Twelfth Edition

Accounting

What the Numbers Mean

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Meet the Authors

David H. Marshall (1933–2018) was Professor of Accounting Emeritus at Millikin University. He taught at Millikin, a small, independent university located in Decatur, Illinois, for 25 years. He taught courses in accounting, finance, computer information systems, and business policy, and was recognized as an outstanding teacher. The draft manuscript of this book was written in 1986 and used in a one-semester course that was developed for the nonbusiness major. Subsequently supplemented with cases, it was used in the business core accounting principles and managerial accounting courses. Concurrently, a one-credit-hour accounting laboratory taught potential accounting majors the mechanics of the accounting process. Prior to his teaching career, Marshall worked in public accounting and industry and he earned an MBA from Northwestern University. Professor Marshall's interests outside academia included community service, woodturning, sailing, and travel. It is with great sadness that we announce his passing on April 17, 2018.

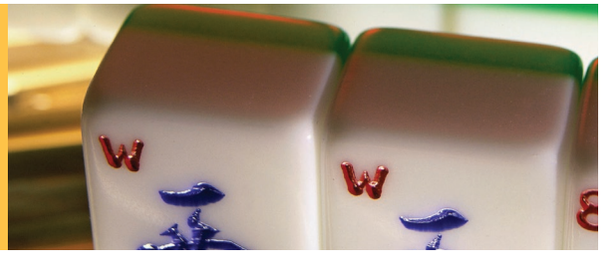
Courtesy of David H. Marshall

Wayne W. McManus makes his home in Grand Cayman, Cayman Islands, BWI, where he worked in the private banking sector for several years and is now a semiretired consultant. He maintains an ongoing relationship with the International College of the Cayman Islands as an adjunct Professor of Accounting and Law and is the Chair of the College's Board of Trustees. McManus offers the Cayman CPA Review course through the Financial Education Institute Ltd. and several professional development courses through the Chamber of Commerce. He earned an MS in accounting from Illinois State University, an MBA from the University of Kansas, a law degree from Northern Illinois University, and a master's of law in taxation from the University of Missouri–Kansas City. He serves as an independent director and chairman of the audit committee for Endeavour Mining Corp. (EDV on the TSX exchange). He is a member of the Cayman Islands Institute of Professional Accountants and the local chapter of the CFA Institute. Professor McManus volunteers as a "professional" Santa each December, enjoys travel, golf, and scuba diving, and is an audio/video enthusiast.

Courtesy of Wayne W. MacManus

Daniel F. Viele is Professor of Accounting and currently serves as Dean of the School of Adult and Online Education and directs the Office of Strategic Information at Maryville University of Saint Louis. He has taught courses in financial, managerial, and cost accounting, as well as accounting information systems. Prior to joining Maryville, Professor Viele's previous teaching experience includes 15 years at Webster University and 10 years at Millikin University with Professor Marshall. He has also served as a systems consultant to the graphics arts industry. Professor Viele has developed and taught numerous online graduate courses, and for his leadership role in pioneering online teaching and learning, he was presented a Presidential Recognition Award. His students and colleagues have also cited his dedication to teaching and innovative use of technology for which Webster awarded him its highest honor—the Kemper Award for Teaching Excellence. Professor Viele holds an MS in accounting from Colorado State University and has completed the Information Systems Faculty Development Institute at the University of Minnesota and the Advanced Information Systems Faculty Development Institute at Indiana University. He is a member of the American Accounting Association and the Institute of Management Accountants, where he has served as president of the Sangamon Valley Chapter and as a member of the National Board of Directors. Professor Viele enjoys sports of all kinds, boating, and a good book.

Courtesy of Daniel F. Viele



In Loving Memory

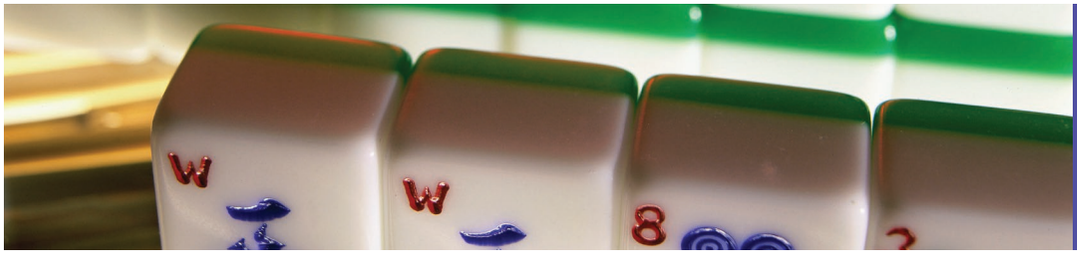
of

David H. Marshall
March 12, 1933 - April 17, 2018

David was our colleague, mentor, and friend. The marks that he left on each of our lives are indelible and will never be forgotten. Words simply cannot describe what a good man that he was.

“Write down what you know, and solve for the difference.”

Wayne and Dan



Preface

Named after a Chinese word meaning "sparrow," mah-jongg is a centuries-old game of skill. The object of the game is to collect different tiles; players win points by accumulating different combinations of pieces and creating patterns. We've chosen mah-jongg tiles as our cover image for the twelfth edition of *Accounting: What the Numbers Mean* because the text is designed to show students how to put the pieces together and understand their relationship to one another to see the larger pattern.

Accounting has become known as the language of business. Financial statements result from the accounting process and are used by owners/investors, employees, creditors, and regulators in their planning, controlling, and decision-making activities as they evaluate the achievement of an organization's objectives.

Accounting: What the Numbers Mean takes the user through the basics: what accounting information is, how it is developed, how it is used, and what it means. Financial statements are examined to learn what they do and do not communicate, enhancing the student's decision-making and problem-solving abilities from a user perspective. Achieving expertise in the preparation of financial statements is not an objective of this text. Instead, we have designed these materials to assist those who wish to learn "what the numbers mean" in a clear, concise, and conceptual manner, without focusing on the mechanical aspects of the accounting process.

The user-oriented approach taken by this text will benefit a variety of non-accounting majors, including students focusing on other areas of business or nonbusiness programs such as engineering, behavioral sciences, public administration, or prelaw. Aspiring MBA and other graduate management or administration students who do not have an undergraduate business degree will likewise benefit from a course using this text.

Best wishes for successful use of the information presented here.

David H. Marshall

Wayne W. McManus

Daniel F. Viele

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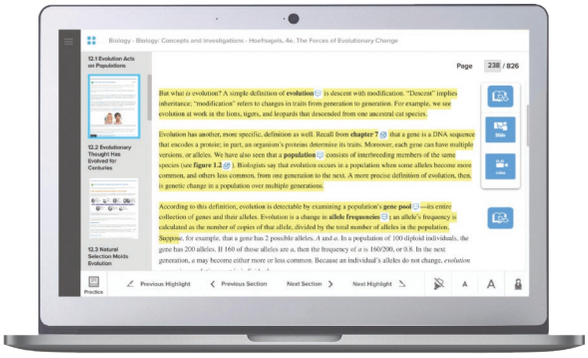

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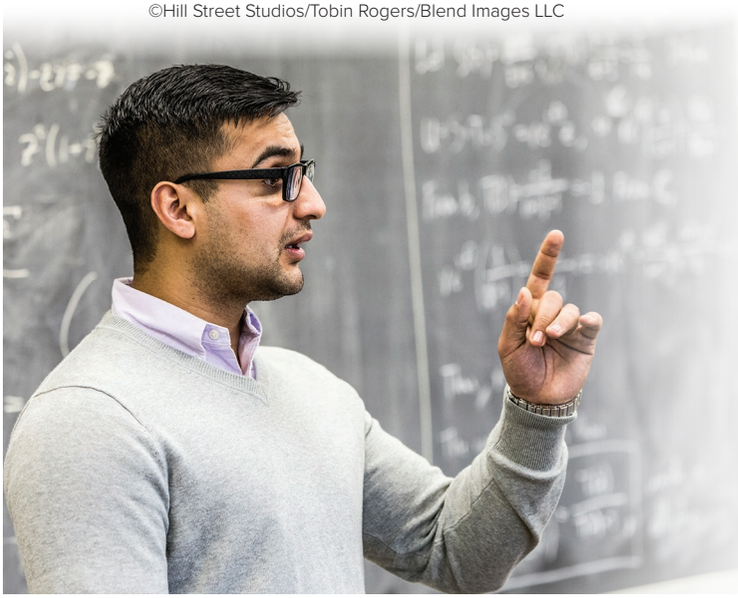

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>
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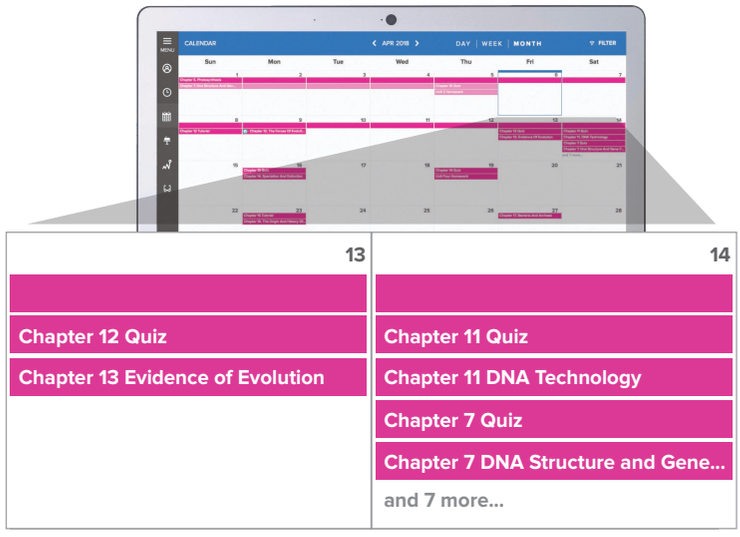

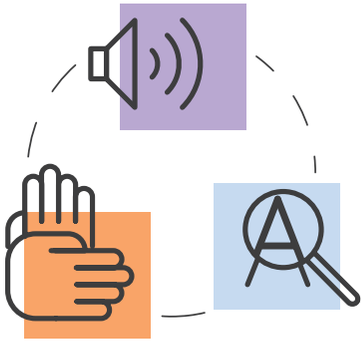

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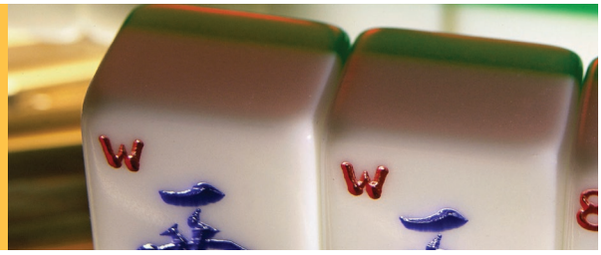


Enhancements for This Edition

Chapter 1

- SmartBook assessments within each chapter learning objective have been updated.
- Overall chapter content revisions for clarity and general updates, including an updated discussion of international financial reporting issues.
- Updated references to Campbell's 2017 annual report information.
- Update and revision of the Test Bank.
- Update and revision of the PowerPoints.

Chapter 2

- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for end of chapter Mini-Exercises and Exercises have been updated.
- Overall chapter content revisions for clarity and general updates.
- Updated references to Campbell's 2017 annual report information.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. Specific items that have been refreshed include: M2.2, M2.4, E2.10, E2.12, E2.14, P2.16, P2.18, P2.22, P2.24, P2.25, and P2.26.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 10 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 3

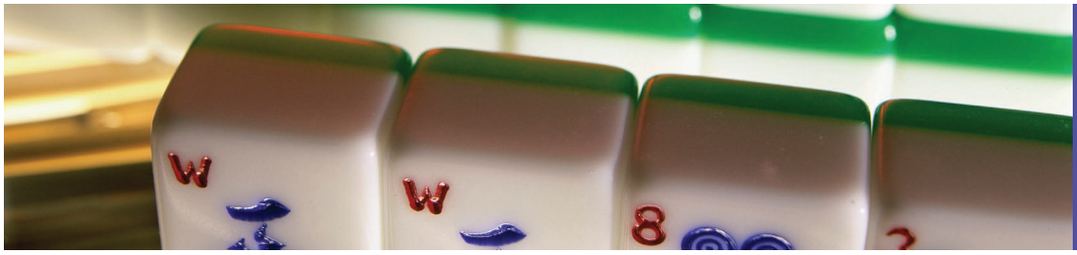
- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for end of chapter Mini-Exercises and Exercises have been updated.
- Overall chapter content revisions for clarity and general updates.
- Reintegrated Campbell's 2017 annual report information for the financial and graphical analysis of liquidity and profitability trends.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. Specific items that have been refreshed include: M3.2, M3.4, M3.6, E3.7, E3.8. E3.10, E3.12, E3.14, E3.16, E3.17, P3.20, P3.22, and C3.24.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 50 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 4

- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for end of chapter Mini-Exercises and Exercises have been updated.
- Overall chapter content revisions for clarity and general updates. Specific rewrites or enhancements to add clarity or visualization of concepts have been added for the following content items: the adjustments section of the chapter, the Business in Practice Box on Bookkeeping Language In Everyday English, and the flowchart illustrating the bookkeeping process.
- A Study Suggestion has been added to explain that adjustments are necessitated by cash leads and cash lags.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. Specific items that have been refreshed include: M4.4, E4.6, E4.8, E4.10, E4.12, E4.14, E4.16, E4.18, E4.20, P4.24, P4.26, P4.27, and C4.30.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 10 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 5

- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for end of chapter Mini-Exercises and Exercises have been updated.
- Overall chapter content revisions for clarity and general updates.



- Updated discussion and analysis of Campbell's 2017 annual report information for the accounting and presentation of current assets, including cash, accounts receivable, and inventories.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. Specific items that have been refreshed include: M5.1, M5.2, M5.3, M5.4, M5.6, E5.8. E5.10, E5.12, E5.16, E5.20, E5.22, E5.24, P5.26, P5.27, P5.28, P5.30, P5.32, P5.34, and P5.36. Note also that C5.38 has been deleted.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 19 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 6

- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for end of chapter Mini-Exercises and Exercises have been updated.
- Overall chapter content revisions for clarity and general updates. The Accounting for Leases section of the chapter was significantly rewritten to reflect recent accounting standards updates.
- Updated discussion and analysis of Campbell's 2017 annual report information for the accounting and presentation of property, plant, and equipment, and other noncurrent assets.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. Specific items that have been refreshed include: M6.2, M6.3, M6.4, M6.6, E6.8, E6.14, E6.16, E6.18, E6.20, P6.22, P6.24, P6.26, P6.28, P6.29, P6.30, P6.32, and C6.34.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 17 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 7

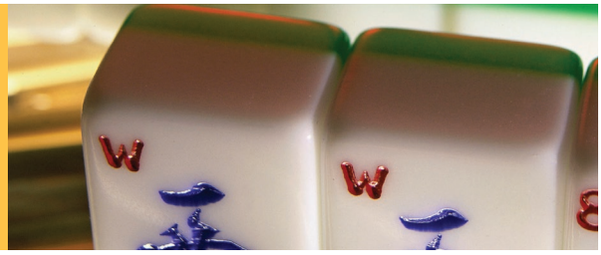
- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for end of chapter Mini-Exercises and Exercises have been updated.
- Overall chapter content revisions for clarity and general updates.
- Updated discussion and analysis of Campbell's 2017 annual report information for the accounting and presentation of liabilities.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. Specific items that have been refreshed include: M7.2, M7.4, E7.6, E7.8, E7.10, E7.12, E7.14, E7.16, E7.18, E7.22, E7.24, P7.25, P7.26, P7,28, P7.30, and P7.32.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 13 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 8

- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for end of chapter Mini-Exercises and Exercises have been updated.
- Overall chapter content revisions for clarity and general updates, with a specific rewrite of the accumulated other comprehensive income section.
- Updated discussion and analysis of Campbell's 2017 annual report information for the accounting and presentation of stockholders' equity.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. Specific items that have been refreshed include: M8.2, M8.4, E8.6, E8.8, E8.10, E8.12, E8.14, E8.18, E8.20, E8.22, P8.24, P8.26, P8.28, P8.30, P8.32, C8.34, C8.35, and C8.36.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 30 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 9

- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for end of chapter Mini-Exercises and Exercises have been updated.



- Overall chapter content revisions for clarity and general updates.
- Updated discussion and analysis of Campbell's 2017 annual report information for the presentation and disclosure of income statement and statement of cash flows data.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. Specific items that have been refreshed include: M9.2, M9.4, E9.6, E9.8, E9.9. E9.10. E9.12, E9.13, E9.16, E9.18. P9.20. P9.22, P9.24, P9.26, and C9.33.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 54 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 10

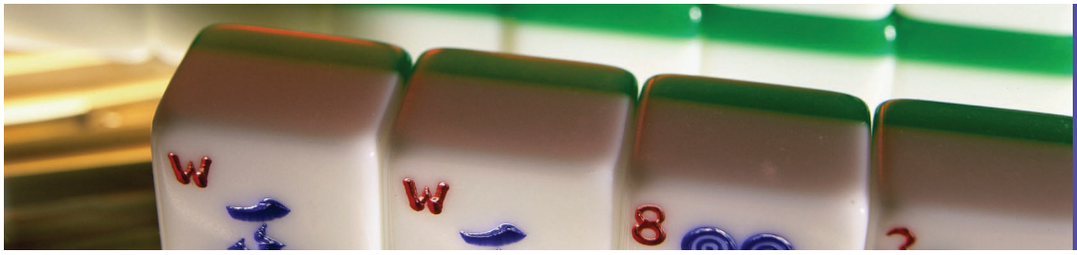
- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for end of chapter Mini-Exercises and Exercises have been updated.
- Overall chapter content revisions for clarity and general updates. Specific rewrites have been added for the following content items: mention of the impact of the *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) and the Tax Cuts and Jobs Act of 2017; updates to the "general organization of the notes" with more detail regarding the types of financial statements presented, and the order in which they usually appear; new discussion of "Big R" and "little r" financial statement restatements and the recent trends observed in each category.
- Updated discussion and analysis of Campbell's 2017 annual report information for the Notes to the Financial Statements section of the chapter.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. Specific items that have been refreshed include: M10.2, E10.3, E10.8, E10.10, P10.11, P10.12, and C10.14.
- Update and revision of the Test Bank.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 11

- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for end of chapter Mini-Exercises and Exercises have been updated.
- Overall chapter content revisions for clarity and general updates.
- Updated discussion of Campbell's 2017 annual report information for the performance of financial ratio analysis.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. Specific items that have been refreshed include: M11.2, M11.4, P11.9, P11.10, P11.14, C11.16, and C11.18.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 64 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 12

- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for new end of chapter Mini-Exercises have been added.
- Overall chapter content revisions for clarity and general updates. Specific rewrites or enhancements to add clarity or visualization of concepts have been added for the following content items: the management control process, the relevant range assumption, expressing fixed costs per unit, the cost formula, the contribution margin ratio, and interpreting a break-even chart.
- Chapter Study Suggestion, FYI, and Business in Practice boxes updated or replaced.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. New Mini-exercises M12.6 and M12.7 have been added. Specific items that have been refreshed include: M12.2, M12.4, M12.8, E12.10, E12.12, E12.14, E12.16, E12.18, P12.20, P12.22, P12.24, P12.26, P12.28, P12.30, and P12.34.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 14 percent new multiple-choice questions added.



- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 13

- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for new end of chapter Mini-Exercises have been added.
- Overall chapter content revisions for clarity and general updates. Specific rewrites or enhancements to add clarity or visualization of concepts have been added for the following content items: chapter introduction, the value chain, manufacturing inventory accounts, product costing process steps, Campbell Soup discussion, process costing and equivalent units of production, and reporting differences using absorption vs. direct costing. New section headings for Product Costing and Statement of Cost of Goods Manufactured have also been added.
- Chapter Study Suggestion, FYI, and Business in Practice boxes updated or replaced.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. New Mini-exercises M13.5 and M13.7 have been added. Specific items that have been refreshed include: M13.2, M13.4, M13.8, E13.10, E13.12, E13.14, E13.16, E13.18, E13.20, E13.22, P13.24, P13.26, P13.28, P13.30, and C13.33.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 22 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 14

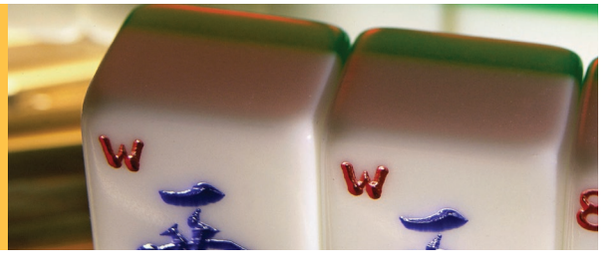
- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for new end of chapter Mini-Exercises have been added.
- Overall chapter content revisions for clarity and general updates. Specific rewrites or enhancements to add clarity or visualization of concepts have been added for the following content items: management's approach to the budgeting process, using the model for purchases/production budgets, and behavioral implications of standard setting strategy.
- Chapter Study Suggestion, FYI, and Business in Practice boxes updated or replaced.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. New Mini-exercises M14.1 and M14.6 have been added. Specific items that have been refreshed include: M14.3, M14.5, M14.7, M14.8, E14.10, E14.12, E14.14, E14.16, E14.18, P14.20, P14.24, P14.26, and C14.28.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 18 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 15

- SmartBook assessments within each chapter learning objective have been updated.
- Guided example video demonstrations for new end of chapter Mini-Exercises have been added.
- Overall chapter content revisions for clarity and general updates. Specific rewrites or enhancements to add clarity or visualization of concepts have been added for the following content items: understanding favorable and unfavorable variances, the design of performance reports, discussion of Exhibit 15-3, direct and common fixed expenses, and the transfer pricing discussion.
- Chapter Study Suggestion, FYI, and Business in Practice boxes updated or replaced.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. New Mini-exercises M15.7 and M15.8 have been added. Specific items that have been refreshed include: M15.1, M15.2, M15.3, M15.4, M15.5, E15.10, M15.12, M15.14, M15.16, M15.18, M15.20, P15.22, P15.24, P15.26, and C15.34.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 26 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Chapter 16

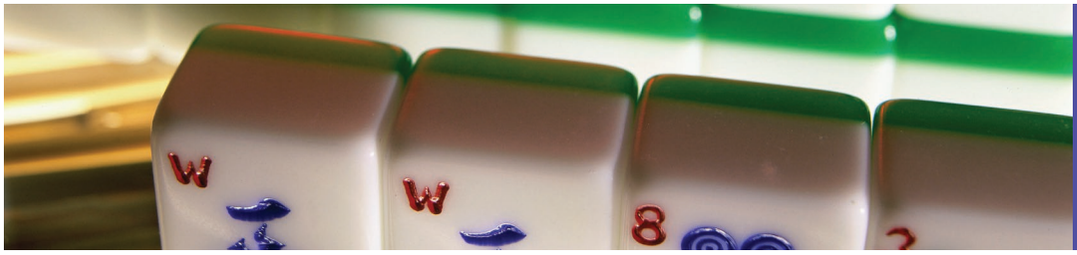
- SmartBook assessments within each chapter learning objective have been updated.



- Guided example video demonstrations for new end of chapter Mini-Exercises have been added.
- Overall chapter content revisions for clarity and general updates. Specific rewrites or enhancements to add clarity or visualization of concepts have been added for the following content items: relevant costs, introduction for analytical considerations for NPV model, new graphic presentation of payback period, and new graphic IRR using Excel.
- Chapter Study Suggestion, FYI, and Business in Practice boxes updated or replaced.
- General update of all Mini-Exercises, Exercises, Problems, and Cases. New Mini-exercises M16.4 and M16.5 have been added. Specific items that have been refreshed include: M16.2, M16.6, M16.8, E16.12, E16.14, E16.16, E16.18, E16.20, E16.22, E16.24, E16.26, E16.28, P16.30, P16.32, P16.34, P16.36, P16.38, C16.40, and C16.41.
- Update and revision of the Test Bank now includes quantitative multiple-choice questions, with 15 percent new multiple-choice questions added.
- Update and revision of the PowerPoints and Demonstration Problem PowerPoints.

Epilogue:

- Overall content revisions for clarity and general updates. Specific rewrites or enhancements to add clarity or visualization of concepts have been added for the following content items: welcome section and scandals discussion, ethics compliance and corporate progress, IFRS adoption and reporting in the U.S., data warehousing, data mining, big data, predictive analytics, prescriptive analytics, and artificial intelligence.
- New infographic added reporting ethics and compliance data in large corporations and new graphic added for IFRS adoption status in the U.S.
- Updated or added FYI box information for the following items: worst corporate scandals, CPA Vision Project and Horizons 2025 Report, and information resources for big data and artificial intelligence.



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Wayne W. McManus Daniel F. Viele

Brief Contents

Contents

3

Fundamental Interpretations Made from Financial Statement Data

Chapter 2 presented an overview of the financial statements that result from the financial accounting process. It is now appropriate to preview some of the interpretations made by financial statement users to support their decisions and informed judgments. Understanding the uses of accounting information will make development of that information more meaningful. Current and potential stockholders are interested in making their own assessments of management's stewardship of the resources made available by the owners. For example, judgments about profitability will affect the investment decision. Creditors assess the entity's ability to repay loans and pay for products and services. These assessments of profitability and debt-paying ability involve interpreting the relationships among amounts reported in the financial statements. Most of these relationships will be referred to in subsequent chapters. They are introduced now to illustrate how management's financial objectives for the firm are quantified so that you may begin to understand what the numbers mean. Likewise, these concepts will prepare you to better understand the impact of alternative accounting methods on financial statements when accounting alternatives are explained in subsequent chapters.

This chapter introduces some fundamental financial statement analysis concepts and tools. Chapter 11 is a comprehensive explanation of how to use financial statement data to analyze a firm's financial condition and results of operations. You will better understand topics in that chapter after you have studied the financial accounting material in Chapters 5, 6, 7, 8, 9, and 10.

LEARNING OBJECTIVES (LO)

After studying this chapter, you should understand and be able to

LO 3-1 Discuss why financial statement ratios are important.

LO 3-2 Explain the importance and show the calculation of return on investment.

LO 3-3 Illustrate how to calculate and interpret margin and turnover using the DuPont model.

LO 3-4 Explain the importance and show the calculation of return on equity.

LO 3-5 Explain the meaning of liquidity and discuss why it is important.

LO 3-6 Discuss the significance and calculation of working capital, the current ratio, and the acid-test ratio.

LO 3-7 Generalize about how trend analysis can be used most effectively.

Study Suggestion

The authors have found that learning about the basics of profitability and liquidity measures in this chapter is important for several reasons. (1) It introduces you to the "big picture" of real-world financial reporting before getting into the accounting details presented in subsequent chapters, (2) it demonstrates the relevance of studying financial accounting, (3) it encourages you to think about the impact of transactions on the financial statements, and (4) it provides a perspective that you can use in the homework assignments for Chapters 4, 5, 6, 7, 8, 9, 10, and 11. It is important that you attempt to understand the *business implications* of ROI, ROE, and the current ratio in particular.

Keep in mind that there are no singular, unchangeable rules that universally apply to the definitions of the data used in financial ratio analysis. Although the illustrations presented in this text endeavor to use the most commonly applied financial statement components, individual firms and financial analysts may define certain ratio components in a slightly (or even dramatically) different manner than is illustrated here. Presumably, sound and logical reasons exist for any such variations that you may encounter in practice. As a user of financial statement data, you should understand the reasons for those variations and the effects that any unique definition may have on ratio results relative to a more traditional definition for that same ratio.

Financial Ratios and Trend Analysis

LO 1 Discuss why financial statement ratios are important.

The large dollar amounts reported in the financial statements of many companies, and the varying sizes of companies, make ratio analysis the only sensible method of evaluating various financial characteristics of a company. Students frequently are awed by the number of ratio measurements commonly used in financial management and sometimes are intimidated by the mere thought of calculating a ratio. Be neither awed nor intimidated! A ratio is simply the relationship between two numbers; the name of virtually every financial ratio describes the numbers to be related and usually how the ratio is calculated. As you study this material, concentrate on understanding why the ratio is considered important and work to understand the meaning of the ratio. If you do these things, you should avoid much of the stress associated with understanding financial ratios.

In most cases, a single ratio does not describe very much about the company whose statements are being studied. Much more meaningful analysis is accomplished when the *trend* of a particular ratio over several time periods is examined. However, consistency in financial reporting and in defining the ratio components is crucial if the trend is to be meaningful.

Most industry and trade associations publish industry average ratios based on aggregated data compiled by the associations from reports submitted by association members. Comparison of an individual company's ratio with the comparable industry ratio is frequently made as a means of assessing a company's relative standing in its industry. However, a comparison of a company with its industry that is based on a single observation may not be very meaningful because the company may use a financial accounting alternative that is different from that used by the rest of the industry.

Trend analysis results in a much more meaningful comparison because even though the data used in the ratio may have been developed under different financial accounting alternatives, internal consistency within each of the trends will permit useful trend comparisons.

Trend analysis is described later in this chapter, but this brief example illustrates the process: Suppose a student's grade point average for last semester was 3.5 on a 4.0 scale. That GPA may be interesting, but it says little about the student's work. However, suppose you learn that this student's GPA was 1.9 four semesters ago, 2.7 three semesters ago, and 3.0 two semesters ago. The upward trend of grades suggests that the student is working "smarter and harder." This conclusion would be reinforced if you knew that the average GPA for all students in this person's class was 2.9 for each of the four semesters. You still don't know everything about the individual student's academic performance, but the comparative trend data let you make a more informed judgment than was possible with the grades from only one semester.

What Does It Mean?

Answer on page 93

1. What does it mean to state that the trend of data is frequently more important than the data themselves?

Return on Investment

LO 2
Explain the importance and show the calculation of return on investment.

Imagine that you are presented with two investment alternatives. Each investment will be made for one year, and each investment is equally risky. At the end of the year you will get your original investment back, plus income of $75 from investment A and $90 from investment B. Which investment alternative would you choose? The answer seems so obvious that you believe the question is loaded, so you hesitate to answer—a sensible response. But why is this a trick question? A little thought should make you think of a question to which you need an answer before you can select between investment A and investment B. Your question? "How much money would I have to invest in either alternative?" If the amount to be invested is the same—for example, $1,000—then clearly you would select investment B because your income would be greater than that earned on investment A for the same amount invested. If the amount to be invested in investment B is more than that required for investment A, you would have to calculate the **rate of return** on each investment to choose the more profitable alternative.

Rate of return is calculated by dividing the amount of return (the income of $75 or $90 in the preceding example) by the amount of the investment. For example, use an investment of $1,000 for each alternative:

Investment A:

$$\text{Rate of return} = \frac{\text{Amount of return}}{\text{Amount invested}} = \frac{\$75}{\$1{,}000} = 7.5\%$$

Investment B:

$$\text{Rate of return} = \frac{\text{Amount of return}}{\text{Amount invested}} = \frac{\$90}{\$1{,}000} = 9\%$$

Your intuitive selection of investment B as the better investment is confirmed by the fact that its rate of return is higher than that of investment A.

The example situation assumed that each of the investments would be made for one year. Remember that unless otherwise specified, rate of return calculations assume that the time period of the investment and return is one year.

The rate of return calculation is derived from the interest calculation you probably learned many years ago. Recall that

$$\text{Interest} = \text{Principal} \times \text{Rate} \times \text{Time}$$

Interest is the income or expense from investing or borrowing money.

Principal is the amount invested or borrowed.

Rate is the **interest rate** per year expressed as a percentage.

Time is the length of time the funds are invested or borrowed, expressed in years.

Note that when time is assumed to be one year, that term of the equation becomes 1/1 or 1, and it disappears. Thus, the rate of return calculation is simply a rearranged interest calculation that solves for the annual interest rate.

Return to the example situation and assume that the amounts required to be invested are $500 for investment A and $600 for investment B. Now which alternative would you select on the basis of rate of return? You should have made these calculations:

Investment A:

$$\text{Rate of return} = \frac{\text{Amount of return}}{\text{Amount invested}} = \frac{\$75}{\$500} = 15\%$$

Investment B:

$$\text{Rate of return} = \frac{\text{Amount of return}}{\text{Amount invested}} = \frac{\$90}{\$600} = 15\%$$

All other things being equal (and they seldom are except in textbook illustrations), you would be indifferent with respect to the alternatives available to you because each has a rate of return of 15% (per year).

Rate of return and riskiness related to an investment go hand in hand. **Risk** relates to the range of possible outcomes from an activity. The wider the range of possible outcomes, the greater the risk. An investment in a bank savings account is less risky than an investment in the stock of a corporation because the investor is virtually assured of receiving her or his principal and interest from the savings account, but the market value of stock may fluctuate widely even over a short period. Thus, the investor anticipates a higher rate of return from the stock investment than from the savings account as compensation for taking on additional risk. Yet the greater risk of the stock investment means that the actual rate of return earned could be considerably less (even negative) or much greater than the interest earned on the savings account. Market prices for products and commodities, as well as stock prices, reflect this basic risk–reward relationship. For now, understand that the higher the rate of return of one investment relative to another, the greater the risk associated with the higher return investment.

Rate of return is a universally accepted measure of profitability. Because it is a ratio, profitability of unequal investments can be compared, and risk–reward relationships can be evaluated. Bank advertisements for certificates of deposit feature the

interest rate, or rate of return, that will be earned by the depositor. All investors evaluate the profitability of an investment by making a rate of return calculation.

Return on investment (ROI) is the label usually assigned to the rate of return calculation made using data from financial statements. This ratio is sometimes referred to as the **return on assets (ROA).** There are many ways of defining both the amount of return and the amount invested. For now, we use net income as the amount of return and use average total assets during the year as the amount invested. It is not appropriate to use total assets as reported on a single year-end balance sheet because that is the total at one point in time: the balance sheet date. Net income was earned during the entire fiscal year, so it should be related to the assets that were used during the entire year. Average assets used during the year usually are estimated by averaging the assets reported at the beginning of the year (the prior year-end balance sheet total) and assets reported at the end of the year. Recall from Chapter 2 that the income statement for the year is the link between the beginning and ending balance sheets. If seasonal fluctuations in total assets are significant (the materiality concept) and if quarter-end or month-end balance sheets are available, a more refined average asset calculation may be made.

The ROI of a firm is significant to most financial statement readers because it describes the rate of return that management was able to earn on the assets it had available to use during the year. Investors especially will make decisions and informed judgments about the quality of management and the relative profitability of a company based on ROI. Many financial analysts (these authors included) believe that ROI is the most meaningful measure of a company's profitability. Knowing net income alone is not enough; *an informed judgment about the firm's profitability requires relating net income to the assets used to generate that net income.*

The condensed balance sheets and income statement of Cruisers Inc., a hypothetical company, are presented in Exhibit 3-1. Using these data, the company's ROI calculation is illustrated here:

From the firm's balance sheets:	
Total assets, September 30, 2019	$364,720
Total assets, September 30, 2020	$402,654
From the firm's income statement for the year ended September 30, 2020:	
Net income	$ 34,910

$$\text{Return on investment} = \frac{\text{Net income}}{\text{Average total assets}}$$

$$= \frac{\$34{,}910}{(\$364{,}720 + \$402{,}654)/2} = 9.1\%$$

Some financial analysts prefer to use income from operations (or earnings before interest and income taxes) and average operating assets in the ROI calculation. They believe that excluding interest expense, income taxes, and assets not used in operations provides a better measure of the operating results of the firm. With these refinements, the ROI formula would be:

$$\text{Return on investment} = \frac{\text{Operating income}}{\text{Average operating assets}}$$

Condensed Balance Sheets and Income Statement of Cruisers Inc. **Exhibit 3-1**

CRUISERS INC.
Comparative Condensed Balance Sheets
September 30, 2020 and 2019

	2020	2019
Current assets:		
Cash and marketable securities	$ 22,286	$ 16,996
Accounts receivable	42,317	39,620
Inventories	53,716	48,201
Total current assets	$118,319	$104,817
Other assets	284,335	259,903
Total assets	$402,654	$364,720
Current liabilities	$ 57,424	$ 51,400
Other liabilities	80,000	83,000
Total liabilities	$137,424	$134,400
Stockholders' equity	265,230	230,320
Total liabilities and stockholders' equity	$402,654	$364,720

CRUISERS INC.
Condensed Income Statement
For the Year Ended
September 30, 2020

Net sales	$611,873
Cost of goods sold	428,354
Gross margin	$183,519
Operating expenses	122,183
Income from operations	$ 61,336
Interest expense	6,400
Income before taxes	$ 54,936
Income taxes	20,026
Net income	$ 34,910
Earnings per share	$ 1.21

Other analysts will make similar adjustments to arrive at the amounts used in the ROI calculation. Consistency in the definition of terms is more important than the definition itself because the trend of ROI will be more significant for decision making than the absolute result of the ROI calculation for any one year. However, it is appropriate to understand the definitions used in any ROI results you see.

2. What does it mean to express economic performance as a rate of return?
3. What does it mean to say that return on investment (ROI) is one of the most meaningful measures of financial performance?

What Does It Mean?
Answer on page 93

The DuPont Model: An Expansion of the ROI Calculation

LO 3
Illustrate how to calculate and interpret margin and turnover using the DuPont model.

Financial analysts at E.I. DuPont de Nemours & Co. are credited with developing the **DuPont model,** an expansion of the basic ROI calculation, in the late 1930s. They reasoned that profitability from sales and utilization of assets to generate sales revenue were both important factors to be considered when evaluating a company's overall profitability. One popular adaptation of their model introduces total sales revenue into the ROI calculation as follows:

$$\text{Return on investment} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average total assets}}$$

The first term, net income/sales, is **margin.** The second term, sales/average total assets, is **asset turnover,** or simply **turnover.** Of course, the sales quantities cancel out algebraically, but they are introduced to this version of the ROI model because of their significance. *Margin* emphasizes that from every dollar of sales revenue, some amount must work its way to the bottom line (net income) if the company is to be profitable. *Turnover* relates to the efficiency with which the firm's assets are used in the revenue-generating process.

Another quick quiz will illustrate the significance of turnover. Many of us look forward to a 40-hour-per-week job, generally thought of as five 8-hour days. Imagine a company's factory operating on such a schedule—one shift per day, five days per week. What percentage of the available time is that factory operating? You may have answered 33 percent, or one-third of the time, because eight hours is one-third of a day. But what about Saturday and Sunday? In fact, there are 21 shifts available in a week (7 days × 3 shifts per day), so a factory operating five shifts per week is being used only 5/21 of the time—less than 25%. The factory is idle more than 75% of the time! As you can imagine, many of the occupancy costs (real estate taxes, utilities, insurance) are incurred whether or not the plant is in use. This explains why many firms operate their plants on a two-shift, three-shift, or even a seven-day basis rather than building additional plants—it allows them to increase their level of production and thereby expand sales volume without expanding their investment in assets. The higher costs associated with multiple-shift operations (such as late-shift premiums for workers and additional shipping costs relative to shipping from multiple locations closer to customers) will increase the company's operating expenses, thereby lowering net income and decreasing margin. Yet the multiple-shift company's overall ROI will be higher if turnover is increased proportionately more than margin is reduced, which is likely to be the case.

Calculation of ROI using the DuPont model is illustrated here, using data from the financial statements of Cruisers in Exhibit 3-1:

From the firm's balance sheets:	
Total assets, September 30, 2019	$364,720
Total assets, September 30, 2020	$402,654
From the firm's income statement for the year ended September 30, 2020:	
Net sales	$611,873
Net income	$ 34,910

Study
Suggestion

As a rule of thumb, do not place much reliance on rules of thumb! Do not try to memorize them. Instead, you should understand that ratio comparisons are often difficult to make. Firms within a given industry may vary considerably over time in terms of their relative scale of operations, life cycle stage of development, market segmentation strategies, cost and capital structures, selected accounting methods, or a number of other economic factors. Cross-industry ratio comparisons are even more problematic. Thus, the rules of thumb provided in this chapter are intended merely to serve as points of reference; they are not based on empirical evidence unless otherwise indicated.

$$\begin{aligned}\text{Return on investment} &= \text{Margin} \times \text{Turnover}\\ &= \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average total assets}}\\ &= \frac{\$34{,}910}{\$611{,}873} \times \frac{\$611{,}873}{(\$364{,}720 + \$402{,}654)/2}\\ &= 5.7\% \times 1.6\\ &= 9.1\%\end{aligned}$$

The significance of the DuPont model is that it has led top management in many organizations to consider utilization of assets, including keeping investment in assets as low as feasible, to be just as important to overall performance as generating profit from sales.

A rule of thumb useful for putting ROI in perspective is that for most American merchandising and manufacturing companies, average ROI based on net income normally ranges between 8 percent and 12 percent during stable economic times. Average ROI based on operating income (earnings before interest and taxes) for the same set of firms is typically between 10 percent and 15 percent. Average margin, based on net income, ranges from about 5 percent to 10 percent. Using operating income, average margin tends to range from 10 percent to 15 percent. Asset turnover is usually about 1.0 to 1.5 but often ranges as high as 3.0, depending on the operating characteristics of the firm and its industry. The ranges given here are rather wide and are intended to suggest only that a firm with ROI and component values consistently beyond these ranges is exceptional.

4. What does it mean when the straightforward ROI calculation is expanded by using margin and turnover?

What Does It Mean?
Answer on page 93

Return on Equity

LO 4
Explain the importance and show the calculation of return on equity.

Recall that the balance sheet equation is:

$$\text{Assets} = \text{Liabilities} + \text{Stockholders' equity}$$

The return on investment calculation relates net income (perhaps adjusted for interest, income taxes, or other items) to assets. Assets (perhaps adjusted to exclude nonoperating assets or other items) represent the amount invested to generate earnings. As the balance sheet equation indicates, the investment in assets can result from either amounts borrowed from creditors (liabilities) or amounts invested by the owners. Stockholders (and others) are interested in expressing the profits of the firm as a rate of return on the amount of stockholders' equity; this is called **return on equity (ROE),** and it is calculated as follows:

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Average stockholders' equity}}$$

Return on equity usually is calculated using average stockholders' equity during the period for which the net income was earned for the same reason that average assets

is used in the ROI calculation; net income is earned over a period of time, so it should be related to the stockholders' equity over that same period.

Calculation of ROE is illustrated here using data from the financial statements of Cruisers in Exhibit 3-1:

From the firm's balance sheets:	
Total stockholders' equity, September 30, 2019	$230,320
Total stockholders' equity, September 30, 2020	$265,230
From the firm's income statement for the year ended September 30, 2020:	
Net income	$ 34,910

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Average stockholders' equity}}$$
$$= \frac{\$34{,}910}{(\$230{,}320 + \$265{,}230)/2}$$
$$= \$34{,}910 / \$247{,}775$$
$$= 14.1\%$$

A rule of thumb for putting ROE in perspective is that average ROE for most American merchandising and manufacturing companies has historically ranged from 12 percent to 18 percent.

Keep in mind that return on equity is a special application of the rate of return concept. ROE is important to current stockholders and prospective investors because it relates earnings to stockholders' investment—that is, the stockholders' equity in the assets of the entity. Adjustments to both net income and average stockholders' equity are sometimes made in an effort to improve the comparability of ROE results between firms, and some of these will be explained later in the text. For now, you should understand that both return on investment and return on equity are fundamental measures of the profitability of a firm and that the data for making these calculations come from the firm's financial statements.

What Does It Mean?

Answer on page 93

5. What does it mean when return on equity is used to evaluate a firm's financial performance?

Working Capital and Measures of Liquidity

LO 5
Explain the meaning of liquidity and discuss why it is important.

Liquidity refers to a firm's ability to meet its current obligations and is measured by relating its current assets and current liabilities as reported on the balance sheet. **Working capital** is the excess of a firm's current assets over its current liabilities. Current assets are cash and other assets that are likely to be converted to cash within a year (principally accounts receivable and merchandise inventories). Current liabilities are obligations that are expected to be paid within a year, including loans, accounts payable, and other accrued liabilities (such as wages payable, interest payable, and rent payable). Most

financially healthy firms have positive working capital. Even though a firm is not likely to have cash on hand at any point in time equal to its current liabilities, it will expect to collect accounts receivable or sell merchandise inventory and then collect the resulting accounts receivable in time to pay the liabilities when they are scheduled for payment. Of course, in the process of converting inventories to cash, the firm will be purchasing additional merchandise for its inventory, and the suppliers will want to be assured of collecting the amounts due according to the previously agreed provisions for when payment is due.

Liquidity is measured in three principal ways:

$$\text{Working capital} = \text{Current assets} - \text{Current liabilities}$$

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$\text{Acid-test ratio} = \frac{\text{Cash (including temporary cash investments)} + \text{Accounts receivable}}{\text{Current liabilities}}$$

The dollar amount of a firm's working capital is not as significant as the ratio of its current assets to current liabilities because the amount can be misleading unless it is related to another quantity (how large is large?). Therefore, the *trend* of a company's **current ratio** is most useful in judging its current bill-paying ability. The **acid-test ratio,** also known as the *quick ratio,* is a more conservative short-term measure of liquidity because merchandise inventories are excluded from the computation. This ratio provides information about an almost worst-case situation—the firm's ability to meet its current obligations even if none of the inventory can be sold.

The liquidity measure calculations shown here use September 30, 2020, data from the balance sheet of Cruisers in Exhibit 3-1:

LO 6
Discuss the significance and calculation of working capital, the current ratio, and the acid-test ratio.

$$\begin{aligned}
\text{Working capital} &= \text{Current assets} - \text{Current liabilities} \\
&= \$118{,}319 - \$57{,}424 \\
&= \$60{,}895 \\
\text{Current ratio} &= \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$118{,}319}{\$57{,}424} = 2.1 \\
\text{Acid-test ratio} &= \frac{\text{Cash (including temporary cash investments)} + \text{Accounts receivable}}{\text{Current liabilities}} \\
&= \frac{\$22{,}286 + \$42{,}317}{\$57{,}424} \\
&= 1.1
\end{aligned}$$

As a general rule, a current ratio of 2.0 and an acid-test ratio of 1.0 are considered indicative of adequate liquidity. From these data, it can be concluded that Cruisers Inc. has a high degree of liquidity; it should not have any trouble meeting its current obligations as they become due.

In terms of debt-paying ability, the higher the current ratio, the better. Yet an overly high current ratio sometimes can be a sign that the company has not made the most productive use of its assets. In recent years, many large, well-managed corporations have made efforts to streamline operations by reducing their current ratios to the 1.0–1.5 range or even lower, with corresponding reductions in their acid-test ratios. So what motivates this practice? It's clear that investments in cash, accounts

receivable, and inventories are being minimized because these current assets tend to be the least productive assets employed by the company. For example, what kind of ROI is earned on accounts receivable or inventory? Very little, if any. Funds freed up by reducing a company's investment in working capital items can be used to purchase new production equipment or to expand marketing efforts for existing product lines.

Remember, however, that judgments based on the results of any of these calculations using data from a single balance sheet are not as meaningful as the trend of the results over several periods. It is also important to note the composition of working capital and to understand the impact on the ratios of equal changes in current assets and current liabilities. As the following illustration shows, if a short-term bank loan were repaid just before the balance sheet date, working capital would not change (because current assets and current liabilities would each decrease by the same amount), but the current ratio (and the acid-test ratio) would change:

	Before Loan Repayment	After $20,000 Loan Repaid
Current assets	$200,000	$180,000
Current liabilities	100,000	80,000
Working capital	$100,000	$100,000
Current ratio	2.0	2.25

If a new loan for $20,000 were then taken out just after the balance sheet date, the level of the firm's liquidity at the balance sheet date as expressed by the current ratio would have been overstated. Thus, liquidity measures should be viewed with a healthy

Business in Practice

Establishing a Credit Relationship

Most transactions between businesses, and many transactions between individuals and businesses, are credit transactions. That is, the sale of products or provision of services is completed sometime before payment is made by the purchaser. Usually, before delivering the products or services, the seller wants to have some assurance that the bill will be paid when due. This involves determining that the buyer is a good **credit risk**.

Individuals usually establish credit by submitting to the potential creditor a completed credit application, which includes information about employment, salary, bank accounts, liabilities, and other credit relationships (such as charge accounts) established. Most credit grantors are looking for a good record of timely payments on existing credit accounts; this is why an individual's first credit account is usually the most difficult to obtain. Potential credit grantors also may check an individual's credit record as maintained by one or more of the three national credit bureaus in the United States (Equifax, Experion, and TransUnion). Note that individual consumers are entitled to a free annual credit report from each of these three nationwide consumer reporting agencies. (See annualcreditreport.com for more information.)

Businesses seeking credit may follow a procedure similar to that used by individuals. Alternatively, they may provide financial statements and names of firms with which a credit relationship has been established. A newly organized firm may have to pay for its purchases in advance or on delivery **(COD)** until it has been in operation for several months, and then the seller may set a relatively low credit limit for sales on credit. After a consistent record is established of having paid bills when due, the credit limit will be raised. After a firm has been in operation for a year or more, its credit history may be reported by the Dun & Bradstreet credit reporting service—a type of national credit bureau to which many companies subscribe. Even after a credit relationship has been established, it is not unusual for a firm to continue providing financial statements to its principal creditors.

dose of skepticism because the timing of short-term borrowings and repayments is entirely within the control of management.

Measures of liquidity are used primarily by potential creditors who are seeking to judge their prospects of being paid promptly if they enter a creditor relationship with the firm whose liquidity is being analyzed (see Business in Practice—Establishing a Credit Relationship).

The statement of cash flows also is useful in assessing the reasons for a firm's liquidity (or illiquidity). Recall that this financial statement identifies the reasons for the change in a firm's cash during the period (usually a year) by reporting the changes during the period in noncash balance sheet items.

6. What does it mean to say that the financial position of a firm is liquid?

What Does It Mean? Answer on page 93

Illustration of Trend Analysis

LO 7 Generalize about how trend analysis can be used most effectively.

Campbell's

Trend analysis of return on investment, return on equity, and working capital and liquidity measures is illustrated in the following tables and exhibits. The data in these illustrations come primarily from the financial statements in the 2017 annual report of Campbell Soup Company, reproduced in the appendix.

The data in Table 3-1 come from the five-year "selected financial data" of Campbell's 2017 annual report (see the appendix) and from balance sheets of prior annual reports. The data in Table 3-1 are presented graphically in Exhibits 3-2, 3-3 and 3-4. Note that the sequence of the years in the table is opposite from that of the years in the graphs. Tabular data are frequently presented so the most recent year is closest to the captions of the table. Graphs of time series data usually flow from left to right. In any event, it is necessary to notice and understand the captions of both tables and graphs.

Campbell Soup Company (Profitability* and Liquidity Data,† 2013–2017) **Table 3-1**

	2017	2016	2015	2014	2013
Margin (net earnings‡/net sales)	11.2	7.1	8.2	10.5	8.8
Turnover (net sales/average total assets)	1.01	1.00	1.00	1.01	1.09
ROI (net earnings/average total assets)	11.4	7.1	8.2	10.6	9.6
ROE (net earnings/average total equity)	55.8	38.7	44.7	62.0	67.8
Year-end position (in millions):					
Current assets	$1,900	$1,908	$2,093	$2,100	$2,221
Current liabilities	2,395	2,555	2,806	2,989	3,282
Working capital	(495)	(647)	(713)	(889)	(1,061)
Current ratio	0.79	0.75	0.75	0.70	0.68

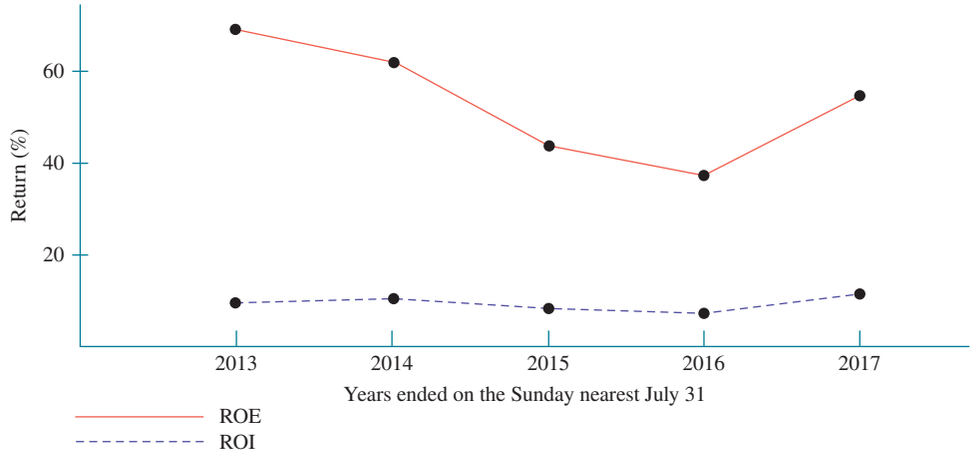
* Profitability calculations were made from the data presented in the five-year selected financial data.

† Liquidity calculations were made from the data presented in the balance sheets of this and prior annual reports.

‡ Based on "Net Earnings Attributable to Campbell Soup Company," which was identical to "Net Earnings" in all years except 2014 and 2013, when these amounts were slightly higher than "Net Earnings." The slight differences are due to net losses attributed to the noncontrolling (outside) shareholders of Campbell's subsidiary companies.

Source: Campbell Soup Company, 2017 Annual Report, pp. 13, 33, 35.

Exhibit 3-2 Campbell Soup Company, Return on Investment (ROI) and Return on Equity (ROE), 2013–2017



The graph in Exhibit 3-2 illustrates that Campbell's ROI and ROE results were generally downward trending during the five-year period presented, although 2017 was certainly an encouraging year. Scanning the graph from left to right reveals that ROE fell slightly while ROI rose slightly during the year ended July 31, 2014, then fell for both measures during 2015 and 2016, before rising significantly for both ROE and ROI in 2017. Although the overall trend in the profitability data presented is obviously downward sloping during the five-year period presented, it is difficult to meaningfully interpret company-specific results without understanding more about the company's core operations and any particular industry-based challenges they may have faced in recent years.

Campbell's

As the graphs in Exhibit 3-2 illustrate, Campbell's ROI trend was clearly more stable than its ROE trend during the five-year period from 2013 to 2017, as is typically the case for many companies. A firm's asset growth from year to year tends to be well planned and thus is likely to generate more consistency in the ROI results than would equity growth, which is much harder to predict and control. In recent years, Campbell's total assets have been approximately 5 to 7 times larger than the company's total equity due to the presence of substantial amounts of debt on the company's balance sheet. As a direct result of Campbell's aggressive use of *financial leverage* (i.e., taking the risk of borrowing funds from creditors on a long-term basis to enhance the return to stockholders), ROE ranged from an astonishing 38.7 percent to 67.8 percent during the five-year period depicted in the graph. Suffice it to say, stockholder returns of this magnitude are highly unusual for a mature company such as Campbell's, although competitive consumer goods companies such as Hershey's and Kellogg's have recently reported unusually high ROE results as well.

Not only do these ROE results represent a staggering five-year return to Campbell's stockholders, but they also present some difficulties in making meaningful comparisons of the company's ROI and ROE trends. In Exhibit 3-2, the vertical scale spans a range from 7.1 percent (ROI for 2016) to the high data point of 67.8 percent (ROE for 2013). By using such a heavily compressed vertical scale, the variation of the actual data points for ROI (from 7.1 percent to 11.4 percent) becomes lost in the flattened-out graphical representation. Yet the "big picture" is that Campbell's has consistently provided a satisfying ROI to all resource providers while also providing abnormally high returns to its stockholders.

Campbell Soup Company, Margin and Turnover, 2013–2017 **Exhibit 3-3**

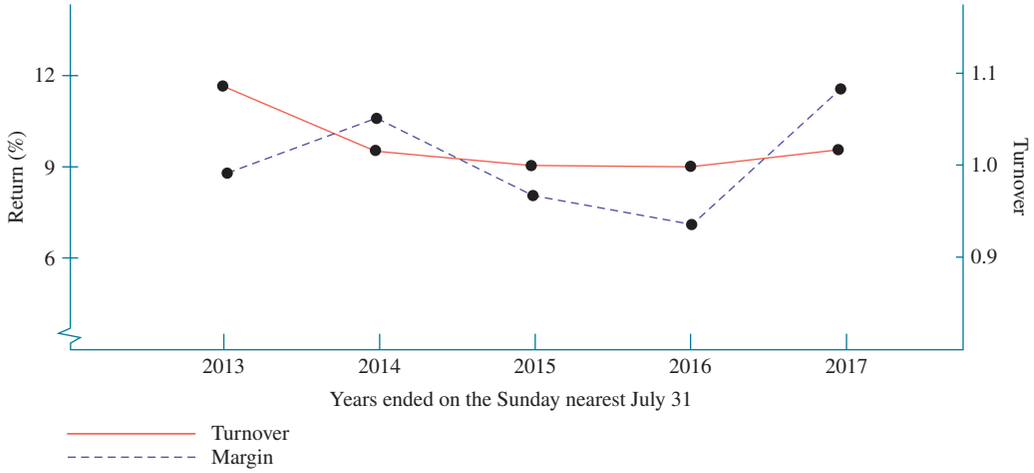


Exhibit 3-3 illustrates that Campbell's turnover has been remarkably stable in recent years, although slightly downward trending; this suggests that the company has had a relatively flat or even falling sales growth trend and that total asset growth has been minimal as well. Note that the range of turnover results during this period, 1.00–1.09, is not significant in absolute terms and is graphically depicted as a virtual flat-line representation.

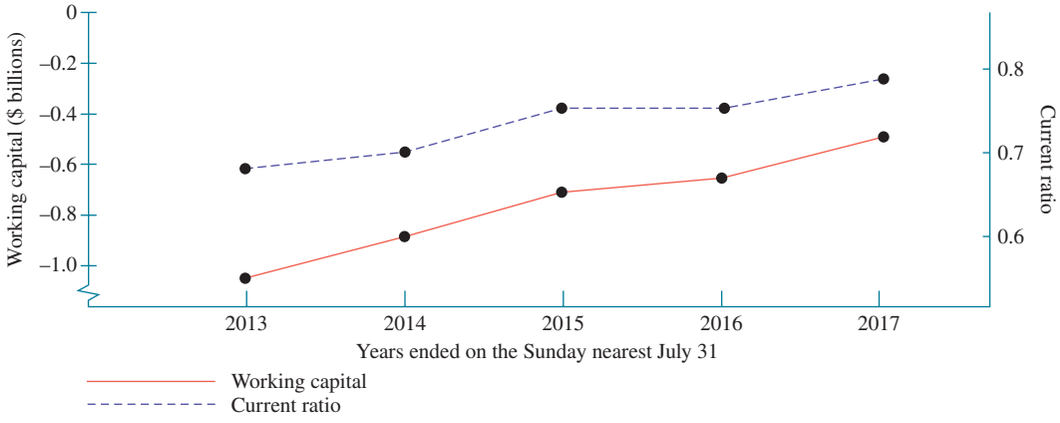
Campbell's

The trend in margin is more difficult to interpret than the trend in turnover. Margin rose in 2014, and then fell in 2015 and 2016 before recovering to a more normal, or expected, level in 2017. Note that turnover was flat from 2014 through 2017, so the variations seen in Campbell Soup Company's ROI during those years had everything to do with the variations in margin (profitability per sales dollar) from year to year and nothing to do with turnover (which is a measure of the efficiency of asset utilization). Campbell's margin was within a healthy and relatively narrow range of 7.1 percent to 11.4 percent for all years presented; thus, the overall trend suggests that the company is able to generate modest but consistent profits.

The overall trend in Campbell's liquidity during this period is not difficult to determine, although it is perhaps somewhat difficult to understand. As illustrated in Exhibit 3-4, Campbell's maintained a highly consistent current ratio in the range of 0.68–0.79 throughout the five-year period, meaning that current liabilities exceeded current assets by substantial amounts in all years presented. Working capital peaked at ($495) million in 2017 after having reached a low point of ($1,061) million in 2013, meaning that current liabilities exceeded current asset by more than $1 billion at that point in time. Yet it is highly unlikely that Campbell Soup Company has ever failed to meet any significant debt obligation in a timely manner. The tight manner in which the working capital and current ratio graphs mimic each other's progress suggests that Campbell's keeps a very close eye on these important relationships.

Campbell's clearly adheres to contemporary working capital management techniques, which suggest that investments in current assets (especially cash, accounts receivable, and inventories) ought to be minimized to the greatest extent possible. Likewise, management appears to take a similar view that it is perfectly acceptable to carry significant levels of current liabilities, as long as cash is readily available to pay all obligations as they fall due. As discussed earlier in this chapter, funds freed up by reducing one's

Exhibit 3-4 Campbell Soup Company, Working Capital and Current Ratio, 2013–2017



investment in working capital items can be used, for example, to purchase new production equipment or to expand marketing efforts for existing product lines.

Large-scale multinational corporations often invest significant time and resources to develop sophisticated cash management systems that will help to facilitate the timely movement of funds and ensure that the company maximizes the utilization of its cash resources. Lines of credit are often arranged with major banks throughout the world as well, to provide for emergency cash needs. Although Campbell Soup Company may appear to be on the verge of a cash crisis, it's more likely that its working capital management team has carefully guided the company at every step along the way. To gain a better understanding of Campbell's working capital and current ratio trends, it would be helpful to add several more years of data to the analysis. Changes in the acid-test ratio also would be considered in evaluating the firm's overall liquidity position.

All of the graphs presented in this chapter use an arithmetic vertical scale, although in some cases, the vertical scale has been truncated to highlight only the key data ranges being depicted. For example, the scale for margin shown in Exhibit 3-3 highlights the data range from 6 percent to 12 percent while implicitly cutting out an unspecified portion of the nonrelevant data range from 0 percent to 6 percent. This graphing technique eliminates the need to include unnecessary white space in the presentation of data that may otherwise distract from the relationships being highlighted, but it likewise skews the perspective and sense of scale of the absolute data values. Note also that with arithmetic vertical scales, the distance between values shown on the vertical axis will always be uniform. So if the data being plotted increase at a constant rate over the period of time shown on the horizontal scale, the plot will be a line that curves upward more and more steeply.

Many analysts instead prefer to plot data that will change significantly over time (such as a company's sales data) on a graph that uses a logarithmic vertical scale. This is called a **semilogarithmic graph** because the horizontal scale is still arithmetic; the intervals between years, for example, are equal. The primary advantage of a semilogarithmic presentation is that a constant rate of growth will result in a straight-line plot. Extensive use of semilog graphs is made for data presented in the financial press, such as *The Wall Street Journal, The Financial Times, Fortune,* and *Bloomberg Businessweek,* so the key is to always carefully consider the scale being used in graphical presentations such that you can accurately interpret the data.

Demonstration Problem

The **Demonstration Problem** walkthrough for this chapter is available in *Connect*.

Summary

Financial statement users express financial statement data in ratio format to facilitate making decisions and informed judgments. Users are especially interested in the trend of a company's ratios over time and the comparison of the company's ratio trends with those of its industry as a whole. **(LO 1)**

The rate of return on investment is a universally accepted measure of profitability. Rate of return is calculated by dividing the amount of return, or profit, by the amount invested. Rate of return is expressed as an annual percentage rate.

Return on investment (ROI) is one of the most important measures of profitability because it relates the income earned during a period to the assets that were invested to generate those earnings. The DuPont model for calculating ROI expands the basic model by introducing sales to calculate margin (net income/sales) and asset turnover (sales/average assets); ROI equals margin × turnover. *Margin* describes the profit from each dollar of sales, and *turnover* expresses the sales-generating capacity (utilization efficiency) of the firm's assets. This financial ratio is often referred to as *return on assets (ROA).* **(LO 2, 3)**

Return on equity (ROE) relates net income earned for the year to the average stockholders' equity for the year. This rate of return measure is important to current and prospective owners/stockholders because it relates earnings to the stockholders' investment. **(LO 4)**

Creditors are interested in an entity's liquidity—that is, its ability to pay its liabilities when due. The amount of working capital, the current ratio, and the acid-test ratio are measures of liquidity. These calculations are made using the amounts of current assets and current liabilities reported in the balance sheet. **(LO 5, 6)**

When ratio trend data are plotted graphically, it is easy to determine the significance of ratio changes and to evaluate a firm's performance. However, it is necessary to pay attention to how graphs are constructed because the visual image presented can be influenced by the scales used. **(LO 7)**

Key Terms and Concepts

acid-test ratio (p. 77) The ratio of the sum of cash (including temporary cash investments) and accounts receivable to current liabilities. A primary measure of a firm's liquidity.

asset turnover (p. 74) The quotient of sales divided by average assets for the year or other fiscal period.

COD (p. 78) Cash on delivery, or collect on delivery.

credit risk (p. 78) The risk that an entity to which credit has been extended will not pay the amount due on the date set for payment.

current ratio (p. 77) The ratio of current assets to current liabilities. A primary measure of a firm's liquidity.

DuPont model (p. 73) An expansion of the return on investment calculation to margin × turnover.

interest (p. 71) The income or expense from investing or borrowing money.

interest rate (p. 71) The percentage amount used, together with principal and time, to calculate interest.

liquidity (p. 76) Refers to a firm's ability to meet its current financial obligations.

margin (p. 74) The percentage of net income to net sales. Sometimes margin is calculated using operating income or other intermediate subtotals of the income statement. The term also can refer to the *amount* of gross profit, operating income, or net income.

principal (p. 71) The amount of money invested or borrowed.

rate of return (p. 70) A percentage calculated by dividing the amount of return on an investment for a period of time by the average amount invested for the period. A primary measure of profitability.

return on assets (ROA) (p. 72) A synonym for *return on investment (ROI).*

return on equity (ROE) (p. 75) The percentage of net income divided by average stockholders' equity for the fiscal period in which the net income was earned; frequently referred to as *ROE.* A primary measure of a firm's profitability.

return on investment (ROI) (p. 72) The rate of return on an investment; frequently referred to as *ROI.* Sometimes referred to as *return on assets* or *ROA.* A primary measure of a firm's profitability.

risk (p. 71) A concept that describes the range of possible outcomes from an action. The greater the range of possible outcomes, the greater the risk.

semilogarithmic graph (p. 82) A graph format in which the vertical axis is a logarithmic scale.

trend analysis (p. 70) Evaluation of the trend of data over time.

turnover (p. 74) The quotient of sales divided by the average assets for the year or some other fiscal period. A descriptor, such as total asset, inventory, or plant and equipment, usually precedes the turnover term. A measure of the efficiency with which assets are used to generate sales.

working capital (p. 76) The difference between current assets and current liabilities. A measure of a firm's liquidity.

connect Mini-Exercises

All applicable Mini-Exercises are available in *Connect.*

Mini-Exercise 3.1
LO 3

ROI analysis using the DuPont model Firm J has net income of $76,800, sales of $480,000, and average total assets of $400,000.

Required:
Calculate Firm J's margin, turnover, and return on investment (ROI).

Mini-Exercise 3.2
LO 3

ROI analysis using the DuPont model Firm K has a margin of 9%, turnover of 1.6, and sales of $4,000,000.

Required:
Calculate Firm K's net income, average total assets, and return on investment (ROI).

Mini-Exercise 3.3
LO 4

Calculate ROE Firm L had net assets at the end of the year of $730,000. The only transactions affecting stockholders' equity during the year were net income of $154,000 and dividends of $94,000.

Required:
Calculate Firm L's average stockholders' equity and return on equity (ROE).

Calculate average total assets, net income, ROI, and ROE Firm M has a margin of 11%, turnover of 1.4, sales of $840,000, and average stockholders' equity of $400,000.

Mini-Exercise 3.4
LO 3, 4

Required:
Calculate Firm M's average total assets, net income, return on investment (ROI), and return on equity (ROE).

Calculate current liabilities and working capital Firm N has a current ratio of 1.7 and current assets of $141,100.

Mini-Exercise 3.5
LO 6

Required:
Calculate Firm N's current liabilities and working capital.

Calculate working capital and current ratio Firm O has accounts receivable of $20,100, cash of $18,400, property, plant, and equipment of $340,000, merchandise inventory of $21,500, accounts payable of $31,300, other accrued liabilities of $18,700, common stock of $300,000, and retained earnings of $50,000.

Mini-Exercise 3.6
LO 6

Required:
Calculate Firm N's working capital and current ratio.

Exercises

connect

All applicable Exercises are available in *Connect*.

Compare investment alternatives Two acquaintances have approached you about investing in business activities in which each is involved. Simone is seeking $8,000, and Riley needs $6,000. One year from now, your original investment will be returned, along with $920 income from Simone or $750 income from Riley. You can make only one investment.

Exercise 3.7
LO 2

Required:

a. Which investment would you prefer? Why? Round your percentage answer to two decimal places.

b. What other factors should you consider before making either investment?

Compare investment alternatives A friend has $5,000 that he has saved from his part-time job. He will need his money, plus any interest earned on it, in six months and has asked for your help in deciding whether to put the money in a bank savings account at 3% interest or to lend it to Victor. Victor has promised to repay $5,300 after six months.

Exercise 3.8
LO 2

Required:

a. Calculate the interest earned on the savings account for six months.

b. Calculate the rate of return if the money is lent to Victor. Round your percentage answer to two decimal places.

c. Which alternative would you recommend? Explain your answer.

Exercise 3.9 LO 2

Compare investment alternatives You have two investment opportunities. One will have an 8% rate of return on an investment of $10,000; the other will have a 10% rate of return on principal of $14,000. You would like to take advantage of the higher-yielding investment but have only $10,000 available.

Required:

What is the maximum rate of interest that you would pay to borrow the $4,000 needed to take advantage of the higher yield?

Exercise 3.10 LO 2

Compare investment alternatives You have accumulated $25,000 and are looking for the best rate of return that can be earned over the next year. A bank savings account will pay 3%. A one-year bank certificate of deposit will pay 6%, but the minimum investment is $30,000.

Required:

a. Calculate the amount of return you would earn if the $25,000 were invested for one year at 3%.

b. Calculate the net amount of return you would earn if $5,000 were borrowed at a cost of 12%, and then $30,000 were invested for one year at 6%.

c. Calculate the net rate of return on your investment of $25,000 if you accept the strategy of part **b.**

d. In addition to the amount of investment required and the rate of return offered, what other factors would you normally consider before making an investment decision such as the one described in this exercise?

Exercise 3.11 LO 3

ROI analysis using the DuPont model

a. Firm A has a margin of 8%, sales of $630,000, and ROI of 16.8%. Calculate the firm's average total assets.

b. Firm B has net income of $246,400, turnover of 1.1, and average total assets of $1,600,000. Calculate the firm's sales, margin, and ROI. Round your percentage answer to one decimal place.

c. Firm C has net income of $43,500, turnover of 2.9, and ROI of 23.2%. Calculate the firm's margin, sales, and average total assets. Round your percentage answer to one decimal place.

Exercise 3.12 LO 3

ROI analysis using the DuPont model

a. Firm D has net income of $54,000, sales of $1,200,000, and average total assets of $750,000. Calculate the firm's margin, turnover, and ROI.

b. Firm E has net income of $132,000, sales of $2,200,000, and ROI of 9.6%. Calculate the firm's turnover and average total assets.

c. Firm F has ROI of 12%, average total assets of $1,500,000, and turnover of 0.8. Calculate the firm's sales, margin, and net income. Round your answers to the nearest whole numbers.

Exercise 3.13 LO 4

Calculate ROE At the beginning of the year, the net assets of Shannon Co. were $617,900. The only transactions affecting stockholders' equity during the year were net income of $60,800 and dividends of $16,600.

Required:
Calculate Shannon Co.'s return on equity (ROE) for the year. Round your percentage answer to one decimal place.

Calculate margin, net income, and ROE For the year ended December 31, 2019, Settles Inc. earned an ROI of 12.6%. Sales for the year were $120 million, and average asset turnover was 2.8. Average stockholders' equity was $25 million.

Exercise 3.14
LO 3, 4

Required:

a. Calculate Settles Inc.'s margin and net income.

b. Calculate Settles Inc.'s return on equity.

Effect of transactions on working capital and current ratio Jay Oullette, CEO of Bumper to Bumper Inc., anticipates that his company's year-end balance sheet will show current assets of $180,000 and current liabilities of $100,000. Oullette has asked your advice concerning a possible early payment of $20,000 of accounts payable before year-end, even though payment isn't due until later.

Exercise 3.15
LO 6

Required:

a. Calculate the firm's working capital and current ratio under each situation. Would you recommend early payment of the accounts payable? Why? Round your current ratio answer to one decimal place.

b. Assume that Bumper to Bumper had negotiated a short-term bank loan of $60,000 that can be drawn down either before or after the end of the year. Calculate working capital and the current ratio at year-end under each situation, assuming that early payment of accounts payable is not made. When would you recommend that the loan be taken? Why? Round your current ratio answer to one decimal place.

Effect of transactions on working capital and current ratio Evans Inc. had current liabilities at April 30 of $275,000. The firm's current ratio at that date was 2.1.

Exercise 3.16
LO 6

Required:

a. Calculate the firm's current assets and working capital at April 30.

b. Assume that management paid $27,500 of accounts payable on April 29. Calculate the current ratio and working capital at April 30 as if the April 29 payment had not been made. Round your current ratio answer to two decimal places.

c. Explain the changes, if any, to working capital and the current ratio that would be caused by the April 29 payment.

Problems

connect

All applicable Problems are available in *Connect*.

Calculate profitability measures using annual report data Using data from the financial statements of Campbell Soup Company in the appendix, calculate the following:

Problem 3.17
LO 3, 4, 6
Campbell's

a. ROI for 2017. Round your percentage answer to one decimal place.

b. ROE for 2017. Round your percentage answer to one decimal place.
c. Working capital at July 30, 2017, and July 31, 2016.
d. Current ratio at July 30, 2017, and July 31, 2016. Round your answers to two decimal places.
e. Acid-test ratio at July 30, 2017, and July 31, 2016. Round your answers to two decimal places.

Note: Visit campbellsoup.com to update this problem with data from the most recent annual report.

Problem 3.18
LO 3, 4, 6

Calculate profitability and liquidity measures Presented here are the comparative balance sheets of Hames Inc. at December 31, 2020 and 2019. Sales for the year ended December 31, 2020, totaled $1,700,000.

HAMES INC.
Balance Sheets
December 31, 2020 and 2019

	2020	2019
Assets		
Cash	$ 63,000	$ 57,000
Accounts receivable	285,000	266,000
Merchandise inventory	261,000	247,000
Total current assets	$609,000	$570,000
Land	109,000	82,000
Plant and equipment	375,000	330,000
Less: Accumulated depreciation	(195,000)	(180,000)
Total assets	$898,000	$802,000
Liabilities		
Short-term debt	$ 54,000	$ 51,000
Accounts payable	168,000	144,000
Other accrued liabilities	68,000	54,000
Total current liabilities	$290,000	$249,000
Long-term debt	56,000	105,000
Total liabilities	$346,000	$354,000
Stockholders' Equity		
Common stock, no par, 200,000 shares authorized, 80,000 and 50,000 shares issued, respectively	$224,000	$162,000
Retained earnings:		
Beginning balance	$286,000	$217,000
Net income for the year	102,000	84,000
Dividends for the year	(60,000)	(15,000)
Ending balance	$328,000	$286,000
Total stockholders' equity	$552,000	$448,000
Total liabilities and stockholders' equity	$898,000	$802,000

Required:

a. Calculate ROI for 2020. Round your percentage answer to two decimal places.
b. Calculate ROE for 2020. Round your percentage answer to one decimal place.
c. Calculate working capital at December 31, 2020.
d. Calculate the current ratio at December 31, 2020. Round your answer to two decimal places.
e. Calculate the acid-test ratio at December 31, 2020. Round your answer to two decimal places.
f. Assume that on December 31, 2020, the treasurer of Hames decided to pay $50,000 of accounts payable. Explain what impact, if any, this payment will have on the answers you calculated for parts **a–d** (increase, decrease, or no effect).
g. Assume that instead of paying $50,000 of accounts payable on December 31, 2020, Hames collected $50,000 of accounts receivable. Explain what impact, if any, this receipt will have on the answers you calculated for parts **a–d** (increase, decrease, or no effect).

Calculate and analyze liquidity measures Following are the current asset and current liability sections of the balance sheets for Freedom Inc. at January 31, 2020 and 2019 (in millions):

Problem 3.19
LO 6

	January 31, 2020	January 31, 2019
Current Assets		
Cash	$15	$ 6
Accounts receivable	9	14
Inventories	18	24
Total current assets	$42	$44
Current Liabilities		
Note payable	$ 9	$ 9
Accounts payable	15	5
Other accrued liabilities	6	6
Total current liabilities	$30	$20

Required:

a. Calculate the working capital and current ratio at each balance sheet date. Round your current ratio answers to one decimal place.
b. Evaluate the firm's liquidity at each balance sheet date.
c. Assume that the firm operated at a loss during the year ended January 31, 2020. How could cash have increased during the year?

Calculate and analyze liquidity measures Following are the current asset and current liability sections of the balance sheets for Aroundsquare Inc. at August 31, 2020 and 2019 (in millions):

Problem 3.20
LO 6

	August 31, 2020	August 31, 2019
Current Assets		
Cash	$51	$12
Marketable securities	72	34
Accounts receivable	35	58
Inventories	94	169
Total current assets	$252	$273
Current Liabilities		
Note payable	$ 70	$ 59
Accounts payable	62	40
Other accrued liabilities	48	31
Total current liabilities	$180	$130

Required:

a. Calculate the working capital and current ratio at each balance sheet date. Round your current ratio answers to one decimal place.

b. Describe the change in the firm's liquidity from 2019 to 2020.

Problem 3.21
LO 3

Applications of ROI using the DuPont model; manufacturing versus service firm Mindspin Labs Inc. is a manufacturing firm that has experienced strong competition in its traditional business. Management is considering joining the trend to the "service economy" by eliminating its manufacturing operations and concentrating on providing specialized maintenance services to other manufacturers. Management of Mindspin Labs has had a target ROI of 18% on an asset base that has averaged $7 million. To achieve this ROI, average total asset turnover of 3.0 was required. If the company shifts its operations from manufacturing to providing maintenance services, it is estimated that average total assets will decrease to $2 million.

Required:

a. Calculate net income, margin, and sales required for Mindspin Labs to achieve its target ROI as a manufacturing firm.

b. Assume that the average margin of maintenance service firms is 2.5%, and that the average ROI for such firms is also 18%. Calculate the net income, sales, and total asset turnover that Mindspin Labs will have if the change to services is made and the firm is able to earn an average margin and achieve an 18% ROI.

Problem 3.22
LO 3

ROI analysis using the DuPont model Charlie's Furniture Store has been in business for several years. The firm's owners have described the store as a "high-price, high-service" operation that provides lots of assistance to its customers. Margin has averaged a relatively high 40% per year for several years, but turnover has been a relatively low 0.6 based on average total assets of $3,000,000. A discount furniture store is about to open in the area served by Charlie's, and management is considering lowering prices to compete effectively.

Required:

a. Calculate current sales and ROI for Charlie's Furniture Store.

b. Assuming that the new strategy would reduce margin to 30%, and assuming that average total assets would stay the same, calculate the sales that would be required to have the same ROI as Charlie's currently earns.

c. Suppose you presented the results of your analysis in parts **a** and **b** of this problem to Charlie, and he replied, "What are you telling me? If I reduce my prices as planned, then I have to increase my sales volume by 50% to earn the same return?" Given the results of your analysis, how would you react to Charlie?

d. Now suppose Charlie says, "You know, I'm not convinced that lowering prices is my only option in staying competitive. What if I were to increase my marketing effort? I'm thinking about kicking off a new advertising campaign after conducting more extensive market research to better identify who my target customer groups are." In general, explain to Charlie what the likely impact of a successful strategy of this nature would be on margin, turnover, and ROI.

e. Think of an alternative strategy that might help Charlie maintain the competitiveness of his business. Explain the strategy, and then describe the likely impact of this strategy on margin, turnover, and ROI.

Cases

connect

All applicable Cases are available in *Connect*.

Focus company—analysis of liquidity and profitability measures In Exercise 1-1, you were asked to obtain a recent annual report of a company that you were interested in reviewing throughout this term.

Case 3.23
LO 3, 4, 6, 7

Required:

a. Please locate the five-year (or longer) selected financial data (usually in the management discussion and analysis section of the annual report), or use your focus company's income statement and balance sheet data to calculate as many of the following ratios and results as possible:

1. Working capital
2. Current ratio
3. Margin
4. Turnover
5. ROI
6. ROE

b. Briefly describe your perception of your focus company's liquidity and profitability based on your calculation and review of these ratios and results.

Analysis of liquidity and profitability measures of Apple Inc. The following summarized data (amounts in millions) are taken from the September 30, 2017, and September 24, 2016, comparative financial statements of Apple Inc., a company that designs, manufactures, and markets mobile communication and media devices and personal computers; sells a variety of related software, services, accessories, networking solutions, and offers third-party digital content and applications:

Case 3.24
LO 3, 4, 6, 7

(Amounts Expressed in Millions) For the Fiscal Years Ended September 30 and September 24, respectively:	2017	2016
Net sales	$229,234	$215,639
Costs of sales	114,048	131,376
Operating income	61,344	60,024
Net income	$ 48,351	$ 45,687
At Year End:		
Assets		
Current assets:		
Cash and cash equivalents	$ 20,289	$ 20,484
Short-term marketable securities	53,892	46,671
Accounts receivable, less allowances of $58 and $53, respectively	17,874	15,754
Inventories	4,855	2,132
Vendor nontrade receivables	17,799	13,545
Other current assets	13,936	8,283
Total current assets	128,645	106,869
Long-term marketable securities	194,714	170,430
Property, plant, and equipment, net	33,783	27,010
Goodwill	5,717	5,414
Acquired intangible assets, net	2,298	3,206
Other assets	10,162	8,757
Total assets	$375,319	$321,686
Liabilities and Shareholders' Equity		
Current liabilities:		
Accounts payable	$ 49,049	$ 37,294
Accrued expenses	25,744	22,027
Deferred revenue	7,548	8,080
Commercial paper	11,977	8,105
Current portion of long-term debt	6,496	3,500
Total current liabilities	100,814	79,006
Deferred revenue—noncurrent	2,836	2,930
Long-term debt	97,207	75,427
Other noncurrent liabilities	40,415	36,074
Total liabilities	241,272	193,437
Shareholders' equity:		
Common stock and additional paid-in capital, $0.00001 par value: 12,600,000 shares authorized; 5,126,201 and 5,336,166 shares issued and outstanding, respectively	35,867	31,251
Retained earnings	98,330	96,364
Accumulated other comprehensive income (loss)	(150)	634
Total shareholders' equity	134,047	128,249
Total liabilities and shareholders' equity.	$375,319	$321,686

At September 26, 2015, total assets were $290,345 and total shareholders' equity was $119,355.

Required:

a. Calculate Apple Inc.'s working capital, current ratio, and acid-test ratio at September 30, 2017, and September 24, 2016. Round your ratio answers to two decimal places.

b. Calculate Apple's ROE for the years ended September 30, 2017, and September 24, 2016. Round your percentage answers to one decimal place.

c. Calculate Apple's ROI, showing margin and turnover, for the years ended September 30, 2017, and September 24, 2016. Round your turnover calculations to two decimal places. Round your margin and ROI percentages to one decimal place.

d. Evaluate the company's overall liquidity and profitability.

Optional continuation of Case 3.24—trend analysis

The following historical data were derived from Apple Inc.'s consolidated financial statements (in millions):

Note: Past data are not necessarily indicative of the results of future operations.

	2017	2016	2015	2014	2013
Net sales	$229,234	$215,639	$233,715	$182,795	$170,910
Net income	48,351	45,687	53,394	39,510	37,037
Cash, cash equivalents, and marketable securities	268,895	237,585	205,666	155,239	146,761
Total assets	375,319	321,686	290,345	231,839	207,000
Total term debt*	103,703	78,927	55,829	28,987	16,960
Other long-term obligations**	40,415	36,074	33,427	24,826	20,208
Total shareholders' equity	134,047	128,249	119,355	111,547	123,549

* Includes current and long-term portions of term debt.

**Excludes noncurrent deferred revenue.

e. Calculate Apple Inc.'s total liabilities for each year presented above.

f. Are the trends expressed in these data generally consistent with each other?

g. In your opinion, which of these trends would be most meaningful to a potential investor in common stock of Apple Inc.? Which trend would be least meaningful?

h. What other data (trend or otherwise) would you like to have access to before making an investment in Apple Inc.?

ANSWERS TO What Does It Mean?

1. It means that almost everything is relative, so comparison of an individual firm's ratio results to the industry trends is important when making judgments about performance.
2. It means that the economic outcome (the amount of return) is related to the input (the investment) utilized to produce the return.
3. It means that investors and others can evaluate the economic performance of a firm, and make comparisons between firms, by using this ratio.
4. It means that a better understanding of ROI is achieved by knowing about the profitability from sales (margin) and the efficiency with which assets have been used (turnover) to generate sales.
5. It means that the focus is changed from return on total assets to return on the portion of total assets (sometimes referred to as capital) provided by the stockholders of the firm.
6. It means that the firm has enough cash, or is likely to soon collect enough cash, to pay its liabilities that are now, or soon will be, due for payment.