

GLOBAL  
EDITION



# Principles of Managerial Finance

FOURTEENTH EDITION

Lawrence J. Gitman • Chad J. Zutter



ALWAYS LEARNING

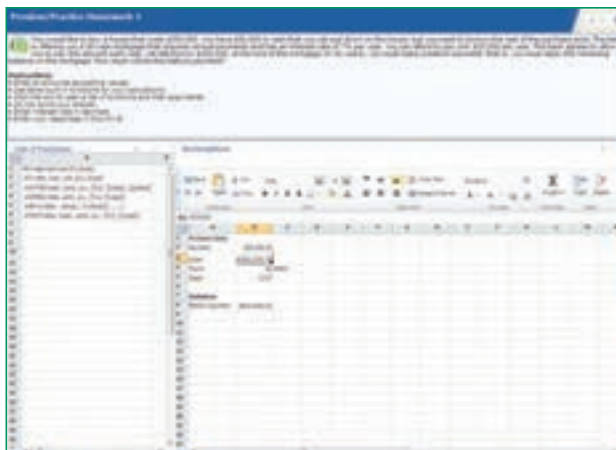
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Principles of

# Managerial Finance

Global Edition

Fourteenth Edition

Lawrence J. Gitman

*San Diego State University*

Chad J. Zutter

*University of Pittsburgh*

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**PEARSON**

*Dedicated to the memory  
of my mother, Dr. Edith Gitman,  
who instilled in me the importance  
of education and hard work.*

LJG

*Dedicated to my wonderful children,  
Logan, Henry, Evelyn, and Oliver, who provide me with  
constant commotion, fun, and affection.*

CJZ

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# Our Proven Teaching and Learning System

Users of *Principles of Managerial Finance* have praised the effectiveness of the book's Teaching and Learning System, which they hail as one of its hallmarks. The system, driven by a set of carefully developed learning goals, has been retained and polished in this fourteenth edition. The “walkthrough” on the pages that follow illustrates and describes the key elements of the Teaching and Learning System. We encourage both students and instructors to acquaint themselves at the start of the semester with the many useful features the book offers.

**1 The Role of Managerial Finance**

**Learning Goals**

- LG 1** Define *finance* and the managerial finance function.
- LG 2** Describe the legal forms of business organization.
- LG 3** Describe the goal of the firm, and explain why maximizing the value of the firm is an appropriate goal for a business.
- LG 4** Describe how the managerial finance function is related to economics and accounting.
- LG 5** Identify the primary activities of the financial manager.
- LG 6** Describe the nature of the principal-agent relationship between the owners and managers of a corporation, and explain how various corporate governance mechanisms attempt to manage agency problems.

**Why This Chapter Matters to You**

In your *professional* life

**ACCOUNTING** You need to understand the relationships between the accounting and finance functions within the firm, how decision makers rely on the financial statements you prepare, why maximizing a firm's value is not the same as maximizing its profits, and the ethical duty you have when reporting financial results to investors and other stakeholders.

**INFORMATION SYSTEMS** You need to understand why financial information is important to managers in all functional areas, the documentation that firms must produce to comply with various regulations, and how manipulating information for personal gain can get managers into serious trouble.

**MANAGEMENT** You need to understand the various legal forms of a business organization, how to communicate the goal of the firm to employees and other stakeholders, the advantages and disadvantages of the agency relationship between a firm's managers and its owners, and how compensation systems can align or misalign the interests of managers and investors.

**MARKETING** You need to understand why increasing a firm's revenues or market share is not always a good thing, how financial managers evaluate aspects of customer relations such as cash and credit management policies, and why a firm's brands are an important part of its value to investors.

**OPERATIONS** You need to understand the financial benefits of increasing a firm's production efficiency, why maximizing profit by cutting costs may not increase the firm's value, and how managers act on behalf of investors when operating a corporation.

In your *personal* life Many of the principles of managerial finance also apply to your personal life. Learning a few simple financial principles can help you manage your own money more effectively.

2

Six **Learning Goals** at the start of the chapter highlight the most important concepts and techniques in the chapter. Students are reminded to think about the learning goals while working through the chapter by strategically placed **learning goal icons**.

Every chapter opens with a feature, titled **Why This Chapter Matters to You**, that helps motivate student interest by highlighting both professional and personal benefits from achieving the chapter learning goals.

Its first part, **In Your Professional Life**, discusses the intersection of the finance topics covered in the chapter with the concerns of other major business disciplines. It encourages students majoring in accounting, information systems, management, marketing, and operations to appreciate how financial acumen will help them achieve their professional goals.

The second part, **In Your Personal Life**, identifies topics in the chapter that will have particular application to personal finance. This feature also helps students appreciate the tasks performed in a business setting by pointing out that the tasks are not necessarily different from those that are relevant in their personal lives.




Each chapter begins with a short **opening vignette** that describes a recent real-company event related to the chapter topic. These stories raise interest in the chapter by demonstrating its relevance in the business world.

### Tesla Motors

**Going Green to Find Value**

One of the most “hotly” debated topics of our day has been the issue of global warming and the benefits and costs of lower emissions. Many companies are investing in radical new technologies with the hope of capitalizing on the going green movement. On June 29, 2010, Tesla Motors raised \$226 million in its initial public offering (IPO) of common stock. Tesla, whose shares trade on the Nasdaq stock exchange, was the first automaker to use lithium ion batteries to produce an all-electric vehicle with a range of more than 200 miles. Even though Tesla racked up losses of \$279 million from 2006 to 2009 and had never been profitable, investors were enthusiastic about the IPO, and Tesla’s stock price rose from \$17 to \$24 on its first day of trading.

Excitement about Tesla’s prospects was fueled in part by its mission to reduce carbon emissions and in part by its charismatic cofounder, Elon Musk, who had previously started several successful companies, including PayPal. It also helped that the federal government offered a tax subsidy of \$7,500 to anyone who purchased an electric vehicle, and some states offered additional tax incentives. In its first 2 years as a public company, Tesla continued to struggle to become profitable, but its stock price gradually trended upward. In 2013, Tesla reported its first quarterly profit as well as its first quarter of positive cash flow. Just days after that news hit the markets, *Consumer Reports* announced that Tesla’s sedan, the Model S, was the best car it had ever tested, receiving the highest score in the magazine’s history, a 99 out of 100. From May 8 to May 13, the company’s stock rose 57 percent! In the long run, Tesla’s stock price will depend on its ability to generate positive cash flows, without the help of government subsidies, and convince the market of its ability to do so into the future.



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**Learning goal icons** tie chapter content to the learning goals and appear next to related text sections and again in the chapter-end summary, end-of-chapter homework materials, and supplements such as the *Study Guide*, *Test Item File*, and MyFinanceLab.

**LG 2** **LG 3** **6.2 Corporate Bonds**

MyFinanceLab Video

**corporate bond**  
A long-term debt instrument indicating that a corporation has borrowed a certain amount of money and promises to repay it in the future under clearly defined terms.

A **corporate bond** is a long-term debt instrument indicating that a corporation has borrowed a certain amount of money and promises to repay it in the future under clearly defined terms. Most bonds are issued with maturities of 10 to 30 years and with a par value, or face value, of \$1,000. The coupon interest rate on a bond represents the percentage of the bond’s par value that will be paid annually, typically in two equal semiannual payments, as interest. The bondholders, who are the lenders, are promised the semiannual interest payments and, at maturity, repayment of the principal amount.

For help in study and review, boldfaced **key terms** and their definitions appear in the margin where they are first introduced. These terms are also boldfaced in the book’s index and appear in the end-of-book glossary.

**corporation**  
An entity created by law.

**stockholders**  
The owners of a corporation, whose ownership, or *equity*, takes the form of common stock or, less frequently, preferred stock.

**Corporations**  
A **corporation** is an entity created by law. A corporation has the legal powers of an individual in that it can sue and be sued, make and be party to contracts, and acquire property in its own name. Although only about 20 percent of all U.S. businesses are incorporated, the largest businesses nearly always are; corporations account for roughly 80 percent of total business revenues. Although corporations engage in all types of businesses, manufacturing firms account for the largest portion of corporate business receipts and net profits. Table 1.1 lists the key strengths and weaknesses of corporations.

**Matter of Fact** boxes provide interesting empirical facts that add background and depth to the material covered in the chapter.

**Matter of fact**

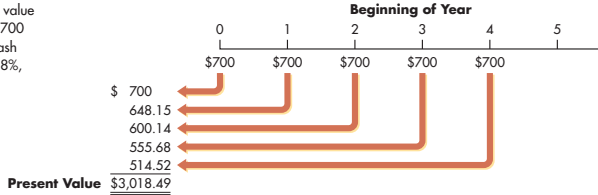
**Bond Yields Hit Record Lows**

On July 25, 2012, the 10-year Treasury note and 30-year Treasury bond yields reached all-time lows of 1.43% and 2.46%. That was good news for the housing market. Many mortgage rates are linked to rates on Treasury securities. For example, the traditional 30-year mortgage rate is typically linked to the yield on 10-year Treasury notes. With mortgage rates reaching new lows, potential buyers found that they could afford more expensive homes, and existing homeowners were able to refinance their existing loans, lowering their monthly mortgage payments and leaving them with more money to spend on other things. This kind of activity is precisely what the Federal Reserve hoped to stimulate by keeping interest rates low during the economic recovery.

**IRF Example 5.10**

In Example 5.8 of Braden Company, we found the present value of Braden's \$700, 5-year ordinary annuity discounted at 8% to be \$2,794.90. If we now assume that Braden's \$700 annual cash flow occurs at the *start* of each year and is thereby an annuity due. This situation is depicted on the following time line.

Time line for present value of an annuity due (\$700 beginning-of-year cash flows, discounted at 8%, over 5 years)

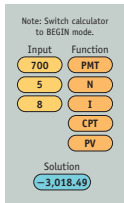


We can calculate its present value using a calculator or a spreadsheet.

**Calculator use** Before using your calculator to find the present value of an annuity due, you must either switch it to BEGIN mode or use the DUE key, depending on the specifics of your calculator. Then, using the inputs shown at the left, you will find the present value of the annuity due to be \$3,018.49 (Note: Because we nearly always assume end-of-period cash flows, be sure to switch your calculator back to END mode when you have completed your annuity-due calculations.)

**Spreadsheet use** The present value of the annuity due also can be calculated as shown on the following Excel spreadsheet.

MyFinanceLab Financial Calculator



	A	B
1	PRESENT VALUE OF AN ANNUITY DUE	
2	Annual annuity payment	\$700
3	Annual rate of interest	8%
4	Number of years	5
5	Present value	-\$3,018.49

Entry in Cell B5 is =PV(B3,B4,B2,0,1).  
The minus sign appears before the \$3,018.49 in B5 because the annuity's present value is a cost and therefore a cash outflow.

**Examples** are an important component of the book's learning system. Numbered and clearly set off from the text, they provide an immediate and concrete demonstration of how to apply financial concepts, tools, and techniques.

Some examples demonstrate time-value-of-money techniques. These examples often show the use of time lines, equations, financial calculators, and spreadsheets (with cell formulas).

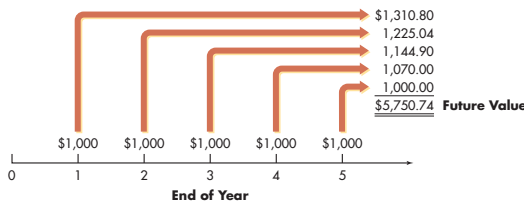
**New!** An IRF icon, which appears with some examples, indicates that the example can be solved using the interest rate factors. The reader can access the *Interest Rate Factor Supplement* at MyFinanceLab. The *Interest Rate Factor Supplement* is a self-contained supplement that explains how the reader should use the interest rate factors and documents how the in-chapter examples can be solved by using them.

MyFinanceLab contains additional resources to demonstrate the examples. **New!** The MyFinanceLab Financial Calculator reference indicates that the reader can use the finance calculator tool in MyFinanceLab to find the solution for an example by inputting the keystrokes shown in the calculator screenshot. **New!** The MyFinanceLab Solution Video reference indicates that the reader can watch a video in MyFinanceLab of the author discussing or solving the example. **New!** The MyFinanceLab Video reference indicates that the reader can watch a video on related core topical areas.

**IRF Personal Finance Example 5.7**

Fran Abrams wishes to determine how much money she will have at the end of 5 years if she chooses annuity A, the ordinary annuity. She will deposit \$1,000 annually, at the *end of each* of the next 5 years, into a savings account paying 7% annual interest. This situation is depicted on the following time line.

Time line for future value of an ordinary annuity (\$1,000 end-of-year deposit, earning 7%, at the end of 5 years)



As the figure shows, at the end of year 5, Fran will have \$5,750.74 in her account. Note that because the deposits are made at the end of the year, the first

**Personal Finance Examples** demonstrate how students can apply managerial finance concepts, tools, and techniques to their personal financial decisions.

**Key Equations** appear in blue boxes throughout the text to help readers identify the most important mathematical relationships. The variables used in these equations are, for convenience, printed on the *front endpapers* of the book.

$$PV = CF \div r \quad (5.7)$$

**Review Questions** appear at the end of each major text section. These questions challenge readers to stop and test their understanding of key concepts, tools, techniques, and practices before moving on to the next section.

New! **Excel Review Questions** ask readers to complete problems using a simulated Excel spreadsheet in MyFinanceLab that resemble the examples demonstrated in the corresponding section. These problems allow students to gain experience building Excel spreadsheet solutions and developing valuable business skill.

- **REVIEW QUESTIONS**
- 5-10 What is the difference between an *ordinary annuity* and an *annuity due*? Which is more valuable? Why?
  - 5-11 What are the most efficient ways to calculate the present value of an ordinary annuity?
  - 5-12 How can the formula for the future value of an annuity be modified to find the future value of an annuity due?
  - 5-13 How can the formula for the present value of an ordinary annuity be modified to find the present value of an annuity due?
  - 5-14 What is a *perpetuity*? Why is the present value of a perpetuity equal to the annual cash payment divided by the interest rate?
- **EXCEL REVIEW QUESTIONS MyFinanceLab**
- 5-15 Since tax time comes around every year you smartly decide to make equal contributions to your IRA at the end of every year. Based on the information provided at MFL, calculate the future value of annual IRA contributions grown until retirement.
  - 5-16 You have just graduated from college, begun your new career, and now it is time to buy your first home. Based on the information provided at MFL, determine how much you can spend for your new dream home.
  - 5-17 Rather than making contributions to an IRA at the end of each year, you decide to make equal contributions at the beginning of each year. Based on the information provided at MFL, solve for the future value of beginning-of-year annual IRA contributions grown until retirement.

**In Practice** boxes offer insights into important topics in managerial finance through the experiences of real companies, both large and small. There are three categories of In Practice boxes:

**Focus on Ethics** boxes in every chapter help readers understand and appreciate important ethical issues and problems related to managerial finance.

**Focus on Practice** boxes take a corporate focus that relates a business event or situation to a specific financial concept or technique.

**Global Focus** boxes look specifically at the managerial finance experiences of international companies.

All three types of In Practice boxes end with one or more *critical thinking questions* to help readers broaden the lesson from the content of the box.

**focus on ETHICS**

**If It Seems Too Good to Be True, It Probably Is**

**In practice** For many years, investors around the world clamored to invest with Bernard Madoff. Those fortunate enough to invest with “Bernie” might not have understood his asset trading system. Over the years, suspicions were raised about Madoff. He generated high returns year after year, seemingly with very little risk. Madoff credited his complex trading strategy for his investment performance, but other investors reported in these statements. However, a court ruling only permits claims up to the difference between the amount an investor deposited with Madoff and the amount the investor withdrew. The judge also ruled that investors who managed to

**focus on PRACTICE**

**Limits on Payback Analysis**

**In practice** In tough economic times, the standard for a payback period is often reduced. Chief information officers (CIOs) are apt to reject projects with payback periods of more than 2 years. “We start with payback period,” says Ron Fijalkowski, CIO at Strategic Distribution, Inc., in Bensalem, Pennsylvania. “For sure, if the payback period is over 36 months, it’s not going to get approved. But our rule of thumb is we’d like to see 24 months. And if it’s close to 12, it’s probably a no-brainer.” Although easy to compute and easy to understand, the payback period’s simplicity brings with it some drawbacks. “Payback gives you an answer that tells you a bit about the beginning consultancy in Barrington, Illinois. “The simplicity of computing payback may encourage sloppiness, especially the failure to include all costs associated with an investment, such as training, maintenance, and hardware upgrade costs,” says Douglas Emond, senior vice president and chief technology officer at Eastern Bank in Lynn, Massachusetts. For example, he says, “you may be bringing in a hot new technology, but uh-oh, after implementation you realize that you need a .Net guru in-house, and you don’t have one.” But the payback method’s emphasis on the short term has a special appeal for IT managers. “That’s because the history of IT projects that take longer than 3 years is disastrous,” says Gard-

metric for evaluating IT projects—even more important than discounted cash flow (NPV and IRR)—because it spotlights the risks inherent in lengthy IT projects. “It should be a hard-and-fast rule to never take an IT project with a payback period greater than 3 years, unless it’s an infrastructure project you can’t do without,” Campbell says. Whatever the weaknesses of the payback period method of evaluating capital projects, the simplicity of the method does allow it to be used in conjunction with other, more sophisticated measures. It can be used to screen potential projects and winnow them down to the few that merit more careful scrutiny with, for example, net present value (NPV).

► **In your view, if the payback period**

**GLOBAL focus**

**An International Flavor to Risk Reduction**

**In practice** Earlier in this chapter (see Table 8.5 on page 324), we learned that from 1900 through 2011, the U.S. stock market produced an average annual nominal return of 9.3 percent, but that return was associated with a relatively high standard deviation: 20.2 percent per year. Could U.S. investors have done better by diversifying globally? The answer is a qualified yes. Eloy Dimson, Paul Marsh, and Mike Staunton calculated the historical returns on a portfolio that included U.S. stocks as well as stocks from 18 other countries. This diversified portfolio produced returns that were not quite as high as the U.S. average, just 8.5 percent per year. However, the globally diversified portfolio was also less volatile, with an annual standard deviation of 17.7 percent. Dividing the standard deviation by the annual return produces a coefficient of variation for the globally diversified portfolio of 2.08, slightly lower than the 2.17 coefficient of variation reported for U.S. stocks in Table 8.5. ► **International mutual funds do not include any domestic assets, whereas global mutual funds include both foreign and domestic assets. How might this difference affect their correlation with U.S. equity mutual funds?**

Source: Eloy Dimson, Paul Marsh, Mike Staunton, Paul McGinnie, and Jonathan Wilmut, *Credit Suisse Global Investment Returns Yearbook 2012*.

## Summary

### FOCUS ON VALUE

Time value of money is an important tool that financial managers and other market participants use to assess the effects of proposed actions. Because firms have long lives and some decisions affect their long-term cash flows, the effective application of time-value-of-money techniques is extremely important. These techniques enable financial managers to evaluate cash flows occurring at different times so as to combine, compare, and evaluate them and link them to the firm's

### REVIEW OF LEARNING GOALS

**LG 1** Discuss the role of time value in finance, the use of computational tools, and the basic patterns of cash flow. Financial managers and investors use time-value-of-money techniques when assessing the value of expected cash flow streams. Alternatives can be assessed by either compounding to find future value or discounting to find present value. Financial managers rely primarily on present value techniques. Financial calculators, electronic spreadsheets, and financial tables can streamline the application of time value techniques. The cash flow of a firm can be described by its pattern: single amount, annuity, or mixed stream.

The end-of-chapter **Summary** consists of two sections. The first section, **Focus on Value**, explains how the chapter's content relates to the firm's goal of maximizing owner wealth. This feature helps reinforce understanding of the link between the financial manager's actions and share value.

The second part of the Summary, the **Review of Learning Goals**, restates each learning goal and summarizes the key material that was presented to support mastery of the goal. This review provides students with an opportunity to reconcile what they have learned with the learning goal and to confirm their understanding before moving forward.

## Opener-in-Review

Tesla Motors shares were initially offered to investors at \$17. Three years later, the price was \$90 per share. What was the compound annual return that Tesla investors owned over this period? Given that Tesla paid no dividends and was not expected to start paying dividends anytime soon, what method might analysts have used to value the company's shares in 2013? The company sold 13.3 million shares in its IPO with a par value of \$0.001 per share. How much paid-in capital did Tesla record on its balance sheet as a result of the IPO? Do you think that the highly favorable *Consumer Reports* review of the Model S boosted Tesla's stock primarily because the review reduced the company's risk or because it boosted expected cash flows?

## Self-Test Problems (Solutions in Appendix)

**LG 3** **LG 4** **ST3-1** **Ratio formulas and interpretations** Without referring to the text, indicate for each of the following ratios the formula for calculating it and the kinds of problems, if any, the firm may have if that ratio is too high relative to the industry average. What if the ratio is too low relative to the industry average? Create a table similar to the one that follows and fill in the empty blocks.

**LG 5**

**Opener-in-Review** questions at the end of each chapter revisit the opening vignette and ask students to apply lessons from the chapter to that business situation.

**Self-Test Problems**, keyed to the learning goals, give readers an opportunity to strengthen their understanding of topics by doing a sample problem. For reinforcement, solutions to the Self-Test Problems appear in the appendix at the back of the book. An IRF icon indicates that the Self-Test Problem can be solved using the interest rate factors. The reader can access the Interest Rate Factor Supplement at MyFinanceLab.

## Warm-Up Exercises All problems are available in MyFinanceLab.

- LG 1** **E4-1** The installed cost of a new computerized controller was \$65,000. Calculate the depreciation schedule by year assuming a recovery period of 5 years and using the appropriate MACRS depreciation percentages given in Table 4.2 on page 120.
- LG 2** **E4-2** Classify the following changes in each of the accounts as either an *inflow* or an *outflow* of cash. During the year (a) marketable securities increased, (b) land and buildings decreased, (c) accounts payable increased, (d) vehicles decreased, (e) accounts receivable increased, and (f) dividends were paid.

**Warm-Up Exercises** follow the Self-Test Problems. These short, numerical exercises give students practice in applying tools and techniques presented in the chapter.

## Problems

All problems are available in MyFinanceLab.

- LG 1 P4-1 Depreciation** On March 20, 2015, Norton Systems acquired two new assets. Asset A was research equipment costing \$17,000 and having a 3-year recovery period. Asset B was duplicating equipment having an installed cost of \$45,000 and a 5-year recovery period. Using the MACRS depreciation percentages in Table 4.2 on page 120, prepare a depreciation schedule for each of these assets.
- LG 1 P4-2 Depreciation** In early 2015, Sosa Enterprises purchased a new machine for \$10,000 to make cork stoppers for wine bottles. The machine has a 3-year recovery period and is expected to have a salvage value of \$2,000. Develop a depreciation schedule for this asset using the MACRS depreciation percentages in Table 4.2.

- LG 5 P4-19 Integrative: Pro forma statements** Red Queen Restaurants wishes to prepare financial plans. Use the financial statements and the other information provided below to prepare the financial plans.

### Personal Finance Problem

- LG 4 P4-10 Preparation of cash budget** Sam and Suzy Sizeman need to prepare a cash budget for the last quarter of 2016 to make sure they can cover their expenditures during the period. Sam and Suzy have been preparing budgets for the past several years and have been able to establish specific percentages for most of their cash outflows. These percentages are based on their take-home pay (that is, monthly utilities normally run 5% of monthly take-home pay). The information in the following table can be used to create their fourth-quarter budget for 2016.

- LG 3 P4-21 ETHICS PROBLEM** The SEC is trying to get companies to notify the investment community more quickly when a "material change" will affect their forthcoming financial results. In what sense might a financial manager be seen as "more ethical" if he or she follows this directive and issues a press release indicating that sales will not be as high as previously anticipated?

## Spreadsheet Exercise



CSM Corporation has a bond issue outstanding at the end of 2015. The bond has 15 years remaining to maturity and carries a coupon interest rate of 6%. Interest on the bond is compounded on a semiannual basis. The par value of the CSM bond is \$1,000, and it is currently selling for \$874.42.

## Integrative Case 3

### Encore International

In the world of trendsetting fashion, instinct and marketing savvy are prerequisites to success. Jordan Ellis had both. During 2015, his international casual-wear company, Encore, rocketed to \$300 million in sales after 10 years in business. His fashion line covered the young woman from head to toe with hats, sweaters, dresses, blouses, skirts, pants, sweatshirts, socks, and shoes. In Manhattan, there was an Encore shop every five or six blocks, each featuring a different color. Some shops showed the entire line in mauve, and others featured it in canary yellow. Encore had made it. The company's historical growth was so spectacular that no one could have predicted it. However, securities analysts speculated that Encore could not keep up the pace. They warned that competition is fierce in the fashion industry and that the firm might encounter little or no growth in the future. They estimated that stockholders also should expect no growth in future dividends.

**Comprehensive Problems**, keyed to the learning goals, are longer and more complex than the Warm-Up Exercises. In this section, instructors will find multiple problems that address the important concepts, tools, and techniques in the chapter.

A short descriptor identifies the essential concept or technique of the problem. Problems labeled as **Integrative** tie together related topics.

**Personal Finance Problems** specifically relate to personal finance situations and Personal Finance Examples in each chapter. These problems will help students see how they can apply the tools and techniques of managerial finance in managing their own finances.

The last item in the chapter Problems is an **Ethics Problem**. The ethics problem gives students another opportunity to think about and apply ethics principles to managerial financial situations.

All exercises and problems are available in MyFinanceLab.

Every chapter includes a **Spreadsheet Exercise**. This exercise gives students an opportunity to use Excel software to create one or more spreadsheets with which to analyze a financial problem. The spreadsheet to be created is often modeled on a table or Excel screenshot located in the chapter. Students can access working versions of the Excel screenshots in MyFinanceLab.

An **Integrative Case** at the end of each part of the book challenges students to use what they have learned over the course of several chapters. Additional chapter resources, such as Chapter Cases, Group Exercises, and numerous online resources, intended to provide further means for student learning and assessment are available in MyFinanceLab at [www.myfinancelab.com](http://www.myfinancelab.com).

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