management in terms of three important functions within a firm. These are illustrated here using Apple's iPod example:

- Making investment decisions (capital budgeting decisions): Apple's decision to introduce the iPod, which later led to the iPhone.
- Making decisions on how to finance these investments (capital structure decisions): Apple's decision on how to finance the development and production of the iPod and eventually the iPhone.
- Making decisions on how best to manage the company's day-to-day operations (working capital management): Apple's decision regarding how much inventory to hold.

In carrying out these tasks, financial managers must be aware that they are ultimately working for the firm's shareholders, who are the owners of the firm, and that the choices they make as financial managers will generally have a direct impact on their shareholders' wealth.

Maximizing Shareholder Wealth

With a publicly owned corporation such as Coca-Cola (KO), the shareholders who purchase stock in the company elect a board of directors that, among other duties, selects the company's CEO. These shareholders, ranging from individuals who purchase stock for a retirement fund to large financial institutions, have a vested interest in the company. Because they are the company's true owners, that company will commonly have a principal goal described as maximizing shareholder wealth, which is achieved by maximizing the stock price.