

finance

applications & theory

Cornett

Adair

Nofsinger



Mc
Graw
Hill
Education

fourth edition



The McGraw-Hill/Irwin Series in Finance, Insurance and Real Estate

Stephen A. Ross, Franco Modigliani Professor of Finance and Economics
Sloan School of Management Massachusetts Institute of Technology, Consulting Editor

FINANCIAL MANAGEMENT

Block, Hirt, and Danielsen
Foundations of Financial Management
Sixteenth Edition

Brealey, Myers, and Allen
Principles of Corporate Finance
Twelfth Edition

Brealey, Myers, and Allen
Principles of Corporate Finance, Concise
Second Edition

Brealey, Myers, and Marcus
Fundamentals of Corporate Finance
Ninth Edition

Brooks
FinGame Online 5.0

Bruner
Case Studies in Finance: Managing for Corporate Value Creation
Eighth Edition

Cornett, Adair, and Nofsinger
Finance: Applications and Theory
Fourth Edition

Cornett, Adair, and Nofsinger
M: Finance
Third Edition

DeMello
Cases in Finance
Third Edition

Grinblatt (editor)
**Stephen A. Ross, Mentor:
Influence through Generations**

Grinblatt and Titman
Financial Markets and Corporate Strategy
Second Edition

Higgins
Analysis for Financial Management
Eleventh Edition

Ross, Westerfield, Jaffe, and Jordan
Corporate Finance
Eleventh Edition

Ross, Westerfield, Jaffe, and Jordan
Corporate Finance: Core Principles and Applications
Fifth Edition

Ross, Westerfield, and Jordan
Essentials of Corporate Finance
Ninth Edition

Ross, Westerfield, and Jordan
Fundamentals of Corporate Finance
Eleventh Edition

Shefrin
Behavioral Corporate Finance: Concepts and Cases for Teaching Behavioral Finance
Second Edition

INVESTMENTS

Bodie, Kane, and Marcus
Essentials of Investments
Tenth Edition

Bodie, Kane, and Marcus
Investments
Tenth Edition

Hirt and Block
Fundamentals of Investment Management
Tenth Edition

Hirschev and Nofsinger
Investments: Analysis and Behavior
Second Edition

Jordan, Miller, and Dolvin
Fundamentals of Investments: Valuation and Management
Eighth Edition

Stewart, Piroos, and Heisler
Running Money: Professional Portfolio Management
First Edition

Sundaram and Das
Derivatives: Principles and Practice
Second Edition

FINANCIAL INSTITUTIONS AND MARKETS

Rose and Hudgins
Bank Management and Financial Services
Ninth Edition

Rose and Marquis
Financial Institutions and Markets
Eleventh Edition

Saunders and Cornett
Financial Institutions Management: A Risk Management Approach
Ninth Edition

Saunders and Cornett
Financial Markets and Institutions
Sixth Edition

INTERNATIONAL FINANCE

Eun and Resnick
International Financial Management
Eighth Edition

REAL ESTATE

Brueggeman and Fisher
Real Estate Finance and Investments
Fifteenth Edition

Ling and Archer
Real Estate Principles: A Value Approach
Fifth Edition

FINANCIAL PLANNING AND INSURANCE

Allen, Melone, Rosenbloom, and Mahoney
Retirement Plans: 401(k)s, IRAs, and Other Deferred Compensation Approaches
Eleventh Edition

Altfest
Personal Financial Planning
Second Edition

Harrington and Niehaus
Risk Management and Insurance
Second Edition

Kapoor, Dlabay, and Hughes
Focus on Personal Finance: An Active Approach to Help You Develop Successful Financial Skills
Fifth Edition

Kapoor, Dlabay, and Hughes
Personal Finance
Twelve Edition

Walker and Walker
Personal Finance: Building Your Future
Second Edition



finance

applications & theory

fourth edition

Marcia Millon Cornett

Bentley University

Troy A. Adair Jr.

Harvard Business School

John Nofsinger

University of Alaska Anchorage



FINANCE: APPLICATIONS & THEORY, FOURTH EDITION

Published by McGraw-Hill Education, 2 Penn Plaza, New York, NY 10121. Copyright © 2018 by McGraw-Hill Education. All rights reserved. Printed in the United States of America. Previous editions © 2015, 2012 and 2009. No part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written consent of McGraw-Hill Education, including, but not limited to, in any network or other electronic storage or transmission, or broadcast for distance learning.

Some ancillaries, including electronic and print components, may not be available to customers outside the United States.

This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 LWI 21 20 19 18 17

ISBN 978-1-259-69141-6

MHID 1-259-69141-1

Senior Vice President, Products & Markets: <i>Scott Virkler</i>	Director, Content Design & Delivery: <i>Linda Avenarius</i>
Vice President, General Manager, Products & Markets: <i>Marty Lange</i>	Program Manager: <i>Mark Christianson</i>
Vice President, Content Production & Technology Services: <i>Betsy Whalen</i>	Content Project Managers: <i>Harvey Yep (Core) / Bruce Gin (Assessment)</i>
Managing Director: <i>Tim Vertovec</i>	Buyer: <i>Jennifer Pickel</i>
Executive Brand Manager: <i>Chuck Synovec</i>	Design: <i>Matt Backhaus</i>
Lead Product Developer: <i>Michele Janicek</i>	Content Licensing Specialists: <i>Ann Marie Jannette (Image) / Beth Thole (Text)</i>
Director, Product Development: <i>Rose Koos</i>	Cover Image: ©maxuser/Getty Images
Director of Digital Content: <i>Douglas Ruby</i>	Typeface: <i>10.5/13 Palladio</i>
Senior Product Developer: <i>Noelle Bathurst</i>	Compositor: <i>SPi Global</i>
Digital Product Developer: <i>Tobi Philips</i>	Printer: <i>LSC Communications</i>
Senior Marketing Manager: <i>Trina Maurer</i>	

All credits appearing on page or at the end of the book are considered to be an extension of the copyright page.

Library of Congress Cataloging-in-Publication Data

Names: Cornett, Marcia Millon, author. | Adair, Troy A. (Troy Alton), 1964- author. | Nofsinger, John R., author.

Title: Finance : applications & theory / Marcia Millon Cornett, Bentley University, Troy A. Adair Jr., Harvard Business School, John Nofsinger, University of Alaska Anchorage.

Description: Fourth edition. | New York, NY : McGraw-Hill Education, [2018]

Identifiers: LCCN 2016042229 | ISBN 9781259691416 (alk. paper)

Subjects: LCSH: Finance.

Classification: LCC HG173 .C679 2018 | DDC 332—dc23 LC record available at <https://lccn.loc.gov/2016042229>

The Internet addresses listed in the text were accurate at the time of publication. The inclusion of a website does not indicate an endorsement by the authors or McGraw-Hill Education, and McGraw-Hill Education does not guarantee the accuracy of the information presented at these sites.

dedicated

to my parents, Tom and Sue—Marcia Millon Cornett

to Kieran, the love of my life—Troy A. Adair Jr.

to Anna, my wife and best friend—John Nofsinger

about the authors



Marcia Millon Cornett *Robert A. and Julia E. Dorn Professor of Finance at Bentley University.* She received her B.S. degree in economics from Knox College in Galesburg, Illinois, and her M.B.A. and Ph.D. degrees in finance from Indiana University in Bloomington, Indiana. Dr. Cornett has written and published several articles in the areas of bank performance, bank regulation, corporate finance, and investments. Articles authored by Dr. Cornett have appeared in such academic journals as the *Journal of Finance*; the *Journal of Money, Credit, and Banking*; the *Journal of Financial Economics*; *Financial Management*; and the *Journal of Banking and Finance*. She was recently ranked the 124th most published out of more than 17,600 authors and the number five female author in finance literature over the last 50 years. Along with Anthony Saunders, Dr. Cornett has recently completed work on the ninth edition of *Financial Institutions Management* (McGraw-Hill Education) and the sixth edition of *Financial Markets and Institutions* (McGraw-Hill Education). Professor Cornett serves as an associate editor for the *Journal of Banking and Finance*, the *Journal of Financial Services Research*, *Review of Financial Economics*, *Financial Review*, and *Multinational Finance Journal*. Dr. Cornett has served as a member of the board of directors, the executive committee, and the finance committee of the SIU Credit Union. Dr. Cornett has also taught at Southern Illinois University at Carbondale, the University of Colorado, Boston College, and Southern Methodist University. She is a member of the Financial Management Association, the American Finance Association, and the Western Finance Association.



Troy Alton Adair Jr. *Senior Director, Research Computing Services at Harvard Business School.* He received his BS degree in computers/information science from the University of Alabama at Birmingham, his MBA from the University of North Dakota, and his PhD in finance from Indiana University. Dr. Adair manages research computing infrastructure and support services for Harvard Business School and has written articles on bank regulator self-interest, analyst earnings per share forecasting, and capital budgeting in continuous time. He is the author of *Corporate Finance Demystified*, *Excel Applications in Corporate Finance*, and *Excel Applications in Investments* (all McGraw-Hill Education). He has also served as a consultant on financial data information systems and business intelligence to a number of international banks and insurance companies and as the faculty representative to the board of trustees investments committee at Alma College. Dr. Adair has also taught at the University of Michigan, Alma College, Hofstra University, Indiana University, and the University of North Carolina at Chapel Hill. He is a member of the Financial Management Association, the American Finance Association, and the Southern Finance Association.

John Nofsinger *Professor and William H. Seward Endowed Chair of International Finance at the University of Alaska Anchorage.* He earned his BS degree in electrical engineering from Washington State University, his MBA degree from Chapman University, and his PhD degree in finance from Washington State University. Dr. Nofsinger has written over 50 articles in the areas of investments, corporate finance, and behavioral finance. These papers have appeared in the scholarly journals *Journal of Finance*, *Journal of Business*, *Journal of Financial and Quantitative Analysis*, *Financial Management*, *Journal of Corporate Finance*, *Journal of Banking and Finance*, and *Journal of Behavioral Decision Making*, among others. Dr. Nofsinger has also authored (or coauthored) ten trade books, scholarly books, and textbooks that have been translated into eleven different languages. The most prominent of these books is the industry book, *The Psychology of Investing*. Dr. Nofsinger is a leading expert in behavioral finance and is a frequent speaker on this topic at industry conferences, universities, and academic conferences. He is frequently quoted or appears in the financial media, including *The Wall Street Journal*, *Financial Times*, *Fortune*, *Bloomberg Business Week*, *Smart Money*, *The Washington Post*, and *CNBC*, and other media from *The Dolans* to *The Street.com*.



a note from the authors

“There is a lot to cover in this course so I focus on the core concepts, theories, and problems.”

“I like to teach the course by using examples from their own individual lives.”

“My students come into this course with varying levels of math skills.”

How many of these quotes might you have said while teaching the undergraduate corporate finance course? Our many years of teaching certainly reflect such sentiments, and as we prepared to write this book, we conducted many market research studies that confirm just how much these statements—or ones similar—are common across the country. This critical course covers so many crucial topics that instructors need to focus on core ideas to ensure that students are getting the preparation they need for future classes—and for their lives beyond college.

We did not set out to write this book to change the way finance is taught, but rather to parallel and support the way that instructors from across the country currently teach finance. Well over 600 instructors teaching this course have shared their class experiences and ideas via a variety of research methods that we used to develop the framework for this text. We are excited to have authored a book that we think you will find fits your classroom style perfectly.

KEY THEMES

This book’s framework emphasizes three themes. See the next section in this preface for a description of features in our book that support these themes.

- **Finance is about connecting core concepts.** We all struggle with fitting so many topics into this course, so this text strives to make it easier for you by getting back to the core concepts, key research, and current topics. We realize that today’s students expect to learn more in class from lectures than in closely studying their textbooks, so we’ve created brief chapters that clearly lead students to crucial material that they need to review if they are to understand how to approach core financial concepts. The text is also organized around learning goals, making it easier for you to prep your course and for students to study the right topics.
- **Finance can be taught using a personal perspective.** Most long-term finance instructors have often heard students ask “How is this course relevant to me?” on the first day of class. We no longer teach classes dedicated solely to finance majors; many of us now must teach the first finance course to a mix of business majors. We need to give finance majors the rigor they need while not overwhelming class members from other majors. For years, instructors have used individual examples to help teach these concepts, but this is the first text to integrate this personal way of teaching into the chapters.
- **Finance focuses on solving problems and decision making.** This isn’t to say that concepts and theories aren’t important, but students will typically need to solve some kind of mathematical problem—or at least understand the impact of different

numerical scenarios—to make the right decision on common finance issues. If you, as an instructor, either assign problems for homework or create exams made up almost entirely of mathematical material, you understand the need for good problems (and plenty of them). You also understand from experience the number of office hours you spend tutoring students and grading homework. Students have different learning styles, and this text aims to address that challenge to allow you more time in class to get through the critical topics.

CHANGES IN THE FOURTH EDITION

Based on feedback from users and reviewers, we undertook an ambitious revision in order to make the book follow your teaching strategy even more closely. Below are the changes we made for this fourth edition, broken out by chapter.

Overall

- Simplified figures where appropriate and added captions to emphasize the main “takeaways”
- Updated data, company names, and scenarios to reflect latest available data and real-world changes
- Cross-referenced numbered examples with similar end-of-chapter problems and self-test problems so students can easily model their homework
- Updated the numbers in the end-of-chapter problems to provide variety and limit the transfer of answers from previous classes

Chapter 1: Introduction to Financial Management

- Updated the Personal Application with information on firms that have filed for bankruptcy more recently
- Changed Learning Goal 1-9 to address the ramifications of China’s slowdown and the drop in the price of oil
- Revised the Finance at Work—Markets box to discuss quantitative easing in the United States and around the world
- Revised the Finance at Work—Corporate box to cover the proposed merger of AB InBev and SABMiller
- Updated the data in Example 1-2 on executive compensation
- Replaced Section 1.7 on the financial crisis with a new Section 1.7: Big Picture Environment, including discussions of the ramifications of plummeting oil prices and China’s economic slowdown
- Revised the Research It! exercise to address environment, society, and governance
- Changed the Mini-Case problem to cover Volkswagen’s emission test cheating

Chapter 2: Reviewing Financial Statements

- Added a discussion of difference between EBIT and operating income
- Included extended definitions of net sales, cost of goods sold, and operating expenses
- Added a discussion of the interpretation of a cash-based income statement
- Added a new Finance at Work box
- Added an Excel solution for the Integrated Mini-Case

Chapter 3: Analyzing Financial Statements

- Added more discussion of debt ratios
- Added an Excel solution for the Integrated Mini-Case

Chapter 4: Time Value of Money 1: Analyzing Single Cash Flows

- Updated the data in Figure 4.5 on gold prices
- Added equation functions to Table 4.2 and Table 4.4
- Updated the gold return data in the Mini-Case
- Revised the data for the end-of-chapter Excel problem
- Added a new end-of-chapter Excel problem

Chapter 5: Time Value of Money 2: Analyzing Annuity Cash Flows

- Revised the chapter introduction to discuss Boeing
- Added equation functions to Tables 5.1, 5.2, 5.5, and 5.6
- Updated the present value of multiple annuities example to discuss the new David Price contract with the Boston Red Sox
- Changed the Finance at Work—Behavioral box to address the record Powerball jackpot of \$1.5 billion on January 12, 2016
- Added a new end-of-chapter Excel problem

Chapter 6: Understanding Financial Markets and Institutions

- Updated all figures, tables, and values in the body of the chapter
- Added a section on the loanable funds theory/determination of equilibrium interest rates
- Added new end-of-chapter problems
- Decreased the coverage of the financial crisis (detailed information is available in the Web Appendix for Chapter 6 available in Connect or at mhhe.com/Cornett4e)
- Added an Excel solution for the Integrated Mini-Case

Chapter 7: Valuing Bonds

- Updated the Personal Application with new data
- Updated Figures 7.1–7.5 on bond issuance, interest rate path, yield to maturities, new bond quotes, and a summary of the bond market
- Added equation functions to Tables 7.3 and 7.5
- Revised the data for the end-of-chapter Excel problem
- Added a new end-of-chapter Excel problem

Chapter 8: Valuing Stocks

- Updated all table and figure values in the body of the chapter
- Updated the coverage of the stock market exchange in Section 8.2 to discuss the changes that have occurred in the NYSE and elsewhere
- Revised Example 8-1 to include new Coca-Cola data
- Updated Example 8-4 with new P/E data for Caterpillar
- Updated the data in the Mini-Case problem
- Added a new end-of-chapter Excel problem

Chapter 9: Characterizing Risk and Return

- Revised the example that runs throughout the chapter to discuss Staples
- Updated all table and figure values in the body of the chapter
- Added equation functions to Table 9.3 and Table 9.5
- Updated Example 9-2 to include new Mattel data
- Updated the data in the Finance at Work—Markets box
- Revised the data for the end-of-chapter Excel problem
- Added a new end-of-chapter Excel problem
- Updated the data in the Mini-Case problem

Chapter 10: Estimating Risk and Return

- Updated values and data in Tables 10.1–10.4
- Changed the Mini-Case to cover finding Disney’s beta
- Added a new end-of-chapter Excel problem

Chapter 11: Calculating the Cost of Capital

- Clarified and expanded the discussion of use of market values versus book values in the calculation of WACC
- Expanded the discussion of when to use CAPM versus the constant-growth model when estimating the cost of equity
- Expanded the discussion of computation of marginal tax rate for WACC
- Enhanced the discussion of use of firm versus project WACCs
- Enhanced the discussion of appropriateness of divisional WACCs

Chapter 12: Estimating Cash Flows on Capital Budgeting Projects

- Clarified the definition of salvage value
- Expanded the discussion of substitutionary and complementary effects
- Enhanced the discussion of income tax shield from a project having taxable losses
- Enhanced the discussion of NWC changes “leading” changes in sales
- Expanded the discussion of the half-year convention in depreciation

Chapter 13: Weighing Net Present Value and Other Capital Budgeting Criteria

- Clarified the discussion of the goal of capital budgeting decision rules and the differing environments of investment and capital budgeting decisions
- Expanded the discussion of why using rate-based and time-based decision statistics to choose across projects can be misleading with regards to NPV

Chapter 14: Working Capital Management and Policies

- Expanded the discussion of the rationale for NWC and the tradeoffs inherent in having too little or too much
- Refined discussion of cash flows vs. the cash account

Chapter 15: Financial Planning and Forecasting

- Clarified the discussion of deseasonalizing sales

Chapter 16: Assessing Long-Term Debt, Equity, and Capital Structure

- Refined the discussion of active versus passive capital structure changes
- Expanded the discussion of effects of no-taxation and no-bankruptcy assumptions of M&M's "perfect world" on optimal choice of capital structure
- Expanded the discussion of the effects of financial distress on capital structure choices

Chapter 17: Sharing Firm Wealth: Dividends, Share Repurchases, and Other Payouts

- Expanded the discussion of information effect on dividend policy
- Updated the example of real-world dividend policies

Chapter 18: Issuing Capital and the Investment Banking Process

- Updated all figures, tables, and values in the body of the chapter
- Added additional coverage of small business lending
- Added an Excel solution for the Mini-Case

Chapter 19: International Corporate Finance

- Revised the chapter introduction to include new data about Starbucks
- Updated all table and figure values and data in the body of the chapter
- Updated Example 9-1 to include new exchange rate data
- Revised the Mini-Case with new exchange rate data
- Revised the data for the end-of-chapter Excel problem

Chapter 20: Mergers and Acquisitions and Financial Distress

- Added Herfindahl-Hirschman Index (HHI)
- Increased discussion of debtor in possession and cramdown
- New Finance at Work box on American Airline bankruptcy
- Added M&A calculation in Excel format
- Added new end-of-chapter problems

Unique Features

CONNECTING CORE CONCEPTS

Learning Goals appear at the beginning of each chapter and are indicated throughout the text next to headings, examples, summary, and end-of-chapter problems to which they relate. These outcomes help instructors structure their classes and assign readings and homework. The accompanying test bank provides instructors with hundreds of questions organized by level and learning goals to make customization even easier!

Learning Goals

LG5-1	Compound multiple cash flows to the future.	LG5-7	Explain the impact of compound frequency and the difference between the annual percentage rate and the effective annual rate.
LG5-2	Compute the future value of frequent, level cash flows.	LG5-8	Compute the interest rate of annuity payments.
LG5-3	Discount multiple cash flows to the present.	LG5-9	Compute payments and amortization schedules for car and mortgage loans.
LG5-4	Compute the present value of an annuity.	LG5-10	Calculate the number of payments on a loan.
LG5-5	Figure cash flows and present value of a perpetuity.		
LG5-6	Adjust values for beginning-of-period annuity payments.		

finance at work

markets

JP MORGAN'S \$2 BILLION BLUNDER

JP Morgan Chase & Co. is reeling after a huge trading bet backfired and left the bank with at least \$2 billion in losses from the bad trade. This may be the end of chief executive James Dimon's run as the so-called "King of Wall Street." The bank's Chief Investment Office (CIO), responsible for managing the New York company's risk, placed a series of risky bets and trades. In an article published last month, *The Wall Street Journal* reported that "large positions taken in that office by a trader nicknamed 'the London whale' had rolled a sector of the debt markets. The bank, betting on a continued economic recovery with a complex web of trades tied to the values of corporate bonds, was hit hard when prices moved against it starting last month, causing losses in many of its derivatives positions. The losses occurred while J.P. Morgan tried to scale back that trade."

In April of 2012, *The Wall Street Journal* reported that investors and hedge funds were trying to take advantage of trades made by Chase's London whale, Bruno Iksil, who worked out of the CIO, by making bets in the market on credit default swaps (CDSs). The CIO group previously had stopgaps in place to protect and prevent the company from significant losses during periods of downturn in the economy. However, the *Journal* reports that earlier in 2012, "it began reducing that position, [taking] a bullish stance on the financial health of certain companies and selling protection that would compensate buyers if those companies defaulted on debts. Mr. Iksil was a heavy seller of CDS contracts tied to a

basket, or index, of companies." In April of 2012, these protection costs began to go up, which further contributed to the bank's losses.

According to JP Morgan Chase company filings, Mr. Iksil's group had approximately \$350 billion in investment securities, about 15% of the bank's total assets, on December 31, 2011. Mr. Dimon said the bank has an extensive review under way of what went wrong. "These were grievous mistakes, they were self-inflicted, we were accountable and we happened to violate our own standards and principles by how we want to operate the company. This is not how we want to run a business."

Mr. Dimon held a conference call with investors and analysts on May 10, stating, "In hindsight, the . . . strategy was flawed, complex, poorly reviewed, poorly executed, and poorly monitored. The portfolio has proven to be riskier, more volatile and less effective . . . than we thought." Dimon resolves, "We will learn from it, we will fix it, we will move on, hopefully in the end, it will make us a better company." Though JP Morgan Chase came through the financial crisis better off than many other financial institutions, this trading loss certainly tarnishes their reputation. Mr. Dimon reports that the loss is "slightly more than \$2 billion" in the second quarter of this year.

Sources: Dan Fitzpatrick, Gregory Zuckerman, and Liz Rappaport, "J.P. Morgan's \$2 Billion Blunder," *The Wall Street Journal Online*, May 11, 2012. JP Morgan Chase & Co. Business Update Call, May 10, 2012.

Want to Know More?

Key Words to Search for Updates: JPMorgan, London whale, derivative trading losses

Finance at Work boxes highlight current events and hot topics noted in the news. The *Want to Know More?* feature in each box contains suggested words to use for searching the Internet for updates. These features are great to use for class discussion or as homework assignments.

Time Out boxes, featured at the end of sections, test students' understanding of the key terms and core concepts just presented. Answers to the Time Out questions appear at the end of each chapter.

TIME OUT

- 3-1 What are the three major liquidity ratios used in evaluating financial statements?
- 3-2 How do the three major liquidity ratios used in evaluating financial statements differ?
- 3-3 Does a firm generally want to have high or low liquidity ratios? Why?

ANSWERS TO TIME OUT

- 3-1 The three most commonly used liquidity ratios are the current ratio, the quick (or acid-test) ratio, and the cash ratio.
- 3-2 The current ratio measures the dollars of current assets available to pay each dollar of current liabilities. The quick ratio measures the dollars of more liquid assets (cash and marketable securities and accounts receivable) available to pay each dollar of current liabilities. The cash ratio measures the dollars of cash and marketable securities available to pay each dollar of current liabilities.

Research It! projects, perfect for individual assignments or as group projects, are included at the end of each chapter and require students to search the Web for data and other information to answer the questions.

research it! Analyzing Financial Statements

Go to the website of Wal-Mart Stores, Inc., at www.walmartstores.com and get the latest financial statements from the annual report using the following steps.

Click on "Investors." Click on "Annual Reports." Click on the most recent date. This will bring the file onto your computer that contains the relevant data.

Using the most recent balance sheet and income statement, calculate the financial ratios for the firm, including the internal and sustainable growth rates.

PERSONAL PERSPECTIVE



viewpoints

Business Application

The managers of DPH Tree Farm, Inc., have released public statements that the firm's performance surpasses that of other firms in the industry. They cite the firm's liquidity and asset management positions as particularly strong. DPH's superior performance in these areas has resulted in superior overall returns for their stockholders. What are the key financial ratios that DPH Tree Farm, Inc., needs to calculate and evaluate in order to justify these statements? (See the solution at the end of the chapter.)

Personal Application

Chris Ryan is looking to invest in DPH Tree Farm, Inc. Chris has the most recent set of financial statements from DPH Tree Farm's annual report but is not sure how to evaluate them or measure the firm's performance relative to other firms in the industry. What are the financial ratios with which Chris should measure the performance of DPH Tree Farm, Inc.? How can Chris use these ratios to evaluate the firm's performance? (See the solution at the end of the chapter.)

Viewpoints, a unique feature presented at the beginning of each chapter, pose both a business and a personal problem using key chapter topics. These Viewpoints scenarios immediately set a context for the chapter and allow instructors to take class discussion in multiple directions to make key concepts clearer. **Viewpoints Revisited** at the end of the chapter show how these problems are solved. **Viewpoints Extended** leverage a variety of media to provide an extended look at each personal application raised. These are accessible online in Connect or at mhhe.com/Cornett4e.

PROBLEM-SOLVING AND LEARNING STYLES

Numbered examples in each chapter feature various perspectives, so students gain practice in solving problems in both business and individual contexts. Each example contains a list of end-of-chapter problems that are similar, in order to better model the solution process.

LG4-3 **EXAMPLE 4-1**

Graduation Celebration Loan

Dominic is a fourth-year business student who wants to go on a graduation celebration/vacation in Mexico but he has no money to pay for the trip. After the vacation, Dominic will start his career. His job will require moving to a new town and buying professional clothes. He asked his parents to lend him \$1,500, which he figures he will be able to pay back in three years. His parents agree to lend him the money, but they will charge 7 percent interest per year. What amount will Dominic need to pay back? How much interest will he pay? How much of what he pays is interest-on-interest?

SOLUTION: Dominic will have to pay:

$$FV_3 = \$1,500 \times (1.07)^3 = \$1,500 \times 1.225 = \$1,837.56$$

Of the \$1,837.56 he owes his parents, \$337.56 (= \$1,837.56 - \$1,500) is interest. We can illustrate this time-value problem in the following time line.

Period	0	1	2	3 years
Cash flow	PV = 1,500	7%	7%	FV = -1,837.56

Compare this compound interest with simple interest. Simple interest would be 7 percent of \$1,500 (which is \$105) per year. The three-year cost would then be \$315 (= 3 × \$105). The difference between the compound interest of \$337.56 and the total simple interest of \$315 is the interest-on-interest of \$22.56.

Similar to Problems 4-3, 4-4, 4-5, 4-6, 4-21, 4-22, 4-33, 4-34, Self-Test Problem 1

CALCULATOR HINTS

N = 3
I = 7
PV = 1500
FMT = 0
CPT FV = -1837.56

For interactive versions of this example, log in to Connect or go to mhhe.com/cornett4e.

Each numbered example is accompanied by **video guided examples**. These exciting, unique features detail the solution to a key problem or concept within the chapter. For each example, students can click or tap within the eBook or follow the direct URL to find the following additional support.

- The exact example in the book is worked out in a visual, narrated format.
- A similar example is presented in a video format, which stops at decision points in the problem and asks the students to identify the next step. The video continues, explaining why the student is correct or incorrect, and continues solving the problem. This feature allows students to apply and check their learning before doing homework.
- The solution to the example in the book is demonstrated using multiple calculator formats—reducing the class time needed to teach students how to use their calculators.
- The solution to the example in the book is demonstrated using Excel, to help you and your students get a basic understanding of how to set up the spreadsheets.

Coefficient of Variation

$ColV_{1960s} = \frac{4.9\%}{0.0\%} = NA$	$ColV_{1960s} = \frac{6.2\%}{1.6\%} = 3.88$
$ColV_{1970s} = \frac{6.8\%}{5.7\%} = 1.19$	$ColV_{1980s} = \frac{15.1\%}{13.5\%} = 1.12$
$ColV_{1990s} = \frac{12.8\%}{9.5\%} = 1.35$	$ColV_{2000s} = \frac{6.7\%}{8.7\%} = 0.77$

Which decade had the best bond risk-return relationship?

A. 1950s

B. 1960s

C. 1970s

D. 1980s

E. 1990s

F. 2000s

Future Value of Multiple Annuities

At times, multiple annuities can occur in both business and personal life. For example, you may find that you can increase the amount of money you save each year because of a promotion or a new and better job. As an illustration, reconsider the annual \$100 deposits made for five years at 8 percent per year. This time, the deposit can be increased to \$150 for the fourth and fifth years. How can we use the annuity equation to compute the future value when we have two levels of cash flows? In this case, the cash flow can be categorized as two annuities. The first annuity is a \$100 cash flow for five years. The second annuity is a \$50 cash flow for two years. We demonstrate this as

MATH COACH

ANNUITIES AND THE FINANCIAL CALCULATOR

In the previous chapter, the level payment button (PMT) in the financial calculator was always set to zero because no constant payments were made every period. We use the PMT button to input the annuity amount. For calculators, the present value is of the opposite sign (positive versus negative) from the future value. This is also the case with annuities. The level cash flow will be of the opposite sign as the future value, as the time line on page 143 shows.

You would use the financial calculator to solve the problem of depositing \$100 for five years via the following inputs: N = 5, I = 8, PV = 0, PMT = -100. In this case, the input for present value is zero because no deposit is made today. The result of computing the future value is \$86.66.

Math Coach boxes are featured in many chapters to help avoid the most common mathematical mistakes in a particular problem.

self-test problems with solutions

1 Future Value and Annuity Payments Chandler and Monica are trying to decide if they will have enough money to retire early in 12 years, at age 60. Their current assets are \$300,000 in retirement plans and they have \$100,000 in other investments. Together, they contribute \$28,000 per year to their retirement plans and another \$6,000 to other investments. If their assets grow at 8 percent per year, how much money will they have when they turn 60? After they retire, they will invest their wealth more conservatively and it will earn 5 percent per year. Is this enough to fund a \$100,000 per year retirement for 40 years?

LG5-2, 5-9

Solution:
Chandler and Monica's current assets of \$400,000 will grow to \$1,007,268 (= \$400,000 × 1.08¹²) in 12 years. Their annuity contributions of \$34,000 (= \$28,000 + \$6,000) will add another

Self-Test Problems with Solutions appear before the gradable problem sets so students can test themselves before diving into their homework.

Integrated Mini-Cases at the end of each chapter combine the chapter's key concepts into a more complex problem to help students understand how concepts and methods tie together.

integrated mini-case Working with Financial Statements

Listed are the 2018 financial statements for Garners' Platoon Mental Health Care, Inc. Spread the balance sheet and income statement. Calculate the financial ratios for the firm, including the internal and sustainable growth rates. Using the DuPont system of analysis and the industry ratios reported, evaluate the performance of the firm.

GARNERS' PLATOON MENTAL HEALTH CARE, INC.			
Balance Sheet as of December 31, 2018			
(in millions of dollars)			
Assets	Liabilities and Equity		
Current assets	Current liabilities		
Cash and marketable securities	\$ 421	Accrued wages and taxes	\$ 316
Accounts receivable	1,109	Accounts payable	867
Inventory	1,760	Notes payable	872
Total	\$ 3,290	Total	\$ 2,055
Fixed assets	Long-term debt		
Gross plant and equipment	\$ 5,812	Stockholders' equity	\$ 3,090
Less: Depreciation	840	Preferred stock (30 million shares)	\$ 60
Net plant and equipment	\$ 4,972	Common stock and paid-in surplus (200 million shares)	637
Other long-term assets	892	Retained earnings	3,312
Total	\$ 5,864	Total	\$ 4,009
Total assets	\$ 9,154	Total liabilities and equity	\$ 9,154

Supplements

INSTRUCTOR LIBRARY

A wealth of information is available online through McGraw-Hill's *Connect*. In the *Connect* Instructor Library, you will have access to supplementary materials specifically created for this text, such as:

- **Test Bank** Revised by Peggy Ward, Wichita State University, and reviewed by Susan He, Washington State University, the test bank contains hundreds of questions that complement the material presented in the book. The Test Bank is tagged by level of difficulty, learning goal, AACSB knowledge categories, and Bloom's taxonomy—making it easy for instructors to customize exams to reflect the material stressed in class. The test bank is available in Word files and tests can also be created in McGraw-Hill's *Connect* or through TestGen.

TestGen is a complete, state-of-the-art test generator and editing application software that allows instructors to quickly and easily select test items from McGraw-Hill's test bank content. The instructors can then organize, edit, and customize questions and answers to rapidly generate tests for paper or online administration. Questions can include stylized text, symbols, graphics, and equations that are inserted directly into questions using built-in mathematical templates. TestGen's random generator provides the option to display different text or calculated number values each time questions are used. With both quick-and-simple test creation and flexible and robust editing tools, TestGen is a complete test generator system for today's educators..

- **Solutions Manual** Developed by authors Marcia Cornett, Troy Adair, and John Nofsinger, this resource contains the worked-out solutions to all the end-of-chapter problems, in the consistent voice and method of the book. The solutions have been class-tested and checked by multiple instructors to ensure accuracy.
- **PowerPoint Presentations** The PowerPoint presentations have been carefully updated for the fourth edition by Jennifer McCune, Western Iowa Tech Community College. These slides contain lecture notes, which closely follow the book content, enhanced with the tables and figures from the chapters. Several chapters are also supplemented with additional presentations that contain notes and examples using financial calculators. Instructors can easily customize these slides to suit their classroom needs and various presentation styles.

ASSURANCE OF LEARNING

Many educational institutions today are focused on the notion of assurance of learning, an important element of some accreditation standards. *Finance: Applications and Theory* is designed specifically to support your assurance of learning initiatives with a simple, yet powerful, solution.

Each test bank and end-of-chapter question for *Finance: Applications and Theory* maps to a specific chapter learning goal listed in the text. You can use the test bank software to easily query for learning goals that directly relate to the learning objectives for your course. You can then use the reporting features of the software to aggregate student results in similar fashion, making the collection and presentation of assurance of learning data simple and easy.

AACSB STATEMENT

McGraw-Hill Education is a proud corporate member of AACSB International. Understanding the importance and value of AACSB accreditation, *Finance: Applications and Theory*, has sought to recognize the curricula guidelines detailed in the AACSB standards for business accreditation by connecting selected questions in the test bank to the general knowledge and skill guidelines found in the AACSB standards.

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

STUDENT STUDY CENTER

In Connect, students will receive access to all of their assignments, the eBook, and McGraw-Hill's adaptive study tools in LearnSmart and SmartBook. The *Connect* Student Study Center is the place for students to access additional resources. Students will have access to study materials specifically created for this text, such as:

- **Guided Examples** Each numbered example featured within the book has a series of five different tutorials that accompany it: a narrated example, a related example with interactive solutions and decision points that need to be made by the student, an example using the BA II Plus calculator, another example using the TI-83 calculator, and an example using Excel.
- **Viewpoints Extended** Each chapter features an extended analysis of the Viewpoints feature from the beginning of that chapter.
- **Online Appendixes** Students will have easy access to the additional materials presented in the appendixes to Chapters 2 and 6.

Instructors have access to all the material that students can view but will also have password-protected access to the teaching support materials.

MCGRAW-HILL CUSTOMER CARE CONTACT INFORMATION

At McGraw-Hill, we understand that getting the most from new technology can be challenging. That's why our services don't stop after you purchase our products. You can e-mail our Product Specialists 24 hours a day to get product training online. Or you can search our knowledge bank of Frequently Asked Questions on our support website.

For Customer Support, call **800-331-5094** or visit www.mhhe.com/support. One of our Technical Support Analysts will be able to assist you in a timely fashion.



©Getty Images/iStockphoto

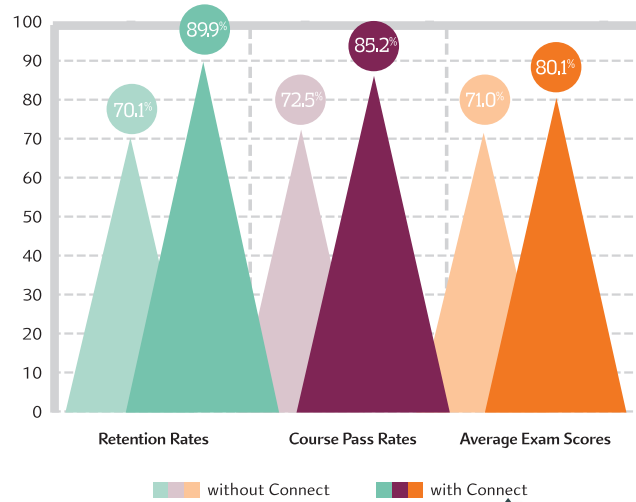
McGraw-Hill Connect® Learn Without Limits

Connect is a teaching and learning platform that is proven to deliver better results for students and instructors.

Connect empowers students by continually adapting to deliver precisely what they need, when they need it, and how they need it, so your class time is more engaging and effective.

73% of instructors who use **Connect** require it; instructor satisfaction increases by 28% when **Connect** is required.

Connect's Impact on Retention Rates, Pass Rates, and Average Exam Scores



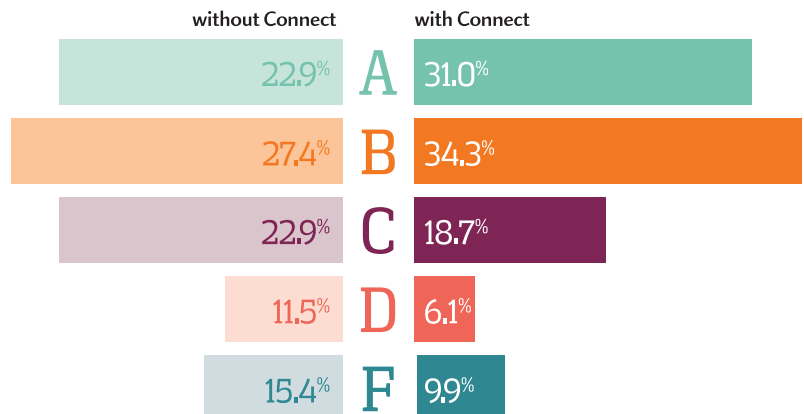
Using **Connect** improves retention rates by **19.8%**, passing rates by **12.7%**, and exam scores by **9.1%**.

Analytics

Connect Insight®

Connect Insight is Connect's new one-of-a-kind visual analytics dashboard that provides at-a-glance information regarding student performance, which is immediately actionable. By presenting assignment, assessment, and topical performance results together with a time metric that is easily visible for aggregate or individual results, Connect Insight gives the user the ability to take a just-in-time approach to teaching and learning, which was never before available. Connect Insight presents data that helps instructors improve class performance in a way that is efficient and effective.

Impact on Final Course Grade Distribution



Adaptive



THE ADAPTIVE READING EXPERIENCE DESIGNED TO TRANSFORM THE WAY STUDENTS READ

More students earn **A's** and **B's** when they use McGraw-Hill Education **Adaptive** products.

SmartBook®

Proven to help students improve grades and study more efficiently, SmartBook contains the same content within the print book, but actively tailors that content to the needs of the individual. SmartBook's adaptive technology provides precise, personalized instruction on what the student should do next, guiding the student to master and remember key concepts, targeting gaps in knowledge and offering customized feedback, and driving the student toward comprehension and retention of the subject matter. Available on tablets, SmartBook puts learning at the student's fingertips—anywhere, anytime.

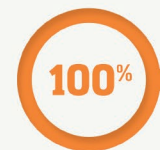
Over **8 billion** questions have been answered, making McGraw-Hill Education products more intelligent, reliable, and precise.

www.mheducation.com

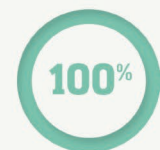
STUDENTS WANT
McGraw Hill Education SMARTBOOK®



of students reported **SmartBook** to be a more effective way of reading material.



of students want to use the Practice Quiz feature available within **SmartBook** to help them study.



of students reported having reliable access to off-campus wifi.



of students say they would purchase **SmartBook** over print alone.



of students reported that **SmartBook** would impact their study skills in a positive way.

Mc
Graw
Hill
Education

*Findings based on 2015 focus group results administered by McGraw-Hill Education

acknowledgments

Development of the first edition of this book series started with a course survey that was completed by 400 instructors across the country. The following is a list of the reviewers that became part of the many review stages, focus groups, and class-testing for the revisions that followed—all of which were invaluable to us during the development of this book.

Rebecca Abraham

Nova Southeastern University

Benjamin Abugri

Southern Connecticut State University

Paul Adams

University of Cincinnati at Cincinnati

Pankaj Aggrawal

University of Maine

Aigbe Akhigbe

University of Akron

Anne Anderson

Lehigh University

Murat Aydogdu

Bryant University

Robert Balik

Western Michigan University

Marvin Ball

East Oregon University

Brian Barczyk

University of Akron

Laura Beal

University of Nebraska, Omaha

Jaelyn Beierlein

East Carolina University

Ronald Benson

University of Maryland University College

Eli Beracha

East Carolina University

Robert Boldin

Indiana University of Pennsylvania

Denis Boureaux

University of Louisiana

David Bourff

Boise State University

Lyle Bowlin

Southeastern University

Walter Boyle

Fayetteville Tech Community College

Joe Bracato

Tarleton State University

Ileana Brooks

Aurora University

Cheryl A. Broyler

Preston University

Celso Brunetti

Johns Hopkins University

Sarah K. Bryant

Shippensburg University

James Buck

East Carolina University

Steven Burris

Kennedy-King College

Steven Byers

Idaho State University

Cynthia Campbell

Iowa State University

Stephen Caples

University of Houston, Clear Lake

Bob Castaneda

Robert Morris University

Su-Jane Chen
Metro State College of
Denver

Samuel Chinnis
Guilford Tech Community
College

Andreas Christofi
Monmouth University

Ting-Heng Chu
East Tennessee State
University, Johnson City

Cetin Ciner
University of North
Carolina, Wilmington

Thomas Coe
Quinnipiac University

Bob Curtis
Biola University

Julie Dahlquist
University of Texas, San
Antonio

Kenneth Daniels
Virginia Commonwealth
University

Maria De Boyrie
Florida International
University, Miami

Natalya Delcours
Sam Houston State
University

James DeLoach
Troy University

Michael Devaney
Southeast Missouri State
University

Anne Drougas
Dominican University

David Dumpe
Kent State University

Alan Eastman
Indiana University of
Pennsylvania

Scott Ehrhorn
Liberty University

Zekeriya Eser
Eastern Kentucky
University

Angelo Esposito
University of North
Florida

Omar Esqueda
Tarleton State University

Joe Farinella
University of North
Carolina, Wilmington

John Farlin
Ohio Dominican
University

John Fay
Santa Clara University

David Fehr
Southern New Hampshire
University

Calvin Fink
Bethune-Cookman
College

Barbara Fischer
Cardinal Stritch
University

Susan Flaherty
Towson University

Frank Flanegin
Robert Morris University

Sharon Garrison
University of Arizona

Victoria Geyfman
Bloomsburg University

Charmaine Glegg
East Carolina University

Cameron Gordon
University of Canberra

Ed Graham
University of North
Carolina, Wilmington

Greg Gregoriou
SUNY, Plattsburgh

Richard Gregory
East Tennessee State
University, Johnson City

Keshav Gupta
Kutztown University

Neeraj Gupta
Elon University

Matthew Haertzen
Northern Arizona
University

Christine Harrington
State University of New
York, Oneonta

James Harriss
Campbell University

Travis Hayes
Chattanooga State
University

Susan He
Washington State
University, Pullman

Heikki Heino
Governors State University

Susan Hendrickson
Robert B. Miller College

Steve Henry
Sam Houston State
University

Rodrigo Hernandez
Radford University

James Howard
University of Maryland

Bharat Jain
Towson University

Joel Jankowski
University of Tampa

Jeff Jewell
Lipscomb University

Domingo Joaquin
Illinois State University

Martin S. St. John
Westmoreland County
Community College

Steve Johnson
University of Northern
Iowa

**Jacqueline Griffith
Jonnard**
Berkeley College

Daniel Jubinski
Saint Joseph's University

Dongmin Ke
Kean University

Jaemin Kim
San Diego State University

Marek Kolar
Trine University

Lynn Kugele
University of Mississippi

Francis E. Laatsch
Bowling Green State
University

Stephen Lacewell
Murray State University

Miranda Lam
Salem State University

Baeyong Lee
Fayetteville State
University

Adam Lei
Midwestern State
University

Fei Leng
University of Washington,
Tacoma

Denise Letterman
Robert Morris University

Ralph Lim
Sacred Heart University

Bing-Xuan Lin
University of Rhode Island

Leng Ling
Georgia College and State
University

Scott W. Lowe
James Madison University

Davinder Malhotra
Philadelphia University

Balasundram Maniam
Sam Houston State
University

Kelly Manley
Gainesville State College

Peter Martino
Johnson & Wales
University

Mario Mastrandrea
Cleveland State
University

Leslie Mathis
University of Memphis

Christine McClatchey
University of Northern Colorado

Jennifer McCune
Western Iowa Tech Community College

Bruce L. McManis
Nicholls State University

Kathleen S. McNichol
LaSalle University

James A. Milanese
University of North Carolina, Greensboro

William Miller
Dallas Baptist University

Banamber Mishra
McNeese State University

Helen Moser
St. Cloud State University

Tarun Mukherjee
University of New Orleans

Elisa Muresan
Long Island University

James Nelson
East Carolina University

Tom C. Nelson
Leeds School of Business

Tom Nelson
University of Colorado, Boulder

Terry Nixon
Miami University of Ohio, Oxford

Vivian Okere
Providence College

Brett Olsen
University of Northern Iowa

Elisabeta Pana
Illinois Wesleyan University

Jeff Parsons
California State University, Fullerton

Robert Pavlik
Elon University

Ivelina Pavlova
University of Houston, Clear Lake

Anil Pawar
San Diego State University

Glenn Pettengill
Grand Valley State University

Ted Pilger
Southern Illinois University, Carbondale

Wendy Pirie
Valparaiso University

Gary E. Porter
John Carroll University

Franklin Potts
Baylor University

Eric Powers
University of South Carolina

Robert Prati
East Carolina University

Lora Reinholz
Marquette University

Nivine Richie
University of North Carolina, Wilmington

Tammy Rogers
University of Central Arkansas

Philip Romero
University of Oregon

Gerald Root
Lake Superior State University

Philip Russel
Philadelphia University

Benito Sanchez
Kean University

Atul Saxena
Georgia Gwinnett College

Victoria Scalise
University of Pittsburgh, Johnstown

Oliver Schnusenberg
University of North Florida

Andrew Spieler
Hofstra University

Jim Sprow
Corban College

Tanja Steigner
Emporia State University

Gikenn L. Stevens
Franklin & Marshall College

Gordon Stringer
University of Colorado, Colorado Springs

Don Stuhlman
Wilmington University

Jennifer O'Sullivan
Hardin-Simmons University

Mike Sullivan
University of Nevada, Las Vegas

Janikan Supanvanji
St. Cloud State University

Arun Tandon
University of South Florida, Lakeland

Heidi Toprac
University of Texas, Austin

Kudret Topyan
Manhattan College

Michael Toyne
Northeastern State University

Bill Trainor
East Tennessee State University, Johnson City

Jack Trifts
Bryant University

Gary Tripp
Southern New Hampshire University

Kuo-Cheng Tseng
California State University, Fresno

James A. Turner
Weber State University

John Upstrom
Loras College

Victor Wakeling
Kennesaw State University

Michael C. Walker
University of Cincinnati

Peggy Ward
Wichita State University

Gwendolyn Webb
Baruch College

Paul Weinstock
Ohio State University

Kyle Wells
University of New Mexico

John B. White
Georgia Southern University

Susan White
University of Maryland

Mela Wyeth
Charleston Southern University

George Young
Liberty University

Nafeesa Yunus
University of Baltimore

Zhong-Guo Zhou
California State University, Northridge

Feifei Zhu
Hawaii Pacific University, Honolulu

Emily Norman Zietz
Middle Tennessee State University

We are also indebted to the talented staff at McGraw-Hill Education for their expertise and guidance, specifically Noelle Bathurst, senior product developer; Chuck Synovec, executive brand manager; Trina Maurer, senior marketing manager; Doug Ruby, director of digital content; Dave O'Donnell, marketing specialist; Harvey Yep and Bruce Gin, content project managers; Kevin Shanahan, assessment product manager; and Tobi Philips, digital product developer. We would also like to thank Blerina Reza, Weicheng Wang, and Hongyan Fang.

We hope you like the outcome of this text. Research and development is always ongoing, and we are interested in your feedback on how this text has worked for you!

Marcia Millon Cornett

Troy A. Adair Jr.

John Nofsinger

brief table of contents

PART ONE: INTRODUCTION 2

- 1** Introduction to Financial Management 2

PART TWO: FINANCIAL STATEMENTS 30

- 2** Reviewing Financial Statements 30
Appendix 2A: Various Formats for Financial Statements (located at www.mhhe.com/Cornett4e)
- 3** Analyzing Financial Statements 72

PART THREE: VALUING OF FUTURE CASH FLOWS 110

- 4** Time Value of Money 1: Analyzing Single Cash Flows 110
- 5** Time Value of Money 2: Analyzing Annuity Cash Flows 140

PART FOUR: VALUING OF BONDS AND STOCKS 178

- 6** Understanding Financial Markets and Institutions 178
Appendix 6A: The Financial Crisis: The Failure of Financial Institution Specialness (located at www.mhhe.com/Cornett4e)
- 7** Valuing Bonds 226
- 8** Valuing Stocks 264

PART FIVE: RISK AND RETURN 296

- 9** Characterizing Risk and Return 296
- 10** Estimating Risk and Return 330

PART SIX: CAPITAL BUDGETING 362

- 11** Calculating the Cost of Capital 362
- 12** Estimating Cash Flows on Capital Budgeting Projects 392
Appendix 12A: MACRS Depreciation Tables 421
- 13** Weighing Net Present Value and Other Capital Budgeting Criteria 426

PART SEVEN: WORKING CAPITAL MANAGEMENT AND FINANCIAL PLANNING 462

- 14** Working Capital Management and Policies 462
Appendix 14A: The Cash Budget 492
- 15** Financial Planning and Forecasting 498

PART EIGHT: CAPITAL STRUCTURE ISSUES 530

- 16** Assessing Long-Term Debt, Equity, and Capital Structure 530
- 17** Sharing Firm Wealth: Dividends, Share Repurchases, and Other Payouts 564
- 18** Issuing Capital and the Investment Banking Process 588

PART NINE: OTHER TOPICS IN FINANCE 614

- 19** International Corporate Finance 614
- 20** Mergers and Acquisitions and Financial Distress 642

table of contents

PART ONE : Introduction 2

1 Introduction to Financial Management 2

1.1 Finance in Business and in Life 4

What Is Finance? 4

Subareas of Finance 6

Application and Theory for Financial Decisions 8

Finance versus Accounting 10

1.2 The Financial Function 10

The Financial Manager 10

Finance in Other Business Functions 10

Finance in Your Personal Life 11

1.3 Business Organization 12

Sole Proprietorships 12

Partnerships 12

Corporations 13

Hybrid Organizations 13

1.4 Firm Goals 14

1.5 Agency Theory 16

Agency Problem 16

Corporate Governance 17

The Role of Ethics 19

1.6 Financial Markets, Intermediaries, and the Firm 20

1.7 Big Picture Environment 21

Oil Prices Plummet 21

China Slows Down 21

Viewpoints Revisited 22

Summary of Learning Goals 23

Key Terms 24

Self-Test Problem with Solution 25

Questions 25

Research It! 26

Integrated Mini-Case 26

Answers to Time Out 27

PART TWO : Financial Statements 30

2 Reviewing Financial Statements 30

2.1 Balance Sheet 32

Assets 32

Liabilities and Stockholders' Equity 32

Managing the Balance Sheet 34

2.2 Income Statement 36

Debt versus Equity Financing 38

Corporate Income Taxes 39

2.3 Statement of Cash Flows 42

GAAP Accounting Principles 43

Noncash Income Statement Entries 43

Sources and Uses of Cash 44

2.4 Free Cash Flow 46

2.5 Statement of Retained Earnings 48

2.6 Cautions in Interpreting Financial Statements 49

Viewpoints Revisited 51

Summary of Learning Goals 52

Chapter Equations 53

Key Terms 53

Self-Test Problems with Solution 54

Questions 59

Problems 60

Research It! 68

Integrated Mini-Case 68

Answers to Time Out 70

3 Analyzing Financial Statements 72

3.1 Liquidity Ratios 74

3.2 Asset Management Ratios 75

Inventory Management 75

Accounts Receivable Management 76

Accounts Payable Management 76

Fixed Asset and Working Capital Management 77

Total Asset Management 78

3.3 Debt Management Ratios 79

Debt versus Equity Financing 79

Coverage Ratios 80

3.4 Profitability Ratios	82
3.5 Market Value Ratios	84
3.6 DuPont Analysis	85
3.7 Other Ratios	89
Spreading the Financial Statements	89
Internal and Sustainable Growth Rates	89
3.8 Time Series and Cross-Sectional Analyses	91
3.9 Cautions in Using Ratios to Evaluate Firm Performance	92
Viewpoints Revisited	93
Summary of Learning Goals	94
Chapter Equations	95
Key Terms	97
Self-Test Problems with Solution	97
Questions	99
Problems	100
Research It!	106
Integrated Mini-Case	106
Answers to Time Out	107

PART THREE : Valuing of Future Cash Flows 110

4 Time Value of Money 1: Analyzing Single Cash Flows 110

4.1 Organizing Cash Flows	112
4.2 Future Value	112
Single-Period Future Value	113
Compounding and Future Value	113
4.3 Present Value	119
Discounting	119
4.4 Using Present Value and Future Value	122
Moving Cash Flows	122
4.5 Computing Interest Rates	125
Return Asymmetries	125
4.6 Solving for Time	126
Viewpoints Revisited	128
Summary of Learning Goals	128
Chapter Equations	129
Key Terms	129
Self-Test Problems with Solution	130
Questions	132
Problems	132
Research It!	136
Integrated Mini-Case	136
Answers to Time Out	137

5 Time Value of Money 2: Analyzing Annuity Cash Flows 140

5.1 Future Value of Multiple Cash Flows 142

Finding the Future Value of Several Cash Flows 142

Future Value of Level Cash Flows 143

Future Value of Multiple Annuities 145

5.2 Present Value of Multiple Cash Flows 147

Finding the Present Value of Several Cash Flows 147

Present Value of Level Cash Flows 148

Present Value of Multiple Annuities 150

Perpetuity—A Special Annuity 152

5.3 Ordinary Annuities versus Annuities Due 152

5.4 Compounding Frequency 154

Effect of Compounding Frequency 154

5.5 Annuity Loans 158

What Is the Interest Rate? 158

Finding Payments on an Amortized Loan 158

Viewpoints Revisited 164

Summary of Learning Goals 165

Chapter Equations 166

Key Terms 167

Self-Test Problems with Solution 167

Questions 170

Problems 171

Research It! 176

Integrated Mini-Case 176

Answers to Time Out 177

PART FOUR : Valuing of Bonds and Stocks 178

6 Understanding Financial Markets and Institutions 178

6.1 Financial Markets 180

Primary Markets versus Secondary Markets 180

Money Markets versus Capital Markets 182

Other Markets 185

6.2 Financial Institutions 187

Unique Economic Functions Performed by Financial Institutions 189

6.3 Interest Rates and the Loanable Funds Theory 191

Supply of Loanable Funds 193

Demand for Loanable Funds 194

Equilibrium Interest Rate 195

Factors That Cause the Supply and Demand Curves for Loanable Funds to Shift 196

Movement of Interest Rates over Time	200
6.4 Factors That Influence Interest Rates for Individual Securities	200
Inflation	200
Real Risk-Free Rate	201
Default or Credit Risk	202
Liquidity Risk	203
Special Provisions or Covenants	204
Term to Maturity	204
6.5 Theories Explaining the Shape of the Term Structure of Interest Rates	206
Unbiased Expectations Theory	207
Liquidity Premium Theory	209
Market Segmentation Theory	211
6.6 Forecasting Interest Rates	212
Viewpoints Revisited	213
Summary of Learning Goals	213
Chapter Equations	214
Key Terms	215
Self-Test Problems with Solution	216
Questions	217
Problems	218
Research It!	222
Integrated Mini-Case	222
Answers to Time Out	223
7	Valuing Bonds 226
7.1 Bond Market Overview	228
Bond Characteristics	228
Bond Issuers	229
Other Bonds and Bond-Based Securities	231
Reading Bond Quotes	233
7.2 Bond Valuation	236
Present Value of Bond Cash Flows	236
Bond Prices and Interest Rate Risk	238
7.3 Bond Yields	240
Current Yield	240
Yield to Maturity	240
Yield to Call	242
Municipal Bonds and Yield	244
Summarizing Yields	245
7.4 Credit Risk	246
Bond Ratings	246
Credit Risk and Yield	248
7.5 Bond Markets	249
Following the Bond Market	250

Viewpoints Revisited	252
Summary of Learning Goals	252
Chapter Equations	253
Key Terms	253
Self-Test Problems with Solution	254
Questions	257
Problems	257
Research It!	261
Integrated Mini-Case	261
Answers to Time Out	262

8 Valuing Stocks 264

8.1 Common Stock	266
8.2 Stock Markets	266
Tracking the Stock Market	269
Trading Stocks	271
8.3 Basic Stock Valuation	272
Cash Flows	272
Dividend Discount Models	275
Preferred Stock	276
Expected Return	277
8.4 Additional Valuation Methods	278
Variable-Growth Techniques	278
The P/E Model	281
Estimating Future Stock Prices	283
Viewpoints Revisited	285
Summary of Learning Goals	286
Chapter Equations	287
Key Terms	287
Self-Test Problems with Solution	288
Questions	290
Problems	290
Research It!	294
Integrated Mini-Case	294
Answers to Time Out	294

PART FIVE : Risk and Return 296

9 Characterizing Risk and Return 296

9.1 Historical Returns	298
Computing Returns	298
Performance of Asset Classes	300

9.2 Historical Risks	301
Computing Volatility	302
Risk of Asset Classes	304
Risk versus Return	305
9.3 Forming Portfolios	306
Diversifying to Reduce Risk	306
Modern Portfolio Theory	309
Viewpoints Revisited	314
Summary of Learning Goals	315
Chapter Equations	316
Key Terms	316
Self-Test Problems with Solution	317
Questions	320
Problems	320
Research It!	326
Integrated Mini-Case	327
Answers to Time Out	328

10 Estimating Risk and Return 330

10.1 Expected Returns	332
Expected Return and Risk	332
Risk Premiums	334
10.2 Market Risk	335
The Market Portfolio	335
Beta, a Measure of Market Risk	337
The Security Market Line	337
Finding Beta	340
Concerns about Beta	341
10.3 Capital Market Efficiency	343
Efficient Market Hypothesis	343
Behavioral Finance	345
10.4 Implications for Financial Managers	346
Using the Constant-Growth Model for Required Return	346
Viewpoints Revisited	348
Summary of Learning Goals	349
Chapter Equations	350
Key Terms	351
Self-Test Problems with Solution	351
Questions	353
Problems	354
Research It!	359
Integrated Mini-Case	359
Answers to Time Out	360

PART SIX : Capital Budgeting 362

11 Calculating the Cost of Capital 362

11.1 The WACC Formula 364

Calculating the Component Cost of Equity 364

Calculating the Component Cost of Preferred Stock 366

Calculating the Component Cost of Debt 366

Choosing Tax Rates 367

Calculating the Weights 368

11.2 Firm WACC versus Project WACC 369

Project Cost Numbers to Take from the Firm 370

Project Cost Numbers to Find Elsewhere:
The Pure-Play-Approach 371

11.3 Divisional WACC 373

Pros and Cons of a Divisional WACC 373

Subjective versus Objective Approaches 376

11.4 Flotation Costs 379

Adjusting the WACC 379

Viewpoints Revisited 380

Summary of Learning Goals 381

Chapter Equations 382

Key Terms 383

Self-Test Problems with Solution 383

Questions 386

Problems 386

Research It! 389

Integrated Mini-Case 389

Answers to Time Out 390

12 Estimating Cash Flows on Capital Budgeting Projects 392

12.1 Sample Project Description 394

12.2 Guiding Principles for Cash Flow Estimation 394

Opportunity Costs 394

Sunk Costs 395

Substitutionary and Complementary Effects 395

Stock Dividends and Bond Interest 396

12.3 Total Project Cash Flow 396

Calculating Depreciation 397

Calculating Operating Cash Flow 397

Calculating Changes in Gross Fixed Assets 398

Calculating Changes in Net Working Capital 399

Bringing It All Together 401

12.4 Accelerated Depreciation and the Half-Year Convention	402
MACRS Depreciation Calculation	402
Section 179 Deductions	403
Impact of Accelerated Depreciation	404
12.5 “Special” Cases Aren’t Really That Special	405
12.6 Choosing between Alternative Assets with Differing Lives: EAC	407
12.7 Flotation Costs Revisited	409
Viewpoints Revisited	411
Summary of Learning Goals	412
Chapter Equations	412
Key Terms	413
Self-Test Problems with Solution	413
Questions	416
Problems	416
Research It!	418
Integrated Mini-Case	419
Answers to Time Out	419
Appendix 12A: MACRS Depreciation Tables	421

13 Weighing Net Present Value and Other Capital Budgeting Criteria 426

13.1 The Set of Capital Budgeting Techniques	428
13.2 The Choice of Decision Statistic Format	429
13.3 Processing Capital Budgeting Decisions	430
13.4 Payback and Discounted Payback	430
Payback Statistic	431
Payback Benchmark	431
Discounted Payback Statistic	432
Discounted Payback Benchmark	432
Payback and Discounted Payback Strengths and Weaknesses	434
13.5 Net Present Value	435
NPV Statistic	435
NPV Benchmark	435
NPV Strengths and Weaknesses	438
13.6 Internal Rate of Return and Modified Internal Rate of Return	438
Internal Rate of Return Statistic	438
Internal Rate of Return Benchmark	439
Problems with Internal Rate of Return	440
IRR and NPV Profiles with Non-Normal Cash Flows	441
Differing Reinvestment Rate Assumptions of NPV and IRR	441
Modified Internal Rate of Return Statistic	442
IRRs, MIRRs, and NPV Profiles with Mutually Exclusive Projects	443
MIRR Strengths and Weaknesses	448

13.7 Profitability Index	448
Profitability Index Statistic	448
Profitability Index Benchmark	449
Viewpoints Revisited	449
Summary of Learning Goals	450
Chapter Equations	452
Key Terms	453
Self-Test Problem with Solution	453
Questions	455
Problems	456
Research It!	460
Integrated Mini-Case	460
Answers to Time Out	461

PART SEVEN : Working Capital Management and Financial Planning 462

14 Working Capital Management and Policies 462

14.1 Revisiting the Balance-Sheet Model of the Firm	464
14.2 Tracing Cash and Net Working Capital	465
The Operating Cycle	465
The Cash Cycle	465
14.3 Some Aspects of Short-Term Financial Policy	466
The Size of the Current Assets Investment	467
Alternative Financing Policies for Current Assets	468
14.4 The Short-Term Financial Plan	470
Unsecured Loans	470
Secured Loans	471
Other Sources	471
14.5 Cash Management	472
Reasons for Holding Cash	472
Determining the Target Cash Balance: The Baumol Model	473
Determining the Target Cash Balance: The Miller-Orr Model	474
Other Factors Influencing the Target Cash Balance	477
14.6 Float Control: Managing the Collection and Disbursement of Cash	477
Accelerating Collections	478
Delaying Disbursements	478
Ethical and Legal Questions	479
14.7 Investing Idle Cash	480
Why Firms Have Surplus Cash	480
What to Do with Surplus Cash	480

14.8 Credit Management	480
Credit Policy: Terms of the Sale	480
Credit Analysis	481
Collection Policy	481
Viewpoints Revisited	482
Summary of Learning Goals	483
Chapter Equations	484
Key Terms	484
Self-Test Problems with Solution	485
Questions	487
Problems	488
Research It!	490
Integrated Mini-Case	490
Answers to Time Out	490
Appendix 14A: The Cash Budget	492

15 Financial Planning and Forecasting 498

15.1 Financial Planning	500
15.2 Forecasting Sales	500
The Naïve Approach	500
The Average Approach	502
Estimating Sales with Systematic Variations: Adjusting for Trends and Seasonality	504
15.3 External Financing	507
The Simple Approach to Estimating Necessary External Financing: Additional Funds Needed	507
Forecasting Financial Statements	511
Viewpoints Revisited	518
Summary of Learning Goals	519
Chapter Equations	519
Key Terms	519
Self-Test Problems with Solution	520
Questions	524
Problems	524
Research It!	528
Integrated Mini-Case	528
Answers to Time Out	529

PART EIGHT : Capital Structure Issues 530

16 Assessing Long-Term Debt, Equity, and Capital Structure 530

16.1 Active versus Passive Capital Structure Changes	532
---	-----

16.2 Capital Structure Theory: The Effect of Financial Leverage 533

Modigliani and Miller's "Perfect World" 533

M&M with Corporate Taxes 537

The Choice to Re-Leverage 540

Break-Even EBIT and EBIT Expectations 543

16.3 M&M with Corporate Taxes and Bankruptcy 545

Types of Bankruptcies in the United States 545

Costs of Financial Distress 546

The Value of the Firm with Taxes and Bankruptcy 549

16.4 Capital Structure Theory versus Reality 551

Optimal Theoretical Capital Structure 551

Observed Capital Structures 551

Viewpoints Revisited 552

Summary of Learning Goals 552

Chapter Equations 553

Key Terms 554

Self-Test Problems with Solution 554

Questions 557

Problems 558

Research It! 562

Integrated Mini-Case 562

Answers to Time Out 562

17 Sharing Firm Wealth: Dividends, Share Repurchases,
and Other Payouts 564

17.1 Dividends versus Capital Gains 566

Dividend Irrelevance Theorem 566

Why Some Investors Favor Dividends 567

Why Some Investors Favor Capital Gains 567

17.2 Other Dividend Policy Issues 568

The Information Effect 568

The Clientele Effect 568

Corporate Control Issues 569

17.3 Real-World Dividend Policy 569

The Residual Dividend Model 570

Extraordinary Dividends 571

17.4 Dividend Payment Logistics 572

Payment Procedures 573

Effect of Dividends on Stock Prices 573

17.5 Stock Dividends and Stock Splits 577

Stock Dividends 577

Stock Splits 577

Effect of Splits and Stock Dividends on Stock Prices 577

17.6 Stock Repurchases 578

Advantages of Repurchases	579
Disadvantages of Repurchases	579
Effect of Repurchases on Stock Prices	580
Viewpoints Revisited	580
Summary of Learning Goals	580
Chapter Equations	581
Key Terms	582
Self-Test Problems with Solution	582
Questions	583
Problems	584
Research It!	585
Integrated Mini-Case	586
Answers to Time Out	586

18 Issuing Capital and the Investment Banking Process 588

18.1 Sources of Capital for New and Small Firms	590
Debt Financing	590
Equity Financing and Expertise	594
The Choice to Go Public	595
18.2 Public Firms' Capital Sources	597
Debt Financing	597
Equity Financing	602
Viewpoints Revisited	606
Summary of Learning Goals	607
Key Terms	608
Self-Test Problems with Solution	608
Questions	609
Problems	610
Research It!	613
Integrated Mini-Case	613
Answers to Time Out	613

PART NINE : Other Topics in Finance 614

19 International Corporate Finance 614

19.1 Global Business	616
International Opportunities	616
Corporate Expansion into Other Countries	618
19.2 Foreign Currency Exchange	620
Exchange Rates	620
Exchange Rate Risk	621

The Forward Exchange Rate and Hedging 623
Interest Rate Parity 625
Purchasing Power Parity and Future Exchange Rates 626

19.3 Political Risks 628

19.4 International Capital Budgeting 630

Viewpoints Revisited 631

Summary of Learning Goals 631

Chapter Equations 632

Key Terms 633

Self-Test Problems with Solution 634

Questions 635

Problems 636

Research It! 639

Integrated Mini-Case 639

Answers to Time Out 640

20 Mergers and Acquisitions and Financial Distress 642

20.1 Mergers and Acquisitions 644

Types of Mergers 644

Motives for Mergers and Acquisitions 646

Valuing a Merger 652

20.2 Financial Distress 654

Types and Causes of Financial Distress 654

Informal Resolutions of Financial Distress 655

Federal Bankruptcy 656

Predicting Bankruptcy 661

Viewpoints Revisited 665

Summary of Learning Goals 666

Chapter Equations 667

Key Terms 667

Self-Test Problems with Solution 668

Questions 672

Problems 673

Research It! 681

Integrated Mini-Case 682

Answers to Time Out 683

Appendix A 684

Appendix B 688

Index 695



1 | Introduction to Financial Management



viewpoints

Business Application

Caleb has worked very hard to create and expand his juice stand at the mall. He has finally perfected his products and feels that he is offering the right combination of juice and food. As a result, the stand is making a nice profit. Caleb would like to open more stands at malls all over his state and eventually all over the country.

Caleb knows he needs more money to expand. He needs money to buy more equipment, buy more inventory, and hire and train more people. How can Caleb get the capital he needs to expand? **(See the solution at the end of the chapter.)**

Personal Application

Dagmar is becoming interested in investing some of her money. However, she has heard about several corporations in which the investors lost all of their money. Recently, Dagmar has heard that RadioShack (2015), Wet Seal (2015), and THQ (2013) have all filed for bankruptcy. These firms' stockholders lost their entire investments in these firms.

Many of the stockholders who lost money were employees of these companies who had invested some of their retirement money in the company stock. Dagmar wonders what guarantee she has as an investor against losing her money. **(See the solution at the end of the chapter.)**



What is the best way for Dagmar to ensure a happy retirement?

Learning Goals

- LG1-1** Define the major areas of finance as they apply to corporate financial management.
- LG1-2** Show how finance is at the heart of sound business decisions.
- LG1-3** Learn the financial principles that govern your personal decisions.
- LG1-4** Examine the three most common forms of business organization in the United States today.
- LG1-5** Distinguish among appropriate and inappropriate goals for financial managers.
- LG1-6** Identify a firm's primary agency relationship and discuss the possible conflicts that may arise.
- LG1-7** Discuss how ethical decision making is part of the study of financial management.
- LG1-8** Describe the complex, necessary relationships among firms, financial institutions, and financial markets.
- LG1-9** Explain the business ramifications of the decline in the price of oil and China's economic slowdown.

Do you know: What finance entails? How financial management functions within the business world? Why you might benefit from studying financial principles? This chapter is the ideal place to get answers to those questions. **Finance** is the study of *applying specific value* to things we own, services we use, and decisions we make. Examples are as varied as shares of stock in a company, payments on a home mortgage, the purchase of an entire firm, and the personal decision to retire early. In this text, we focus primarily on one area of finance, **financial management**, which concentrates on valuing things from the perspective of a company, or firm.

Financial management is critically important to the success of any business organization, and throughout the text we concentrate on describing the key financial concepts in corporate finance. As a bonus, you will find that many tools and techniques for handling the financial management of a firm also apply to broader types of financial problems, such as personal finance decisions.

In finance, *cash flow* is the term that describes the process of paying and receiving money. It makes sense to start our discussion of finance with an illustration of various financial cash flows. We use simple graphics to help explain the nature of finance and to demonstrate the different *sub-areas* of the field of finance.



© John Lamb/Getty Images/Photodisc

After we have an overall picture of finance, we will discuss three important variables in the business environment that can and do have significant impact on the firm's financial decisions. These are (1) the organizational form of the business, (2) the agency relationship between the managers and owners of a firm, and (3) ethical considerations as finance is applied in the real world.

finance

The study of applying specific value to things we own, services we use, and decisions we make.

financial management

The process for and the analysis of making financial decisions in the business context.

1.1 • Finance in Business and in Life

If your career leads you to making financial decisions, then this book will be indispensable. If not, it is likely that your activities in a business will involve interacting with the finance functions. After all, the important investments of a firm involve capital and, therefore, finance. Expanding marketing channels, developing new products, and upgrading a factory all cost money. A firm spends its capital on these projects to foster growth. Understanding how finance professionals evaluate those projects will help you be successful in your business focus. In addition, everyone will benefit in their personal life from learning finance and understanding financial decisions.

And what exactly makes up this engine of financial decision making? Successful application of *financial theories* helps money flow from individuals who want to improve their financial future to businesses that want to expand the scale or scope of their operations. These exchanges lead to a growing economy and more employment opportunities for people at all income levels. So, two important things result from this simple exchange: The economy will be more productive, and individuals' wealth will grow into the future.

In this first section, we develop a comprehensive description of finance and its subareas, and we look at the specific decisions that professionals in each subarea must make. As you will see, all areas of finance share a common set of ideas and application tools.

What Is Finance?

To get the clearest possible picture of how finance works, let's begin by grouping all of an economy's participants along two dimensions. The first dimension is made up of those who may have "extra" money (i.e., money above and beyond their current spending needs) for investment. The second dimension is made up of those who have an ability to develop viable business ideas, a sense of business creativity. Both money and ideas are fuel for the financial engine. In our simple model, these two dimensions result in four groups representing economic roles in society, as shown in Figure 1.1. Of course, people can move from one group to another over time.

Type 1 people in our model do not lend significant sums of money (*capital*) or spend much money in a business context, so they play no direct role in **financial markets**, the mechanisms by which capital is exchanged. Although these people probably play indirect roles by providing labor to economic enterprises or by consuming their products, for simplicity we focus on those who play direct roles. Therefore, type 1 participants will be asked to step aside.

Type 4 people use financial tools to evaluate their own business concepts and then choose the ideas with the most potential. From there, they create their own enterprises to implement their best ideas efficiently and effectively. Type 4 individuals, however, are self-funded and do not need financial markets. The financial tools they use and the types of decisions they make are narrowly focused or specific to their own purposes. For our discussion, then, type 4 individuals also are asked to move to the sidelines.

Now for our financial role players, the type 2 and type 3 people. Financial markets and financial institutions allow these people to participate in a mutually advantageous exchange. Type 2 people temporarily lend their money to type 3 people, who put that money to use with their good business ideas.

financial markets

The arenas through which funds flow.

FIGURE 1.1

Participants in Our Hypothetical Economy

Four groups form according to the availability of money and ideas.

No Economically Viable Business Ideas
Economically Viable Business Ideas

No Extra Money

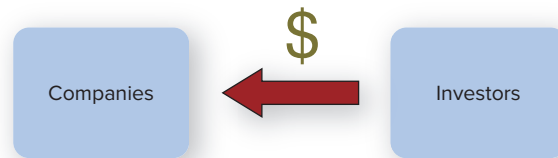
Extra Money

Type 1: No money and no ideas

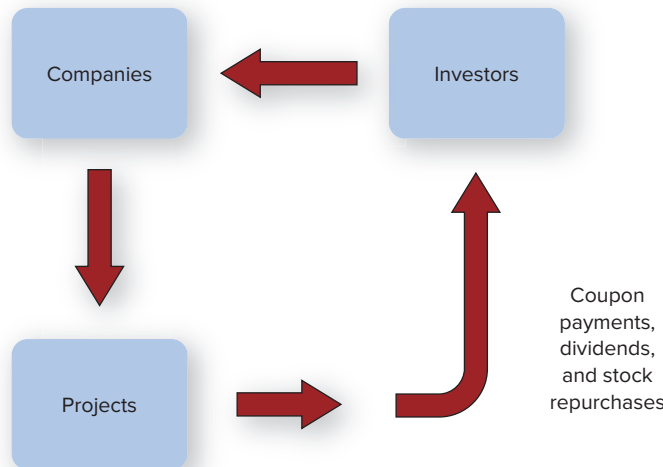
Type 2: Money but no ideas

Type 3: No money but ideas

Type 4: Both money and ideas

FIGURE 1.2

Capital Flow from Investors to Companies
 Investors are people or groups who need ideas to make more money, and companies are groups who need money to develop the ideas they do have.

FIGURE 1.3

Return of Capital to Investors
 In this basic process, the company can expand its business, hire more employees, and create a promising future for its own growth. Meanwhile, the investor can increase wealth for the future.

In most developed economies, type 2 participants are usually individual **investors**. *You* will likely be an individual investor for most of your life. Each of us separately may not have a lot of extra money at any one time, but by aggregating our available funds, we can provide sizable amounts for investment.

Type 3 participants, the idea generators, may be individuals, but they are more commonly corporations or other types of companies with research and development (R&D) departments dedicated to developing innovative ideas. It's easy to see that investors and companies can help one another. If investors lend their "extra" capital to companies, as shown in Figure 1.2, then companies can use this capital to fund expansion projects. Economically successful projects will eventually be able to repay the money (plus profit) to investors, as Figure 1.3 shows.

Of course, not all of the cash will return to the investors. In reality, sources of friction arise in this system, and the amount of capital returned to investors is reduced. Two primary sources of friction are **retained earnings**, which are basically funds the firm keeps for its ongoing operations, and *taxes*, which the government imposes on the company and individuals to help fund public services. Figure 1.4 shows an analysis of cash flows with the associated retained earnings and tax payments. In a very simple way, this figure provides an intuitive overall explanation of finance and of its major subareas. For example, individuals must assess which investment opportunities are right for their needs and risk tolerance; financial institutions and markets must efficiently distribute the capital; and companies must evaluate their potential projects and wisely decide which projects to fund, what kind of capital to use, and how much capital to return to investors. All of these types of decisions deal with the basic cash flows of finance shown in Figure 1.4, but from different perspectives.

investors

Those who buy securities or other assets in hopes of earning a return and getting more money back in the future.

retained earnings

The portion of company profits that are kept by the company rather than distributed to the stockholders as cash dividends.

FIGURE 1.4

The Complete Cash Flows of Finance

All the subareas of the financial system interact, with retained earnings and taxes playing a role in the flows.

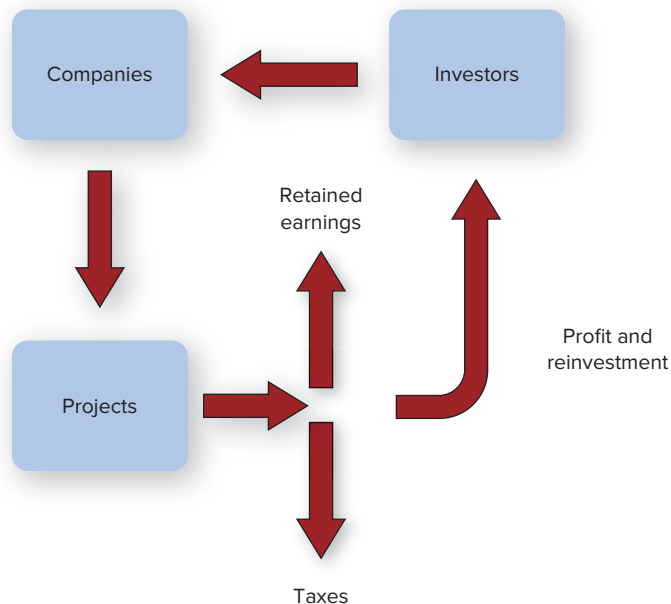
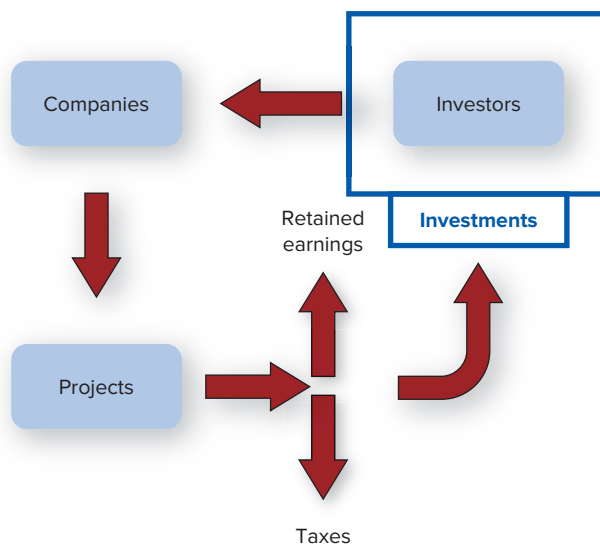


FIGURE 1.5

Investments

Investors mark the start and end of the financial process; they put money in and reap the rewards (or take the risk).



Subareas of Finance

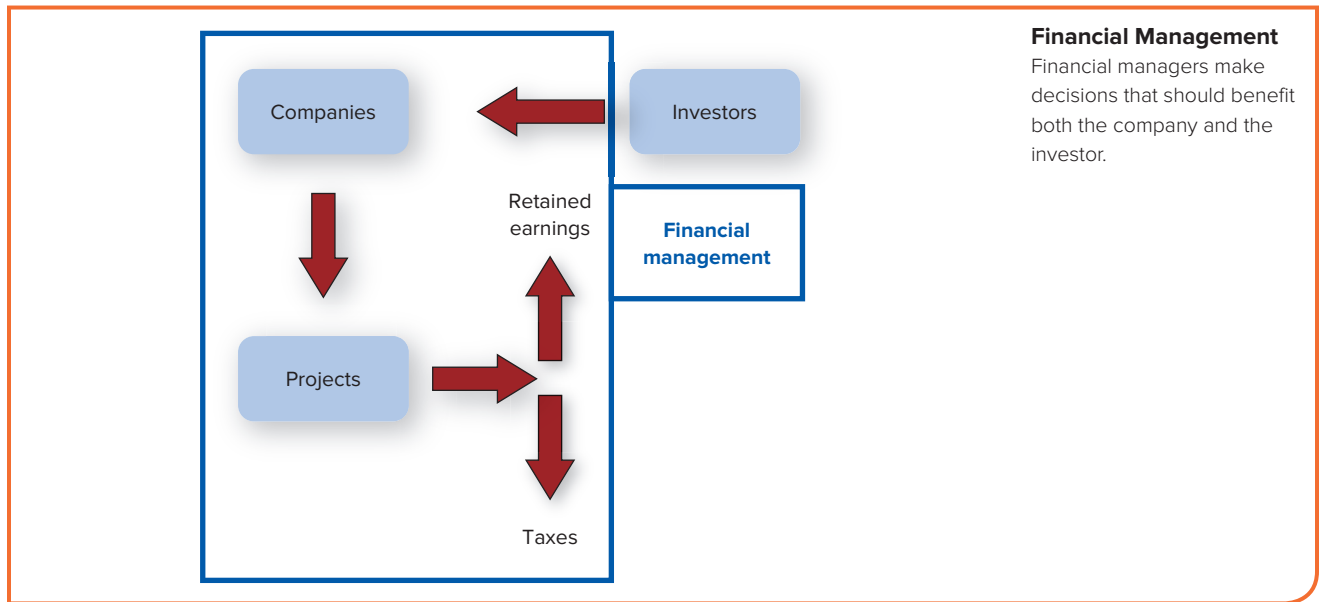
investment

The analysis and process of choosing securities and other assets to purchase.

Investments is the subarea of finance that involves methods and techniques for making decisions about what kinds of *securities* to own (e.g., bonds or stocks), which firms' securities to buy, and how to pay the investor back in the form that the investor wishes (e.g., the timing and certainty of the promised cash flows). Figure 1.5 models cash flows from the investor's perspective. The concerns of the investments subarea of finance are shown (with the movement of red arrows) from the investor's viewpoint (seen as the blue box).

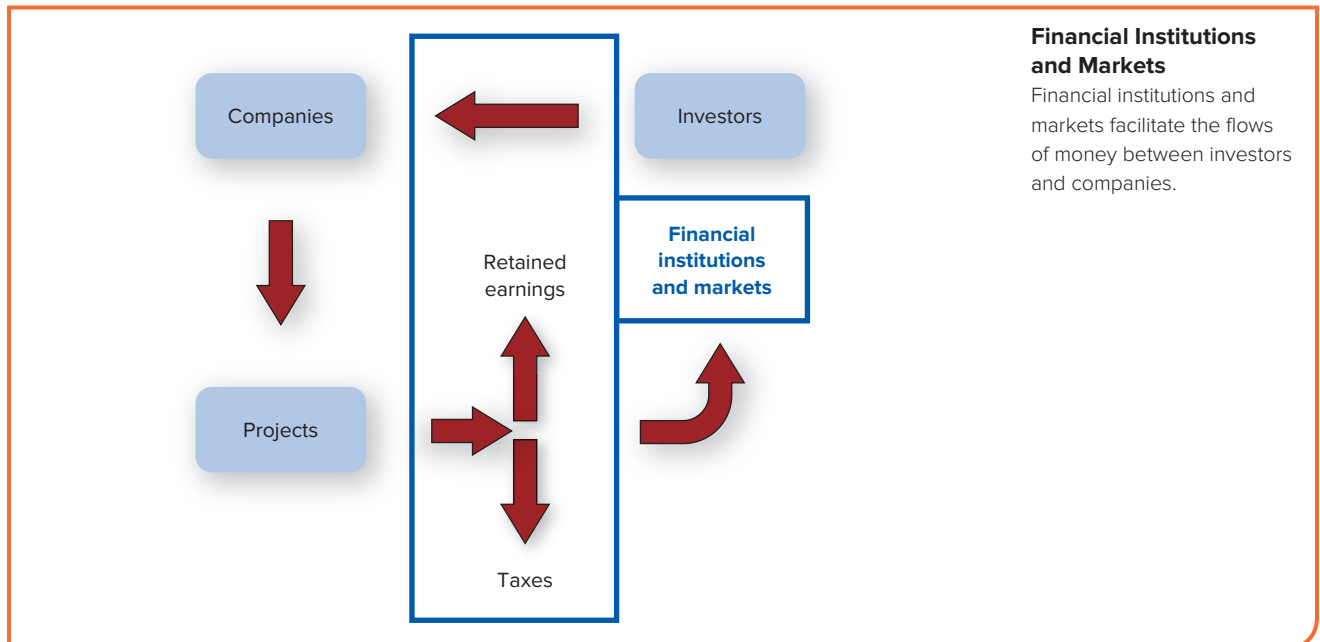
Financial management is the subarea that deals with a firm's decisions in acquiring and using the cash that is received from investors or from retained earnings. Figure 1.6 depicts the financial management process very simply. As we know, this text focuses

FIGURE 1.6



Financial Management
Financial managers make decisions that should benefit both the company and the investor.

FIGURE 1.7



Financial Institutions and Markets
Financial institutions and markets facilitate the flows of money between investors and companies.

primarily on financial management. We'll see that this critical area of finance involves decisions about

- How to organize the firm in a manner that will attract capital.
- How to raise capital (e.g., bonds versus stocks).
- Which projects to fund.
- How much capital to retain for ongoing operations and new projects.
- How to minimize taxation.
- How to pay back capital providers.

All of these decisions are quite involved, and we will discuss them throughout later chapters.

Financial institutions and markets make up another major subarea of finance. These two dynamic entities work in different ways to facilitate capital flows between investors and companies. Figure 1.7 illustrates the process in which the firm acquires capital and

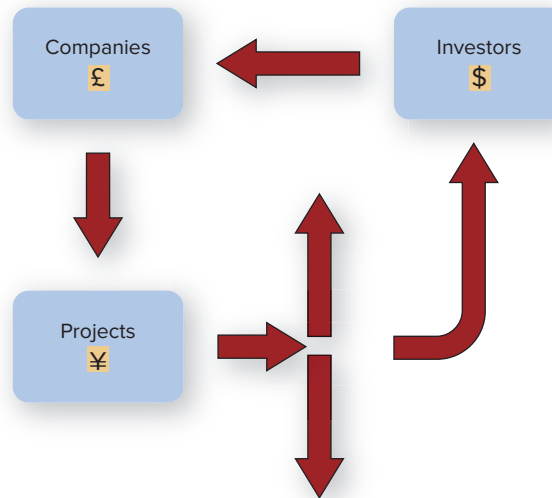
financial institutions and markets

The organizations that facilitate the flow of capital between investors and companies.

FIGURE 1.8

International Finance

Laws, risks, and business relationships are variable across different countries but can interact profitably.



investors take part in ongoing securities trading to increase that capital. Financial institutions, such as banks and pension administrators, are vital players that contribute to the dynamics of interest rates.

International finance is the final major subarea of finance we will study. As the world has transformed into a global economy, finance has had to become much more innovative and sensitive to changes in other countries. Investors, companies, business operations, and capital markets may all be located in different countries. Adapting to this environment requires understanding of international dynamics, as Figure 1.8 shows. In the past, international financial decisions were considered to be a straightforward application of the other three financial subareas. But experience has shown that the uncertainty about future exchange rates, political risk, and changing business laws across the globe adds enough complexity to these decisions to classify international finance as a subarea of finance in its own right.

international finance

The use of finance theory in a global business environment.

risk

A potential future negative impact to value and/or cash flows. It is often discussed in terms of the probability of loss and the expected magnitude of the loss.

financial asset

A general term for securities like stocks, bonds, and other assets that represent ownership in a cash flow.

asset classes

A group of securities that exhibit similar characteristics, behave similarly in the marketplace, and are subject to the same laws and regulations.

Application and Theory for Financial Decisions

Cash flows are neither instantaneous nor guaranteed. We need to keep this in mind as we begin to apply finance theory to real decisions. Future cash flows are uncertain in terms of both timing and size, and we refer to this uncertainty as **risk**. Investors experience risk about the return of their capital. Companies experience risk in funding and operating their business projects. Most financial decisions involve comparing the rewards of a decision to the risks that decision may generate.

Comparing rewards with risks frequently involves assessing the value today of cash flows that we expect to receive in the future. For example, the price of a **financial asset**, something worth money, such as a stock or a bond, should depend on the cash flows you expect to receive from that asset in the future. A stock that's expected to deliver high cash flows in the future will be more valuable today than a stock with low expected future cash flows. Of course, investors would like to buy stocks whose market prices are currently lower than their actual values. They want to get stocks on sale! Similarly, a firm's goal is to fund projects that will give them more value than their costs.

Financial assets are normally grouped into **asset classes** according to their risk and return characteristics. The most commonly accepted groups of asset classes are stocks, bonds, money market instruments, real estate, and derivative securities, all of which we

QUANTITATIVE EASING IN THE UNITED STATES AND AROUND THE WORLD

The Financial Crisis of 2007 to 2008 led to a global recession that ended in the United States in 2009. The severe recession is often referred to as the “Great Recession” to give it a Great Depression flavor. However, the ensuing economic recovery was slow. It did not have the typical bounce-back that often occurs after an acute recession.

To foster economic growth and give the financial sector time to recover, the U.S. Federal Reserve embarked on a grand experiment called *quantitative easing* (QE). QE is a monetary policy designed to increase the money supply in the economy through buying securities in the market and lowering short-term interest rates. The first round of QE involved the Fed buying potentially toxic mortgage-backed securities (see Chapter 7), primarily from banks. This removed the suspect securities from the banks’ balance sheets and allowed them time to get financially stronger. Also, short-term interest rates were cut to zero.

This initial round of QE ended in early 2010 after the Fed had purchased \$1.25 trillion of mortgage-backed securities. Chapter 6 discusses QE’s impact on the financial system. By the end of 2010, the economy was still not as strong as desired. The Fed’s mission has been to foster maximum employment in an environment of 2 percent inflation. But the employment market was still lackluster and inflation was near zero in 2010.

In the fourth quarter of 2010 the Fed began QE 2, in which it bought \$600 billion of long-term U.S. Treasury securities

over the ensuing nine months. This was an attempt to lower long-term interest rates. It did not have the desired impact on long-term rates, so QE 3 was implemented in late 2012 and continued through 2013. For QE 3, the Fed sold short-term bonds in order to purchase more long-term securities. Short-term interest rates were kept near zero. The low interest rates had profound impacts on the bond market (see Chapter 7) and companies’ cost of capital (see Chapter 11).

Instead of ending QE 3, the Fed decided to reduce its purchases each month through most of 2014. This QE taper was an attempt to wean the economy from the constant Fed influence. QE 3 finally tapered out at the end of 2014. Speculation then grew about when the Fed would start raising interest rates. The Fed finally raised its key interest rate to 0.25% on December 16, 2015. It was the first rate hike in nearly 10 years.

One ramification of declining interest rates, or near zero rates, is that a country’s currency weakens against foreign currencies (see Chapter 19). This is likely to increase exports and decrease imports.

The economies of other countries and regions have also struggled to grow since the Financial Crisis, and many of them have also implemented quantitative easing programs—two notable examples are the European Central Bank and Japan. With the U.S. ending its QE programs and raising interest rates while these other countries are continuing their monetary expansion, the U.S. dollar is likely to strengthen. That would make exports more expensive and imports cheaper.



Want to Know More?

Key Words to Search for Updates: [quantitative easing](#), [zero rate environment](#), [QE taper](#), [currency exchange rates](#)

will discuss in more detail later in the book. As the risk and return profiles of each of these asset classes differ widely between classes, the mathematical models, terminology, and expertise of each class tend to be very specialized and trading tends to happen in distinct, separate financial markets for each asset class.

Despite the large number of stories about investors who’ve struck it rich in the stock market, it’s actually more likely that a firm will find “bargain” projects, projects that may yield profit for a reasonable investment, than investors will find underpriced stocks. Firms can find bargains because business projects involve **real assets** trading in **real markets** (markets in tangible assets). In the real environment, some level of monopoly power, special knowledge, and expertise possibly can make such projects worth more than they cost. Investors, however, are trading financial assets in financial markets, where the assets are more likely to be worth, on average, exactly what they cost.

The method for relating expected or future cash flows to today’s value, called *present value*, is known as **time value of money (TVM)**. Chapters 4 and 5 cover this critical financial concept in detail and apply it to the financial world (as well as daily life). Since the expected cash flows of either a business project or an investment are likely to be uncertain, any TVM analysis must account for both the timing and the risk level of the cash flows.

real assets

Physical property like gold, machinery, equipment, or real estate.

real markets

The places and processes that facilitate the trading of real assets.

time value of money (TVM)

The theory and application of valuing cash flows at various points in time.