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sixth edition

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FINANCE: APPLICATIONS AND THEORY, SIXTH EDITION

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dedicated

to my parents, Tom and Sue—Marcia Millon Cornett

to Max, my son and my inspiration—Troy A. Adair Jr.

to Anna, my wife and best friend—John Nofsinger

about the authors

Courtesy of Marcia Millon Cornett

Marcia Millon Cornett ***Robert A. and Julia E. Dorn Professor of Finance at Bentley University.*** She received her BS degree in economics from Knox College in Galesburg, Illinois, and her MBA and PhD 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; Journal of Money, Credit, and Banking; Journal of Financial Economics; Financial Management;* and *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 and Otgontsetseg Erhemjamts, Dr. Cornett has recently completed work on the tenth edition of *Financial Institutions Management* (McGraw Hill Education) and the seventh edition of *Financial Markets and Institutions* (McGraw Hill Education). Professor Cornett serves as an associate editor for the *Journal of Banking and Finance, 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.

Courtesy of Troy Alton Adair Jr

Troy Alton Adair Jr. ***Professor of Practice at Lehigh University and Founder and CEO of dataDicts, Inc.*** 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 serves Lehigh as the Co-Director of the Computer Science and Business (CSB) Program, the FinTech Minor, and the Business Analytics Certificate Program. He also manages a data science consulting business specializing in providing customized data analytics assessments and training. He previously managed 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 ***Dean, 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 70 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) fourteen 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.*

Courtesy of John Nofsinger

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 SIXTH EDITION

The global pandemic greatly impacted business and global trade. As a financial response, central banks around the world eased monetary policy and made money more easily available. The resulting impact on a firm's cost of capital affected the estimation of project cash flows, valuations, and more. As capital budgeting is an important part of this book, we have quickly incorporated the new environment into our theory and applications. In addition, we have updated every chapter. Below are the changes we made for this sixth edition, broken out by chapter.

Overall

- Increased the focus on using spreadsheets to solve financial problems
- Added Spreadsheet Tip boxes where appropriate
- Increased the number of spreadsheet-oriented end-of-chapter problems
- Updated data, company names, and scenarios to reflect the latest available data and real-world changes
- Removed the Research It! assignments in all chapters
- Removed the "twin" problems in the End of Chapter Problem sets as they duplicate online assessment assignments. These deleted problem twins are still available as assignable content via McGraw Hill Connect.

Chapter 1: Introduction to Financial Management

- Updated the Personal Application with information on firms that have filed for bankruptcy more recently
- Updated the data in Example 1-2 on executive compensation
- Edited Section 1.7: Big Picture Environment to discuss the ramifications of COVID-19 and the Tax Cuts and Jobs Act of 2017

Chapter 2: Reviewing Financial Statements

- Added Spreadsheet Tip box for working with cells
- Added Excel to some examples
- Added Excel problems
- Deleted the second twin in the Problems
- Deleted Research It!

Chapter 3: Analyzing Financial Statements

- Added Spreadsheet Tip box for using functions
- Added Excel problems
- Added Chapter Spreadsheet Functions section to the end-of-chapter material
- Deleted the second twin in the Problems

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

- Added Spreadsheet Tip box for TVM Functions
- Updated the data in Figure 4.5 on gold prices
- Increased the number of Excel problems and added Excel to Examples
- Added Chapter Spreadsheet Functions section
- Included a short paragraph to mention the TVM tables
- Added Excel Solutions to Self-Test problems
- Deleted the second twin in the Problems
- Deleted Research It!
- Updated the gold return data in the Mini-Case

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

- Added Spreadsheet Tip box for principal and interest portions of a payment
- Added Excel to examples and in text
- Updated Finance at Work box
- Added Chapter Spreadsheet Functions section
- Added Excel Solutions to Self-Test problems
- Added Excel problems
- Deleted the second twin in the Problems
- Deleted Research It!

Chapter 6: Understanding Financial Markets and Institutions

- Added Spreadsheet Tip box for creating a line graph
- Increased the number of Excel problems and added Excel to examples
- Updated Figures 6.4, 6.5, 6.8, 6.9, 6.13, 6.14
- Added Excel Solutions to Self-Test problems
- Deleted the second twin in the Problems
- Deleted Research It!

Chapter 7: Valuing Bonds

- Changed a Math Coach to a Spreadsheet Tip box
- 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
- Updated Table 7.2, Time Out 7.2, and associated discussions
- Changed the subject of a Finance at Work box to negative interest rates
- Changed the subject of a Finance at Work box to COVID-19 and the credit market
- Increased the number of Excel problems and added Excel to examples
- Added Excel Solutions to Self-Test problems
- Deleted the second twin in the Problems
- Deleted Research It!

Chapter 8: Valuing Stocks

- Updated all table and figure values in the body of the chapter
- Added a Spreadsheet Tip box on using the NPV function for stock valuation
- Rewrote the introduction of the Variable-Growth Technique section

- Updated market and stock index discussions
- Changed Finance at Work box on psychology to focus on the GameStop event
- Revised examples to include new McDonald's and Coca-Cola's firm data and figures
- Increased the number of Excel problems and added Excel to examples
- Added Excel Solutions to Self-Test problems
- Deleted the second twin in the Problems
- Deleted Research It!
- Changed Mini-Case to Walmart valuation

Chapter 9: Characterizing Risk and Return

- Added a Spreadsheet Tip box on using statistics functions
- Updated all table and figure values in the body of the chapter
- Updated Time Out 9.1 and 9.2
- Added ETF popularity discussion to motivate diversification
- Updated the International Finance at Work box
- Updated the Google and GE text running examples
- Increased the number of Excel problems and added Excel to examples
- Added Chapter Spreadsheet Functions section
- Added Excel Solutions to Self-Test problems
- Deleted the second twin in the Problems
- Deleted Research It!
- Updated the data in the Mini-Case problem

Chapter 10: Estimating Risk and Return

- Added a Spreadsheet Tip box on using SLOPE to estimate beta
- Updated values and data in Tables 1.01 to 10.3
- Changed discussion and Figure 10.2
- Added discussion in Behavioral Finance section about market reaction and COVID
- Updated data for end-of-chapter Excel problem
- Increased the number of Excel problems and added Excel to examples
- Added Chapter Spreadsheet Functions section
- Added Excel Solutions to Self-Test problems
- Deleted the second twin in the Problems
- Deleted Research It!
- Updated the data in the Mini-Case problem

Chapter 11: Calculating the Cost of Capital

- Updated Viewpoints example to use a streaming device rather than MP3
- Added a Spreadsheet Tip box on calculating weighted average cost of capital
- Added a Spreadsheet Tip box on calculating an average
- Increased the number of Excel problems and added Excel to most examples
- Added Chapter Spreadsheet Functions section
- Deleted the second twin in the Problems
- Deleted Research It!

Chapter 12: Estimating Cash Flows on Capital Budgeting Projects

- Added a Spreadsheet Tip box on calculating straight-line depreciation
- Added a Spreadsheet Tip box on calculating OCF
- Added a Spreadsheet Tip box on calculating FCF
- Added a Spreadsheet Tip box on using tables to reference depreciation
- Added a Spreadsheet Tip box on calculating EAC
- Added Chapter Spreadsheet Functions section
- A majority of the Problems were turned into Excel problems
- Deleted Research It!

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

- Added Excel to most of the examples
- Added a Spreadsheet Tip box on calculating the crossover rate
- Added Chapter Spreadsheet Functions section
- Deleted the second twin in the Problems and added more Excel problems
- Deleted Research It!

Chapter 14: Working Capital Management and Policies

- Added Excel to the examples
- Added Chapter Spreadsheet Functions section
- Deleted the second twin in the Problems and added more Excel problems
- Deleted Research It!

Chapter 15: Financial Planning and Forecasting

- Added Excel to most of the examples
- Added Chapter Spreadsheet Functions section
- Deleted the second twin in the Problems and added more Excel problems
- Deleted Research It!

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

- Added Excel to most of the examples
- Added Chapter Spreadsheet Functions section
- Most of the end-of-chapter Problems were turned into Excel problems
- Deleted Research It!

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

- Added Excel to the examples
- Added Chapter Spreadsheet Functions section
- Deleted the second twin in the Problems and added more Excel problems
- Deleted Research It!

Chapter 18: Issuing Capital and the Investment Banking Process

- Added Excel to the examples
- Added material on the CARES Act passed into law in April 2020 as a response to the COVID-19 pandemic

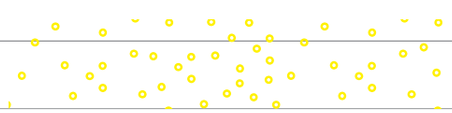
- Added Chapter Spreadsheet Functions section
- Deleted the second twin in the Problems and added more Excel problems
- Deleted Research It!

Chapter 19: International Corporate Finance

- Revised the chapter running discussion of Starbucks
- Updated Tables 19.1, 19.2, 19.3, 19.4, and discussion
- Updated Figures 19.1, 19.2, 19.3, 19.4, and discussion
- Triangular arbitrage example shown in spreadsheet
- Increased the number of Excel problems and added Excel to examples
- Added Excel Solutions to Self-Test problems
- Deleted the second twin in the Problems
- Deleted Research It!

Chapter 20: Mergers and Acquisitions and Financial Distress

- Added Excel to the examples
- Added Chapter Spreadsheet Functions section
- Deleted the second twin in the Problems
- Deleted Research It!



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 $9 BILLION BLUNDER

To this day, possibly one of the largest derivative trading losses was endured by JP Morgan Chase & Co. A huge trading bet backfired and left the bank with at least $9 billion in losses from the bad trade. The bank's chief investment officer (CIO), responsible for managing the New York company's risk, placed a series of risky bets and trades. An article published in *The Wall Street Journal* reported that "large positions taken in that office by a trader nicknamed 'the London whale' had roiled 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 (the CEO) 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 its reputation. Mr. Dimon reported that the loss is "slightly more than $2 billion" in the second quarter of this year. Less than two months later, losses were estimated to be as much as $9 billion.

Source: 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?

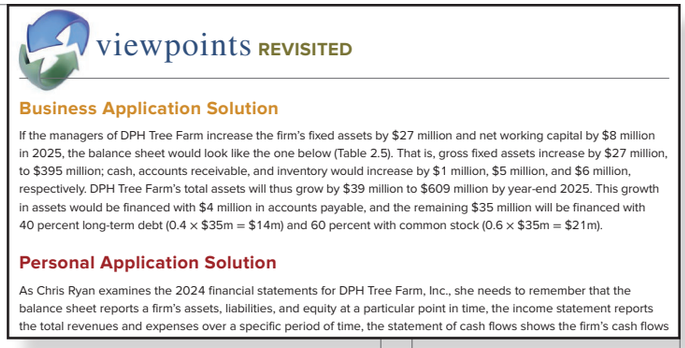
ANSWERS TO TIME OUT

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, marketable securities, and accounts receivable) available to pay each dollar of current liabilities. The cash ratio measures the dollars of cash and marketable securities avail-

PERSONAL PERSPECTIVE

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 www.mhhe.com/Cornett6e.



viewpoints REVISITED

Business Application Solution

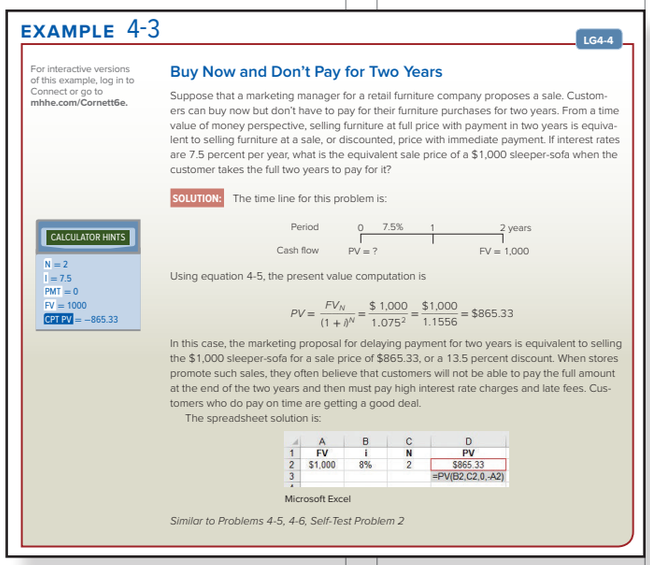
If the managers of DPH Tree Farm increase the firm's fixed assets by $27 million and net working capital by $8 million in 2025, the balance sheet would look like the one below (Table 2.5). That is, gross fixed assets increase by $27 million, to $395 million; cash, accounts receivable, and inventory would increase by $1 million, $5 million, and $6 million, respectively. DPH Tree Farm's total assets will thus grow by $39 million to $609 million by year-end 2025. This growth in assets would be financed with $4 million in accounts payable, and the remaining $35 million will be financed with 40 percent long-term debt (0.4 × $35m = $14m) and 60 percent with common stock (0.6 × $35m = $21m).

Personal Application Solution

As Chris Ryan examines the 2024 financial statements for DPH Tree Farm, Inc., she needs to remember that the balance sheet reports a firm's assets, liabilities, and equity at a particular point in time, the income statement reports the total revenues and expenses over a specific period of time, the statement of cash flows shows the firm's cash flows

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**. Most examples now also contain **solutions using Excel.** Each example contains a list of end-of-chapter problems that are similar, in order to better model the solution process.



EXAMPLE 4-3 LG4-4

For interactive versions of this example, log in to Connect or go to **mhhe.com/Cornett6e.**

Buy Now and Don't Pay for Two Years

Suppose that a marketing manager for a retail furniture company proposes a sale. Customers can buy now but don't have to pay for their furniture purchases for two years. From a time value of money perspective, selling furniture at full price with payment in two years is equivalent to selling furniture at a sale, or discounted, price with immediate payment. If interest rates are 7.5 percent per year, what is the equivalent sale price of a $1,000 sleeper-sofa when the customer takes the full two years to pay for it?

SOLUTION: The time line for this problem is:

CALCULATOR HINTS
N = 2
I = 7.5
PMT = 0
FV = 1000
CPT PV = −865.33

Period 0 7.5% 1 2 years
Cash flow PV = ? FV = 1,000

Using equation 4-5, the present value computation is

$$PV = \frac{FV_N}{(1+i)^N} = \frac{\$\,1,000}{1.075^2} = \frac{\$1,000}{1.1556} = \$865.33$$

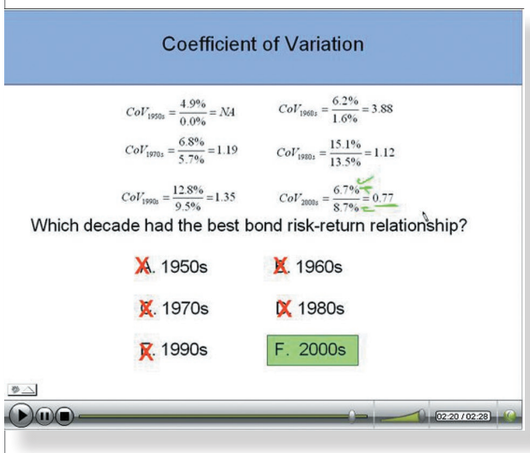
In this case, the marketing proposal for delaying payment for two years is equivalent to selling the $1,000 sleeper-sofa for a sale price of $865.33, or a 13.5 percent discount. When stores promote such sales, they often believe that customers will not be able to pay the full amount at the end of the two years and then must pay high interest rate charges and late fees. Customers who do pay on time are getting a good deal.

The spreadsheet solution is:

	A	B	C	D
1	FV	i	N	PV
2	$1,000	8%	2	$865.33
3				=PV(B2,C2,0,-A2)

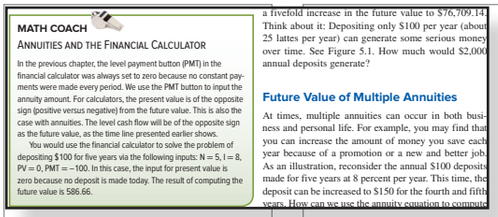
Microsoft Excel

Similar to Problems 4-5, 4-6, Self-Test Problem 2



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.



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 presented earlier shows.

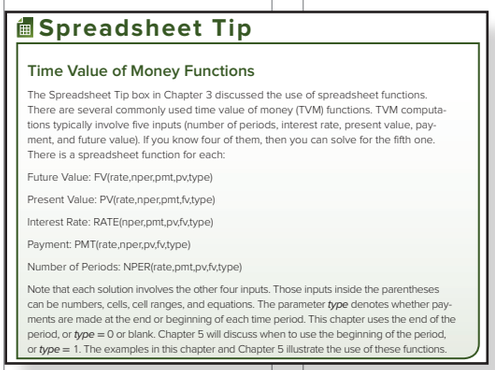
You would use the financial calculator to solve the problem of depositing $100 for five years via the following inputs: N = 5, I = 8, PV = 0, PMT = −100. In this case, the input for present value is zero because no deposit is made today. The result of computing the future value is 586.66.

a fivefold increase in the future value to $76,709.14.) Think about it: Depositing only $100 per year (about 25 lattes per year) can generate some serious money over time. See Figure 5.1. How much would $2,000 annual deposits generate?

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

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



Spreadsheet Tip

Time Value of Money Functions

The Spreadsheet Tip box in Chapter 3 discussed the use of spreadsheet functions. There are several commonly used time value of money (TVM) functions. TVM computations typically involve five inputs (number of periods, interest rate, present value, payment, and future value). If you know four of them, then you can solve for the fifth one. There is a spreadsheet function for each:

Future Value: FV(rate,nper,pmt,pv,type)

Present Value: PV(rate,nper,pmt,fv,type)

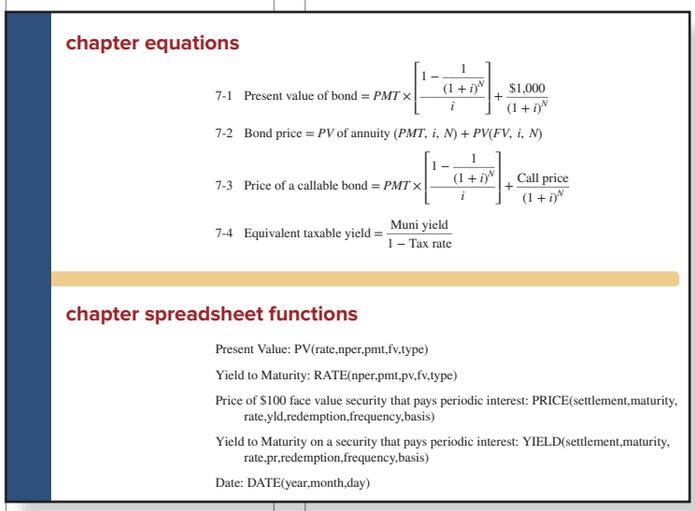
Interest Rate: RATE(nper,pmt,pv,fv,type)

Payment: PMT(rate,nper,pv,fv,type)

Number of Periods: NPER(rate,pmt,pv,fv,type)

Note that each solution involves the other four inputs. Those inputs inside the parentheses can be numbers, cells, cell ranges, and equations. The parameter *type* denotes whether payments are made at the end or beginning of each time period. This chapter uses the end of the period, or *type* = 0 or blank. Chapter 5 will discuss when to use the beginning of the period, or *type* = 1. The examples in this chapter and Chapter 5 illustrate the use of these functions.

Spreadsheet Tip boxes are featured in most chapters providing helpful guidance with formulas and Excel functions.



chapter equations

7-1 Present value of bond = $PMT \times \left[\frac{1 - \frac{1}{(1+i)^N}}{i}\right] + \frac{\$1{,}000}{(1+i)^N}$

7-2 Bond price = PV of annuity $(PMT, i, N) + PV(FV, i, N)$

7-3 Price of a callable bond = $PMT \times \left[\frac{1 - \frac{1}{(1+i)^N}}{i}\right] + \frac{\text{Call price}}{(1+i)^N}$

7-4 Equivalent taxable yield = $\frac{\text{Muni yield}}{1 - \text{Tax rate}}$

chapter spreadsheet functions

Present Value: PV(rate,nper,pmt,fv,type)

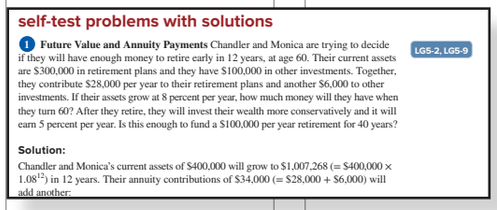
Yield to Maturity: RATE(nper,pmt,pv,fv,type)

Price of $100 face value security that pays periodic interest: PRICE(settlement,maturity, rate,yld,redemption,frequency,basis)

Yield to Maturity on a security that pays periodic interest: YIELD(settlement,maturity, rate,pr,redemption,frequency,basis)

Date: DATE(year,month,day)

List of equations and spreadsheet functions are featured at the end of each chapter, as applicable, to provide a quick summary of the key equations and spreadsheet functions used within a particular chapter.



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? LGS-2, LGS-9

Solution:

Chandler and Monica's current assets of $400,000 will grow to $1,007,268 (= $400,000 × 1.08^{12}) 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. Select self-test problems also feature worked out solutions using Excel.

Spreadsheet Problems have been expanded in this edition to provide more opportunity in solving problems that utilize Excel. These are denoted with a spreadsheet icon and are available as assignable content within Connect utilizing our exciting new Integrated Excel tool to provide opportunities for mastery in working with Excel

7-26 Spreadsheet Problem: Interest Rate Changes and Maturity You have a portfolio of three bonds. The long bond will mature in 19 years and has a 5.5 percent coupon rate. The midterm bond matures in 9 years and has a 6.6 percent coupon rate. The short bond matures in only 2 years and has a 4 percent coupon rate. *(LG7-5)*

a. Construct a spreadsheet that shows the value of these three bonds and the portfolio when the discount rate is 5 percent. The spreadsheet can look something like this:

	A	B	C	D	E
1					
2	Settlement date	11/15/2011	=DATE(2011,11,15)		
3	Maturity date	11/15/2026	=DATE(2026,11,15)		
4	Coupon Rate	5.50%			
5	Interest rate (Yld)	6.50%			
6	Redemption	100			
7	Frequency	2			
8					
9	Bond price (per $100 par value) =	$90.51	=PRICE(B2,B3,B4,B5,B6,B7,1)		
10	Bond price (per $1000 par value) =	$905.09	=10*B9		

Microsoft Excel

b. Illustrate what happens when the discount rate increases by 0.5 percent. What do you notice about the changes in price between the three bonds?

c. Show the bond prices when the discount rate decreases by 0.5 percent from the discount rate in part a. What do you notice about the price change between parts b and c?

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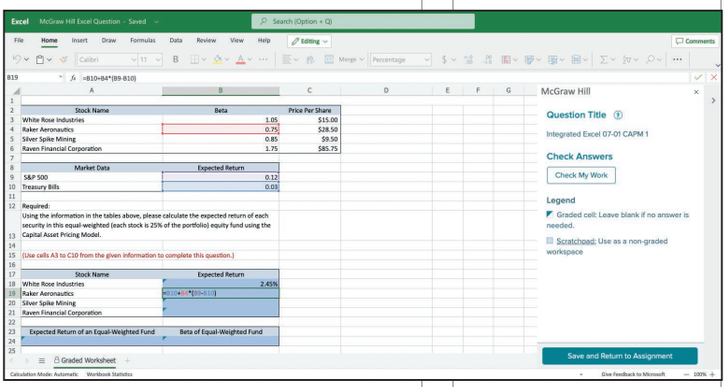

integrated mini-case **Working with Financial Statements**

Shown below are the partial financial statements for Garners' Platoon Mental Health Care, Inc. Fill in the blanks on the four income statements.

GARNERS' PLATOON MENTAL HEALTH CARE, INC.
Balance Sheet as of December 31, 2024 and 2023
(in millions of dollars)

	2024	2023		2024	2023
Assets			**Liabilities and Equity**		
Current assets:			Current liabilities:		
Cash and marketable securities	$ 421	$	Accrued wages and taxes	$ 316	$ 242
Accounts receivable		1,020	Accounts payable	867	791
Inventory	1,760	1,581	Notes payable		714
Total	$3,290	$	Total	$2,055	$1,747
Fixed assets:			Long-term debt:	$3,090	$
Gross plant and equipment	$	$4,743	Stockholders' equity:		
Less: Accumulated depreciation	840	640	Preferred stock (30 million shares)	$ 60	$ 60
Net plant and equipment	$4,972	$	Common stock and paid-in surplus (200 million shares)	637	
Other long-term assets		790	Retained earnings	3,312	2,440
Total	$5,864	$4,893	Total	$4,009	$3,137
Total assets	$	$7,889	Total liabilities and equity	$9,154	$7,889

GARNERS' PLATOON MENTAL HEALTH CARE, INC.
Income Statement for Years Ending December 31, 2024 and 2023
(in millions of dollars)

	2024	2023
Net sales	$ 4,980	$
Less: Cost of goods sold		2,035
Gross profits	$ 2,734	$ 2,313
Less: Other operating expenses	125	100
Earnings before interest, taxes, depreciation, and amortization (EBITDA)	$ 2,609	$ 2,213
Less: Depreciation	200	191
Earnings before interest and taxes (EBIT)	$ 2,409	$

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.

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

- **Test Bank** Revised by Leslie Rush, University of Hawaii West O'ahu, 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 Test Builder.
- **Test Builder in Connect** Available within Connect, Test Builder is a cloud-based tool that enables instructors to format tests that can be printed or administered within an LMS. Test Builder offers a modern, streamlined interface for easy content configuration that matches course needs, without requiring a download.

  Test Builder allows you to:

  - access all test bank content from a particular title.
  - easily pinpoint the most relevant content through robust filtering options.
  - manipulate the order of questions or scramble questions and/or answers.
  - pin questions to a specific location within a test.
  - determine your preferred treatment of algorithmic questions.
  - choose the layout and spacing.
  - add instructions and configure default settings.

  Test Builder provides a secure interface for better protection of content and allows for just-in-time updates to flow directly into assignments.
- **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 sixth edition by Courtney Baggett. 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.

REMOTE PROCTORING & BROWSER-LOCKING CAPABILITIES

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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.

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- **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.
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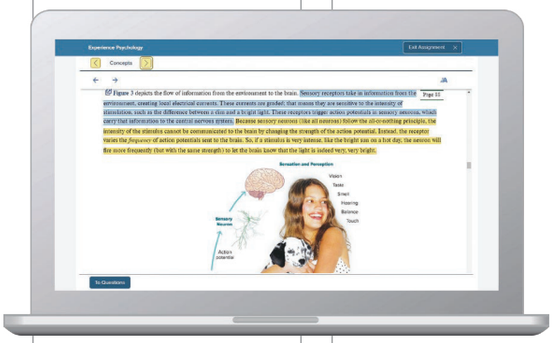

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Development of the first edition of this book series started with a course survey that was completed by 400 instructors across the country. The following is a list of the reviewers that became part of the many review stages, focus groups, and class-testing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

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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

table of contents

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PART ONE

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. Dagmar has heard that California Pizza Kitchen (CPK), JCPenney (JCP), and Chesapeake Energy Corporation (CHKAQ) all recently filed for bankruptcy in 2020, and that these firms' stockholders could lose 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.)**

Mc Graw Hill connect®

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 Understand how the new tax law impacts financial decision making.

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 *subareas* of the field of finance.

Sebastiaan Blockmans/Alamy Stock Photo

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.

LG1-1

1.1 • Finance in Business and in Life

If your career leads you to making financial decisions, then this book will be indispensable. But even if your career takes a different path, it is still 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 to 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.

financial markets

The arenas through which funds flow.

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 are going to 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, and who then turn around and (hopefully) repay the type 2 people, plus interest.

FIGURE 1.1

Participants in Our Hypothetical Economy
Four groups form according to the availability of money and ideas.

	No Extra Money	Extra Money
No Economically Viable Business Ideas	Type 1: No money and no ideas	Type 2: Money but no ideas
Economically Viable Business 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.

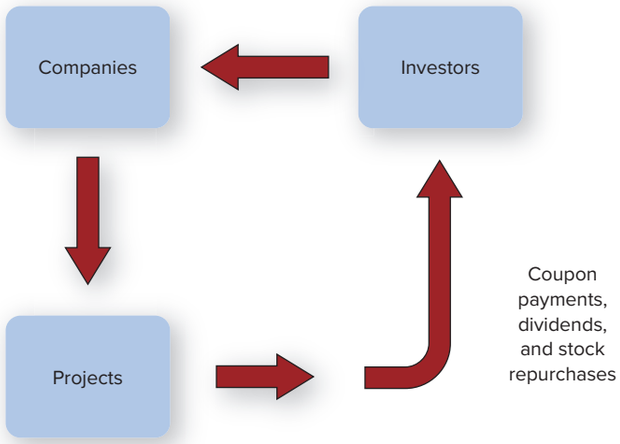


FIGURE 1.3

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.

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

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.

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

As described at the end of this chapter, tax laws in the United States underwent massive changes as a result of the Tax Cuts and Jobs Act (TCJA) signed into law by President Trump in 2017. As we'll discuss, many of these changes have significant impacts on the financial decisions of the firm.

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.

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.

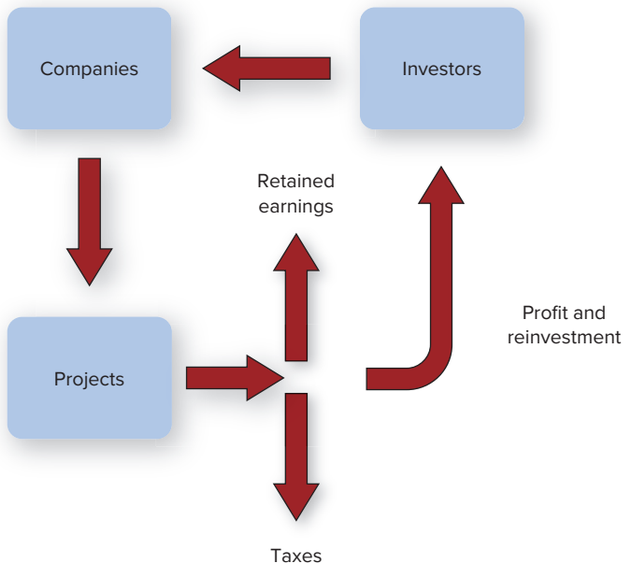
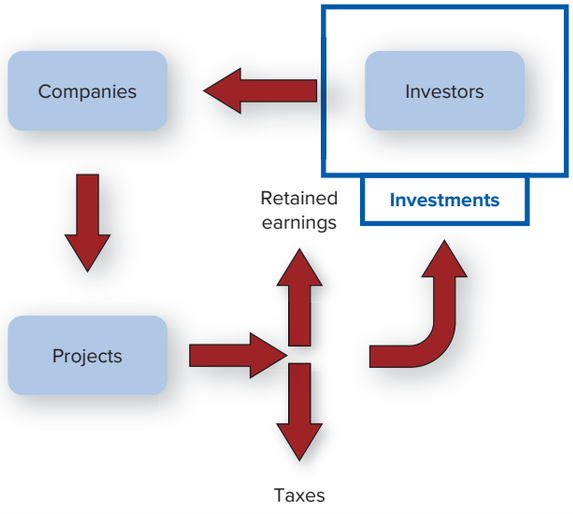


FIGURE 1.5

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

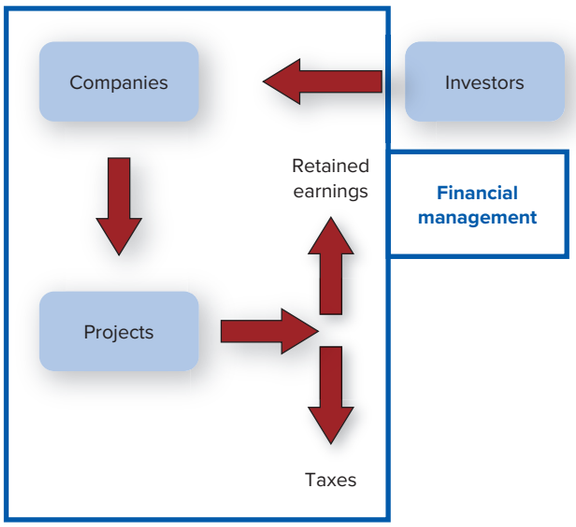


FIGURE 1.6

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

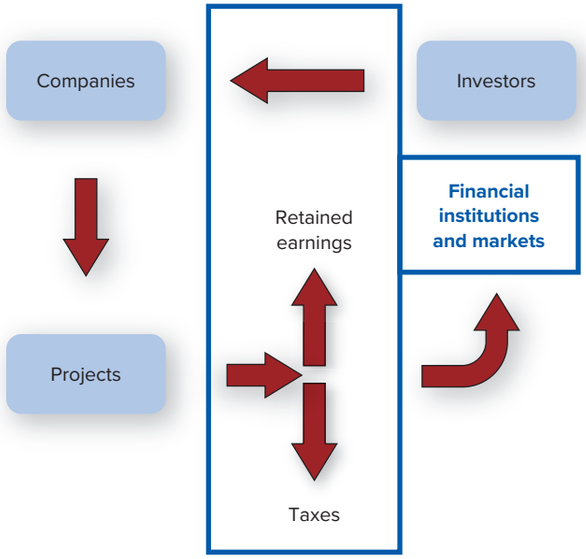


FIGURE 1.7

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.

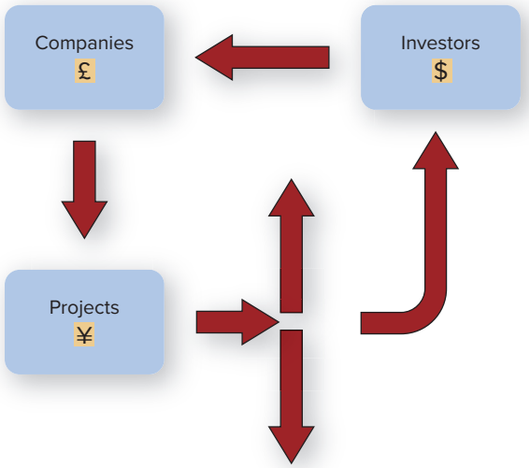
All of these decisions are quite involved, and we will discuss them throughout later chapters.

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
The use of finance theory in a global business environment.

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.

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.

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.

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

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 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.

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

finance at work — markets

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, the *federal funds rate,* the interest rate at which banks and other depository institutions lend reserve balances to one another overnight, and which heavily influences other short-term rates, was 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 percent on December 16, 2015. It was the first rate hike in nearly 10 years. Subsequently, the Fed continued to raise the Fed funds rate in 0.25 percent increments, until, by December of 2018, the rate had risen to 2.50 percent. This put the rate in the historical target range of 2 percent to 5 percent preferred by the Federal Reserve, but still at the low end of that range.

Amid signs that U.S. economic growth was slowing in 2019, the Fed reversed course and enacted several small decreases in the federal funds rate during that year, moving it down to 2.25 percent in August of that year, to 2.00 percent in September, and to 1.75 percent in October.

These moves were in accordance with economic theories stating that, when the Fed cuts its rates, borrowing costs in the economy decrease, and this prompts businesses to take out loans to hire more people and expand production.

However, the start of the COVID-19 pandemic in early 2020 prompted the Fed to take even more drastic action to try and help counter the economic effects of shutdowns and stay-at-home orders on the economy. They dropped the federal funds rate to 1.25 percent in early March of 2020, and then dropped it yet again to 0.25 percent on March 16, where it has stayed up to the date of the writing of this text in July 2021.

As we are still in the midst of the COVID-19 pandemic and economic recovery, it is impossible to say how long this most recent quantitative easing is likely to stay in effect. It is worth noting, however, that, if the QE associated with the Great Recession stayed in effect for almost 10 years, there is a very good chance that this round of QE will last as long, if not longer.

Want to Know More? Key Words to Search for Updates: quantitative easing, zero rate environment, QE taper, COVID-19

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.

Finance versus Accounting

In most companies, the financial function is usually closely associated with the accounting function. In a very rough sense, the accountant's job is to keep track of what happened *in the past* to the firm's money, while the finance job uses these historical figures with current information to determine what should happen *now and in the future* with the firm's money. The results of financial decisions will eventually appear in accounting statements, so this close association makes sense. Nevertheless, accounting tends to focus on and characterize the past, while finance focuses on the present and future.

TIME OUT

1-1 What are the main subareas of finance and how do they interact?

LG1-2

1.2 • The Financial Function

As we said previously, this text focuses primarily on financial management, so we will discuss the particular functions and responsibilities of the firm's financial manager. We will also explain how the financial function fits in and interacts with the other areas of the firm. Finally, to make this study as interesting and as relevant as possible, we will make the connections that allow you to see how the concepts covered in this book are important in your own personal finances.

The Financial Manager

The firm's highest-level financial manager is usually the chief financial officer, or CFO. Both the company treasurer and the controller report to the CFO. The treasurer is typically responsible for

- Managing cash and credit.
- Issuing and repurchasing financial securities such as stocks and bonds.
- Deciding how and when to spend capital for new and existing projects.
- Hedging (reducing the firm's potential risk) against changes in foreign exchange and interest rates.

In larger corporations, the treasurer may also oversee other areas, such as purchasing insurance or managing the firm's pension fund investments. The controller oversees the accounting function, usually managing the tax, cost accounting, financial accounting, and data processing functions.

Finance in Other Business Functions

Although the CFO and treasurer positions tend to be the firm's most visible finance-related positions, finance affects the firm in many ways and throughout all levels of a company's organizational chart. Finance permeates the entire business organization, providing guidance for both strategic and day-to-day decisions of the firm and collecting information for control and feedback about the firm's financial decisions.

Operational managers use finance daily to determine how much overtime labor to use, or to perform cost/benefit analysis when they consider new production lines or methods. Marketing managers use finance to assess the cost-effectiveness of doing follow-up marketing surveys. Human resource managers use finance to evaluate the company's cost for various employee benefit packages. No matter where you work in business, finance can help you do your job better.

defined benefit plan

A retirement plan in which the employer funds a pension generally based on each employee's years of service and salary.

Finance in Your Personal Life

LG1-3

Finance can help you make good financial decisions in your personal life. Consider these common activities you will probably face in your life:

- Borrowing money to buy a new car.
- Refinancing your home mortgage at a lower rate.
- Making credit card or student loan payments.
- Saving for retirement.

You will be able to perform all of these tasks better after learning about finance. Recent changes throughout our economy and the U.S. business environment make knowledge of finance even more valuable to you than before. For example, most companies have switched from providing **defined benefit** retirement plans to employees to offering **defined contribution** plans (such as **401k plans**) and self-funded plans like **Individual Retirement Accounts (IRAs).** Tax changes in the early 1980s made this switch more or less inevitable. It appears that each of us will have to ensure adequate funds for our own retirement—much more so than previous generations.

defined contribution plan

A retirement plan in which the employee contributes money and directs its investment. The amount of retirement benefits is directly related to the amount of money contributed and the success of its investment.

401k plan

A defined contribution plan that is sponsored by corporate employers.

LG1-3

EXAMPLE 1-1

Finance Applications

For interactive versions of this example, log in to Connect or go to mhhe.com/Cornett6e.

Chloe realizes how important finance will be for her future business career. However, some of the ways that she will see financial applications seem way off in the future. She is curious about how the theory applies to her personal life, both in the near term and in the long term.

SOLUTION: Chloe will quickly find that her financial health now and in the future will depend upon many decisions she makes as she goes through life—starting now! For example, she will learn that the same tools that she applies to a business loan analysis can be applied to her own personal debt. After this course, Chloe will be able to evaluate credit card offers and select one that could save her hundreds of dollars per year. When she buys a new car and the dealership offers her a low-interest-rate loan or a higher-rate loan with cash back, she will be able to pick the option that will truly cost her the least. Also, when Chloe gets her first professional job, she will know how to direct her retirement account so that she can earn millions of dollars for her future. (Of course, inflation between now and when she retires will imply that Chloe's millions won't be worth as much as they would today.)

TIME OUT

1-2 How might the application of finance improve your professional and personal decisions?

Individual Retirement Account (IRA)

A self-sponsored retirement program.

LG1-4

1.3 • Business Organization

In the United States, people can structure businesses in any of several ways; the number of owners is the key to how business structures are classified. Traditionally, single owners, partners, and corporations operate businesses. We can express the advantages and disadvantages of each organizational form through several dimensions:

- Who controls the firm.
- Who owns the firm.
- What are the owners' risks.
- What access to capital exists.
- What are the tax ramifications.

Recently, small businesses have adopted hybrid structures that capture the benefits from multiple organizational forms. We'll discuss those hybrid structures after we cover the more common, traditional types of business organizations.

sole proprietorship
A business entity that is not legally separate from its owner.

unlimited liability
A situation in which a person's personal assets are at risk from a business liability.

equity
An ownership interest in a business enterprise.

angel investors
Individuals who provide small amounts of capital and expert business advice to small firms in exchange for an ownership stake in the firm.

venture capitalists
Similar to angel investors except that they are organized as groups of investors and can provide larger amounts of capital.

general partnership
A form of business organization where the partners own the business together and are personally liable for legal actions and debts of the firm.

Sole Proprietorships

The **sole proprietorship** represents, by far, the most common type of business in the United States.[1] A sole proprietorship is defined as any unincorporated business owned by a single individual.[2] Perhaps these businesses are so popular because they are relatively easy to start, and they're subject to a much lighter regulatory and paperwork burden than other business forms. The owner, or sole proprietor, of the business has complete control of the firm's activities. The owner also receives all of the firm's profits and is solely responsible for all losses.

The biggest disadvantage that sole proprietorships carry relative to other organizational forms is that they have **unlimited liability** for their companies' debts and actions. The owner's personal assets may be confiscated if the business fails. The law recognizes no distinction between the owner's business assets and personal assets. The income of the business is also added to the owner's personal income and taxed by the government at the appropriate personal tax rate. Finally, sole proprietors have a difficult time obtaining capital to expand their business operations. Banks and other lenders are not typically interested in lending much money to sole proprietors because small firms have only one person liable for paying back the debt. A sole proprietor could raise capital by issuing **equity** to another investor. **Angel investors** and **venture capitalists** exchange capital for ownership in a business. But this requires re-forming the business as a partnership and the sole proprietor must give up some of the ownership (and thus control) of the firm. Table 1.1 summarizes sole proprietorships' characteristics, along with those of the three other business organizations we will study.

Partnerships

A **general partnership,** or as it is more commonly known, a *partnership,* is an organizational form that features multiple individual owners. Each partner can own a different percentage of the firm. Firm control is typically determined by the size of partners' ownership stakes. Business profits are split among the partners according to a prearranged agreement, usually by the percentage of firm ownership. Received profits are added to each partner's personal income and taxed at personal income tax rates.

[1]According to the Small Business Administration, over 70 percent of all businesses in the U.S. were sole proprietorships.
[2]However, if you are the sole member of a domestic limited liability company (LLC, discussed below), you are not a sole proprietor if you elect to treat the LLC as a corporation.

TABLE 1.1 Characteristics of Business Organization

	Ownership	Control	Ownership Risk	Access to Capital	Taxes
Sole Proprietor	Single individual	Proprietor	Unlimited liability	Very limited	Paid by owner
Partnership	Multiple people	Shared by partners	Unlimited liability	Limited	Paid by partners
Corporation	Public investors who own the stock	Company managers	Stockholders can only lose their investment in the firm	Easy access	Corporation pays income tax and stockholders pay taxes on dividends
Hybrids: S corp, LLP, LLC, LP	Partners or shareholders	Shared	Mostly limited	Limited by firm size restrictions	Paid by partners or shareholders

The partners jointly share unlimited personal liability for the debts of the firm and all are obligated for contracts agreed to by any one of the partners. Banks are more willing to lend to partnerships than to sole proprietorships because all partners are liable for repaying the debt. Partners would have to give up some ownership and control in the firm to raise more equity capital. In order to raise enough capital for substantial growth, a partnership often changes into a public corporation.

Corporations

A **public corporation** is a legally independent entity entirely separate from its owners. This independence dramatically alters the firm's characteristics. Corporations hold many rights and obligations of individual persons, such as the ability to own property, sign binding contracts, and pay taxes. Federal and state governments tax corporate income once at the corporate level. Then shareholders pay taxes again at the personal level when corporate profits are paid out as dividends. This practice is generally known as **double taxation.**

public corporation
A company owned by a large number of stockholders from the general public.

double taxation
A situation in which two taxes must be paid on the same income.

Corporate owners are stockholders, also called *shareholders.* Public corporations typically have thousands of stockholders. The firm must hire managers to direct the firm since thousands of individual shareholders could not direct day-to-day operations under any sort of consensus. As a result, managers control the company. Strong possibilities of conflicts of interests arise when one group of people owns the business, but another group controls it. We'll discuss conflicts of interest and their resolution later in the chapter.

As individual legal entities, corporations assume liability for their own debts, so the shareholders have only **limited liability.** That is, corporate shareholders cannot lose more money than they originally paid for their shares of stock. This limited liability is one reason that many people feel comfortable owning stock. Corporations are thus able to raise incredible amounts of money by selling stock (equity) and borrowing money. The largest businesses in the world are organized as corporations.

limited liability
Limitation of a person's financial liability to a fixed sum or investment.

Hybrid Organizations

To promote the growth of small businesses, the U.S. government allows for several types of business organizations that simultaneously offer limited personal liability for the owners *and* provide a pass-through of all firm earnings to the owners, so that the earnings are subject only to single taxation.

Hybrid organizations offer single taxation and limited liability to all owners. Examples are *S corporations, limited liability partnerships* (*LLPs*), and *limited liability companies* (*LLCs*). Others, called *limited partnerships* (*LPs*), offer single taxation and limited liability to the *limited partners,* but also have *general partners,* who benefit from single taxation but also must bear personal liability for the firm's debts.

hybrid organizations
Business forms that have some attributes of corporations and some of proprietorships/partnerships.