

FUNDAMENTALS OF FINANCIAL MANAGEMENT

CONCISE THIRD EDITION



EUGENE F. BRIGHAM
JOEL F. HOUSTON

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P R E F A C E

Fundamentals of Financial Management: Concise Third Edition continues to offer the most complete and integrated teaching system available.

When *Fundamentals of Financial Management* was first published more than 25 years ago, our intent was to write an introductory finance text that students could truly understand. Today, nine editions later, *Fundamentals* has become the leading undergraduate finance text. We have always tried to reflect changes in the world of finance, along with the latest innovations in education and publishing. Our goal with each new edition is to produce a book and ancillary package that set yet another new standard for finance textbooks.

The many changes we made over time resulted in a better, more complete textbook, but one that is much longer than it was originally. Indeed, despite the continued success of *Fundamentals*, we often heard the comment that it was difficult to cover the entire book in a single term.

When we first became aware of this situation, we turned to students and other professors for advice. Some students and professors advised us not to worry about the size issue. They argued that a larger, more complete textbook is better because it provides professors more flexibility in designing their courses, is a better reference for students after they complete the course, and allows interested students to read chapters not covered in the course on their own. Others took a different position, arguing that as a textbook gets larger, it becomes increasingly difficult to develop a manageable syllabus, and that many students buy a larger, more expensive text than they want or need. In the end, we concluded that both arguments have merit, so we decided six years ago to create the first edition of *Fundamentals of Financial Management: The Concise Edition* for those who like *Fundamentals* but think a smaller, more concise textbook would better serve their needs.

The response to *Concise* has been overwhelmingly positive. As teachers and authors, we have always tried to incorporate current innovations in the field of finance, in education, and in publishing into our books and their related ancillaries. The third edition of *Concise* has a new look and new ancillary items that provide the most complete and integrated teaching package available. Of course, our commitment to quality, accuracy, and student accessibility remains as strong as ever.

RELATIONSHIP TO *FUNDAMENTALS*

When we first created *Concise*, we debated streamlining the book either by covering all the topics in less depth or by covering fewer topics but maintaining the depth and rigor of *Fundamentals*. We chose to retain the depth and level while

eliminating some less essential topics. While the omitted topics are interesting and important, they are not critical for students who do not major in finance, and finance majors will study them anyway in subsequent courses.

Concise is significantly different than *Fundamentals* primarily because it is shorter. Consequently, most of the chapters will be familiar to users of *Fundamentals*. So, while *Concise* can be viewed as a streamlined edition of *Fundamentals*, the third edition maintains a thorough discussion of such basic core topics as the time value of money, the relationship between risk and return, the financial environment, financial statements, stock and bond valuation, and capital budgeting.

INTENDED MARKET

All chapters are written in a flexible, modular format.

Like *Fundamentals*, *Concise* is primarily intended for the introductory finance course. Unlike *Fundamentals*, it is possible to cover all of the chapters in *Concise* in a single term, and perhaps even to supplement it with a few outside readings or cases. *Concise* may also be used in courses in which the material is covered in two terms, allowing professors the flexibility to assign even more additional cases, readings, and exercises.

Although the chapters in *Concise* are sequenced logically, they are written in a flexible, modular format, which will help instructors cover the material in a different sequence should they choose to do so.

OUTLINE OF THE THIRD EDITION

Finance is an exciting, challenging, and ever-changing discipline. Changing technology and increased globalization are dramatically transforming financial practices and markets. In this third edition we strive to communicate the excitement and to demonstrate how these changes are affecting finance and other aspects of business.

Changing technology has affected not only *what* we teach but also *how* we teach. More and more, we find ourselves using computer spreadsheets and the Internet to supplement our classroom lectures. With this in mind, we developed a set of integrated spreadsheets and Internet exercises and placed them (as appropriate) throughout the book and ancillaries. These items, which are available both on a CD-ROM and via the Internet, will make it easier for instructors to teach and for students to learn the fundamentals of financial management.

In developing and improving *Concise*, we tried to convey the excitement and ever-changing nature of finance and to make students realize its importance and relevance. More often than not, students discover that finance is more interesting and relevant than they had anticipated. Nevertheless, finance remains a challenging subject for many students, and we kept this in mind as we developed the text and its supporting materials.

Of course, an introductory finance course should be more than just a series of topics—students must understand not only the basic concepts but also how they fit together. With this in mind, *Concise* begins with a discussion of financial objectives, where we show how managers and investors use financial state-

ments to determine how well firms are meeting those objectives. We also discuss how incentive compensation, along with the threat of takeovers, motivates managers to improve performance and how that benefits both stockholders and society at large. We also describe early on the financial environment, financial forecasting, the fundamental trade-off between risk and return, and the time value of money. Then we build on these basic concepts to explain how stock and bond prices are determined.

Building on this background, subsequent chapters explain the financial tools and techniques that are used to help firms maximize value by improving decisions. Included here are capital budgeting techniques, procedures for determining the capital structure, working capital management, and multinational financial management.

Our organization has four important advantages:

Four important advantages of the third edition's organization.

1. Explaining early on how accounting data are used, how pro forma financial statements are projected, how financial markets operate, and how security prices are determined helps students understand how financial management affects stock prices. Also, the early coverage of risk analysis, time value of money, and valuation techniques permits us to use and reinforce those concepts throughout the remainder of the book.
2. Structuring the book around markets and valuation enhances continuity and helps students see how the various topics are related to one another.
3. Most students—even those who do not plan to major in finance—are interested in stock and bond values, rates of return, and the like. Because one's ability to learn a topic is a function of his or her interest and motivation, and because *Concise* covers securities and security markets early, our organization is pedagogically sound.
4. Once the basic concepts have been established, it is easier for students to understand how and why corporations make specific investment and financing decisions and how they develop and execute their working capital policies.

Analyzing Financial Decisions with Spreadsheets

Spreadsheet programs such as *Microsoft Excel* are ideally suited for analyzing many financial issues, and a knowledge of spreadsheets is rapidly becoming essential for people in business. Therefore, we “modernized” the book by indicating how spreadsheets are used to deal with the issues discussed in the text.

In the text chapters, we discuss finance concepts, provide examples of the concepts, and explain how the analysis necessary to make optimal financial decisions is done. Where the analysis involves arithmetic, we assume that students are using calculators to do the math. However, if the problem is one that could be solved more efficiently with a computer, we state this and briefly describe how the computer would be used. These explanations are short, easy to follow, and can be skipped without loss of continuity. Thus, students will get an idea of how they could go from calculators to spreadsheets, but they can stop at that point. However, if instructors want to emphasize computers in the course, or if individual students want to learn more about spreadsheets on their own, the text itself and a spreadsheet ancillary make that relatively easy. We developed a spreadsheet model for each chapter in the book except Chapter 1. These models show exactly how the decisions dealt with in the chapter can be analyzed with an *Excel* spreadsheet. Therefore, our models include a good bit of explanation and serve both as an *Excel* tutorial and as a template for analyzing whatever financial issues are covered in the particular chapter.

The models are contained on a CD-ROM that accompanies each textbook, and they are also accessible from the Harcourt College web site. As noted above, the models are not necessary for going through the book and learning the essential financial concepts. However, if a student wants to learn how these concepts are implemented in the real world, and thus get a leg up in the job market, the disk and the models will be a big help. And, of course, if an instructor wants to build spreadsheet analysis into the course, our models will provide an excellent platform.

A New Chapter Focusing on Multinational Financial Management

It has become a cliché to argue that world capital markets have become increasingly integrated and that investors should think globally when they make important financial decisions. Like most clichés, this one is true, but even so, many introductory finance textbooks have not paid sufficient attention to international issues. With this in mind, three years ago in the second edition of *Concise* we added a new series of boxes called “Global Perspectives,” which look at issues covered in the chapters from a global viewpoint. In this third edition of *Concise*, we have taken the additional step of adding a new chapter that is dedicated to multinational financial management.

Consolidated Coverage of Working Capital Management

Given the addition of a new chapter on international finance, we looked for places to streamline the text in order to keep *Concise* succinct. Based on our own classroom experiences and the feedback that we have received from other professors, we decided to consolidate the two chapters, “Managing Current Assets” and “Financing Current Assets,” into a single new chapter entitled “Working Capital Management.” At first we were concerned that we might be giving insufficient attention to this important topic. However, after reworking these chapters, we are convinced that the new consolidated chapter presents all of the key ideas of working capital management in a clear and straightforward manner.

Increased Emphasis on Cash Flow and Economic Value

The third edition includes an expanded discussion on moving beyond accounting statements to cash flows and economic value. These concepts are integrated throughout the book.

Relocation of Chapter on Financial Forecasting The chapter on financial forecasting (formerly Chapter 14) has been moved up to Chapter 4 so that it now follows financial statement analysis. Introducing forecasting earlier enables us to show more clearly how one uses his-

torical data to help develop plans for future improvements and also how forecasted cash flows affect stock and bond valuation and capital budgeting decisions.

Revised Discussion of the Term Structure of Interest Rates We simplified and modernized the term structure discussion in Chapter 5. We eliminated much of the arcane term structure theory and instead make a smooth transition from our earlier discussion of interest rate levels to a discussion of the factors that influence the shape and level of the yield curve.

Free Cash Flow Approach to Stock Valuation We discuss the standard dividend growth model for stock valuation, but because that model is inadequate for many purposes, we added a section on the free cash flow approach to corporate valuation. This approach is particularly useful when dealing with newly formed companies, with divisions of large corporations, and with firms that are being evaluated as part of a merger analysis.

Reorganized Capital Budgeting Coverage More attention is devoted to estimating project risk. To help students better understand how risk affects the capital bud-

geting decision, we now include sensitivity and scenario analysis as part of the chapter on estimating cash flows.

Changes to Capital Structure Chapter The third edition more clearly describes how changes in capital structure affect the costs of debt and equity. The Hamada equation is introduced into the analysis to provide students with a more direct way to estimate optimal capital structure.

As always, we updated and clarified both the text and the end-of-chapter problems, and we made numerous improvements in the pedagogy. In particular, the book's new four-color design leads to a more exciting presentation. In addition, we updated the real-world examples and pointed out recent developments in the financial environment. We also removed some of the more technical appendixes from the text and have instead included them as part of our newly designed web site. Finally, we expanded the coverage of certain topics whose importance has increased, and we deleted redundant and less important material to streamline the discussion and improve the flow. Some of the more important changes are noted in the following table:

CONTENTS

PART I INTRODUCTION TO FINANCIAL MANAGEMENT

Chapter 1 An Overview of Financial Management

Chapter 2 Financial Statements, Cash Flow, and Taxes

Chapter 3 Analysis of Financial Statements

Chapter 4 Financial Planning and Forecasting

Chapter 5 The Financial Environment: Markets, Institutions, and Interest Rates

■ A new "Technology Matters" box discusses how electronic commerce is changing the way firms operate.

■ Added a discussion of EBITDA and a section on "Modifying Accounting Data for Managerial Decisions." Updated federal tax section.

■ Added EBITDA coverage and price/cash flow ratios to reflect analysts' increased focus on these items.

■ Financial forecasting has been moved up from Chapter 14 to follow the financial statement analysis chapter. New section on strategic plans discusses mission statements, corporate scope, corporate objectives, and corporate strategies. New sections on operating plans and financial plans.

■ Updated to reflect important changes in the financial environment. Simplified and modernized the term structure discussion. New "Industry Practice" box describes the various stock market indexes.

PART II FUNDAMENTAL CONCEPTS IN FINANCIAL MANAGEMENT

Chapter 6 Risk and Rates of Return

Chapter 7 Time Value of Money

■ Added discussion on calculating investment returns and the implications of a changing stock market risk premium.

■ Added spreadsheets as a solution method for TVM problems. The spreadsheet discussions occur throughout the chapter and where relevant in other parts of the text. New "Technology Matters" box on how to use the Internet for financial planning.

PART III FINANCIAL ASSETS

Chapter 8 Bonds and Their Valuation

Chapter 9 Stocks and Their Valuation

■ Added spreadsheet solution method to solve bond problems.

■ Added discussion of alternative approaches for valuing common stocks, including a new valuation method based on free cash flows.

PART IV INVESTING IN LONG-TERM ASSETS: CAPITAL BUDGETING

Chapter 10 The Cost of Capital

Chapter 11 The Basics of Capital Budgeting

Chapter 12 Cash Flow Estimation and Risk Analysis

■ Simplified the breakpoint discussion. A new "Industry Practice" box discusses special types of preferred stock, and a new "Technology Matters" box discusses cost of capital estimation for Internet companies.

■ We now illustrate how spreadsheets are used in capital budgeting.

■ Sensitivity analysis and scenario analysis are now included as part of the chapter on estimating cash flows. This new approach allows students to see how risk affects capital budgeting decisions. We built inflation directly into cash flows and reduced discussion of replacement projects.

PART V CAPITAL STRUCTURE AND DIVIDEND POLICY

Chapter 13 Capital Structure and Leverage

- Hamada equation is introduced to quantify how changing the capital structure might affect the firm's cost of capital.

Chapter 14 Distributions to Shareholders: Dividends and Share Repurchases

- A new "Industry Practice" box discusses the effect of stock repurchases on dividend yields.

PART VI WORKING CAPITAL MANAGEMENT AND MULTINATIONAL FINANCIAL MANAGEMENT

Chapter 15 Working Capital Management

- We consolidated the prior edition's two working capital chapters and streamlined the discussion of working capital management.

Chapter 16 Multinational Financial Management

- We expanded the discussion of the costs and benefits of multinational investment. More emphasis is given on how the cost of capital varies for domestic and international projects. A "Global Perspectives" box gives a detailed discussion of the EMU and the euro and its impact on Americans.

TECHNOLOGY MATTERS

USING THE INTERNET FOR PERSONAL FINANCIAL PLANNING

People continually face important financial decisions that require an understanding of the time value of money. Should we buy or lease a car? How much and how soon do we need to save for our children's education? What size house can we afford? Should we refinance our home mortgage? How much must we save in order to retire comfortably?

The answers to these questions are often complicated, and they depend on a number of factors, such as housing and education costs, interest rates, inflation, expected family income, and stock market returns. Hopefully, after completing this chapter, you will have a better idea of how to answer such questions. Moreover, there are a number of online resources available to help with financial planning.

A good place to start is <http://www.smartmoney.com>. Smartmoney is a personal finance magazine produced by the publishers of *The Wall Street Journal*. If you go to Smartmoney's web site you will find a section entitled "Tools." This section has a

large number of financial calculators, spreadsheets, and descriptive materials that cover a wide range of personal finance issues.

Another good place to look is Quicken's web site, <http://www.quicken.com>. Here you will find several interesting sections that deal with a variety of personal finance issues. Within these sections you will find background articles plus spreadsheets and calculators that you can use to analyze your own situation.

Finally, <http://www.financialengines.com> is a great place to visit if you are focusing specifically on retirement planning. This web site, developed by Nobel Prize-winning financial economist William Sharpe, considers a wide range of alternative scenarios that might occur. This approach, which enables you to see a full range of potential outcomes, is much better than some of the more basic online calculators that give you simple answers to complicated questions.

NEW! "Technology Matters" boxes illustrate how innovations in technology are changing the world of financial management.

NEW! We developed a **spreadsheet model** for each chapter in the book except Chapter 1. These models show exactly how the problems dealt with in the chapter can be solved with an *Excel* spreadsheet. In addition, **spreadsheet problems** that require students to use the spreadsheet model can be found with the end-of-chapter pedagogy. Electronic versions of the models are available on the text's companion web site and are included on the student CD-ROM that is packaged with every copy of the text.



4. Spreadsheet Solution

	A	B	C	D	E	F	G
1	Interest rate	0.05					
2	Time	0	1	2	3	4	5
3	Cash flow		0	0	0	0	127.63
4	Present value	100					

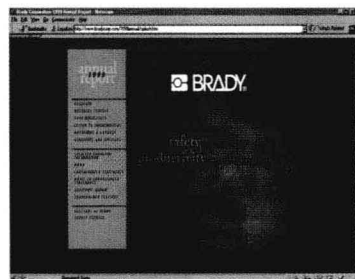
CYBER PROBLEM

The information related to the cyberproblem is likely to change over time, due to the release of new information and the ever-changing nature of the World Wide Web. With these changes in mind, we will periodically update these problems on the textbook's web site. To avoid problems, please check for these updates before proceeding with the cyberproblem.

3-21 Using ratio analysis as a tool

Chapter 3 demonstrates the various ways that managers and investors use financial statements. The following cyberproblem addresses the financial statement analysis of Brady Corporation. Use the company's web site at www.bradycorp.com to navigate through this cyberproblem.

Brady Corporation is a leader in identification, safety, and material solutions. In 1998, the firm was hit hard by faltering foreign markets, so it embarked upon an aggressive campaign to reorganize its cost structure. The firm believes this will help it to enhance future stockholder value. Brady follows the concept of Shareholder Value Enhancement (SVE), which is improved through increased sales, cost control, and effective use and control of assets.



a. Review Brady Corporation's consolidated statements of income. Its 1999 annual report is found at www.bradycorp.com/1999annual/splash.htm. Calculate and interpret Brady's gross margin (calculated as $[\text{Net sales} - \text{Cost of goods sold}]/\text{Net sales}$) for 1997, 1998, and 1999. What conclusions, if any, can you draw from an

NEW! Cyberproblems — these end-of-chapter exercises plug students into the Internet, allowing them to hone their web research skills to solve financial problems. Additional cyberproblems are found on the companion web site for *Concise* at <http://www.harcourtcollege.com/finance/concise3e>. The cyberproblems were developed by Steven Bouchard and Christopher Buzzard.

Other pedagogical elements and supporting materials have helped make *Concise* so successful. Included are the following:

4 Financial Planning and Forecasting



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FORECASTING DISNEY'S FUTURE

WALT DISNEY CO.

In early 1998, corporations were reporting earnings for 1997. Simultaneously, security analysts were issuing their forecasts of earnings for 1998. Stock prices were extremely volatile, moving up with a good earnings surprise—that is, where reported EPS was higher than analysts had been expecting—and down with unpleasant surprises. Corporate executives knew that these reactions would occur, so they generally try to give analysts early earnings when unpleasant surprises are likely to occur. The hope is that unpleasant surprises become unimportant when the future, as a stock will react less negatively to low earnings if the drop is anticipated than if it is a complete surprise.

Corporate financial staffs also review their own internal plans and forecasts during the first part of the year. Your financial plans are generally completed in the fall and then go into effect at the start of the year, so early in the year information starts coming in that indicates how the year is shaping up.

For executives at Walt Disney Co., 1998 was a particularly difficult year. After several years of outstanding performance, Disney's earnings fell, causing a sharp drop in its stock price. Trying to address investors' concerns, Disney's Chairman and Chief Executive, Michael Eisner, began his annual letter to shareholders with the following words:

To Disney Owners and Fellow Cast Members:

I am looking out the window and can see the season change just as the seasons do change in Los Angeles—the scapilates become drizzle more and the scapilates go on less often. I am reminded that our rhythms are not to the seasons and that our number of human endeavors are ruled by the calendar. Such as this second report. Every 12 months we compile it, and every 12 months I sit down to write you this letter.

There's just one problem with this annual exercise. It implies that business can be run in neat 12-month chunks of time. Unfortunately, the business cycle has its own seasons, which are not ruled by the timing and publication cycle of the year around the year. Indeed, at Disney we live by a 365-day calendar. We set our goals over rolling five-year horizons. In this context, each year is more like a season. Some are sunny and some are overcast, but each is merely a period of passage and not a destination. Our five-year calendar focus on to think long-term. They allow a degree of strategic that adds value, not square profits.

Eisner went on to tell shareholders that the company's long-run forecast remained positive. After

Each chapter opens with a **vignette** describing how an actual corporation has contended with the issues discussed in the chapter. These vignettes heighten students' interest by pointing out the real-world relevance and applicability of what might otherwise seem to be dry, technical material.

Throughout the book there are "Industry Practice," "Global Perspectives," and "Small Business" boxes that provide real-world illustrations of how financial concepts are applied in practice.

INDUSTRY PRACTICE

THE POWER OF COMPOUND INTEREST

You are 21 years old and have just graduated from college. After reading the introduction to this chapter, you decide to start investing in the stock market for your retirement. Your goal is to

save \$10,168 per year to reach your \$1 million goal, assuming you earn 10 percent, and \$13,679 per year if you earn only 8 percent. If you wait until age 50 and then earn 8 percent, your

It won't be 10 percent a year will be 8 percent rate of return, I would be on and your

GLOBAL PERSPECTIVES

GLOBAL VARIATIONS IN THE COST OF CAPITAL

U.S. firms to be competitive with foreign counterparts, they must have a cost of capital similar to that faced by their international competitors. In the past, many experts argued that U.S. firms were at a disadvantage. In particular, Japanese firms enjoyed a lower cost of capital, which lowered their total costs and thus made it harder for U.S. firms to compete. Recent events, however, have considerably narrowed cost of capital differences between U.S. and Japanese firms. In particular, the U.S. stock market has

As capital markets become increasingly integrated, cross-country differences in the cost of capital are likely to disappear. Today, most large corporations raise capital throughout the world. Hence we can meaningfully use global capital market rather than distinct capital markets in each country. Although government policies and market conditions can affect the cost of capital within a given country, this primarily affects smaller firms that do not have access to global capital markets, and

SMALL BUSINESS

THE COST OF EQUITY CAPITAL FOR SMALL FIRMS

The three equity cost-estimating techniques discussed in this chapter (DO, Bond-Yield-plus-Risk-Premium, and CAPM) have serious limitations when applied to small firms. Consider first the constant growth model, $k_s = D_1/P_0 + g$. Imagine a small, rapidly growing firm, such as the technology General (1993), which will not in the foreseeable future pay dividends. For firms like this, the constant growth model is simply not applicable. In fact, it is difficult to imagine any dividend model that would be of practical benefit for such a firm because of the difficulty of estimating dividends and growth rates.

The second method, which calls for adding a risk premium of 3 to 5 percent to the firm's cost of debt, can be used for some small firms, but problems arise if the firm does not have a publicly traded bond outstanding. If, for example, the firm has public debt outstanding, so we would have trouble using the bond-yield-plus-risk premium approach for ETC.

The third approach, the CAPM, is often not usable, because if the firm's stock is not publicly traded, then we cannot calcu-

How big is it? Looking at the estimates presented earlier in the Industry Practice box entitled "How Much Does It Cost to Raise External Capital?" we see that small debt and equity issues have considerably higher flotation costs than large issues. For example, a non-PPS issue of common stock which raises more than \$200 million in capital would have a flotation cost of about 1.5 percent. For a firm that is expected to provide a consistent 10 percent dividend yield (that is, $D_1/P_0 = 10\%$), the cost of equity would be $10\%(1 + 0.015) = 10.15\%$, or 15.5 percent. However, a similar but smaller firm which raises less than \$10 million would have a flotation cost of about 1.3 percent, which would result in a flotation-adjusted cost of equity capital of $10\%(1 + 0.013) = 10.13\%$, or 14.7 percent points higher. Therefore, it is clear that a small firm would have to earn considerably more on the same project than a large firm. Small firms are therefore at a substantial disadvantage because of flotation cost effects.

re obtained
y from routine
transactions.

chases of raw materials, and those larger purchases will spontaneously lead to a higher level of accounts payable. For Allied, the 2001 ratio of accounts payable to sales is $\$60/\$3,000 = 0.02 = 2\%$. Allied's managers assume that their payables policy will not change, so the forecasted accounts payable for 2002 is $0.02(\$3,300) = \66 million.

More sales will require more labor, and higher sales should also result in higher taxable income and thus taxes. Therefore, accrued wages and taxes will both increase. For Allied, the 2001 ratio of accruals to sales is $\$140/\$3,000 = 0.0467 = 4.67\%$. If this ratio does not change, then the forecasted level of accruals for 2002 will be $0.0467(\$3,300) = \154 million.

Retained earnings will also increase, but not at the same rate as sales: The new balance for retained earnings will be the old level plus the addition to retained earnings, which we calculated in Step 1. Also, notes payable, long-term bonds, preferred stock, and common stock will not rise spontaneously with sales—rather, the projected levels of these accounts will depend on financing decisions, as we discuss later.

In summary, (1) higher sales must be supported by additional assets, (2) some of the asset increases can be financed by spontaneous increases in accounts payable and accruals, and by retained earnings, but (3) any shortfall must be financed from external sources, using some combination of debt, preferred stock, and common stock.

The spontaneously increasing liabilities (accounts payable and accruals) are forecasted and shown in Column 3 of Table 4-4, the first-pass forecast. Then, those liability and equity accounts whose values reflect conscious management decisions—notes payable, long-term bonds, preferred stock, and common stock—are initially set at their 2001 levels. Thus, 2002 notes payable are initially set at \$110 million, the long-term bond account is forecasted at \$754 million, and so on. The 2002 value for the retained earnings (RE) account is obtained by adding the projected addition to retained earnings as developed in the 2002 income statement (see Table 4-3) to the 2001 ending balance:

$$\begin{aligned} 2002 \text{ RE} &= 2001 \text{ RE} + 2002 \text{ forecasted addition to RE} \\ &= \$766 + \$68 = \$834 \text{ million.} \end{aligned}$$

The forecast of total assets as shown in Column 3 (first-pass forecast) of Table 4-4 is \$2,200 million, which indicates that Allied must add \$200 million of new assets in 2002 to support the higher sales level. However, the forecasted liability and equity accounts as shown in the lower portion of Column 3 rise by only \$88 million, to \$2,088 million. Since the balance sheet must balance, Allied must raise an additional $\$2,200 - \$2,088 = \$112$ million, which we define as **Additional Funds Needed (AFN)**. The AFN will be raised by some combination of borrowing from the bank as notes payable, issuing long-term bonds, and selling new common stock.

STEP 3. RAISING THE ADDITIONAL FUNDS NEEDED

Allied's financial staff will raise the needed funds based on several factors, including the firm's target capital structure, the effect of short-term borrowing on the current ratio, conditions in the debt and equity markets, and restrictions

Funds Needed
firm must raise
rough borrowing or
new common or
stock.

Throughout the book, key terms are highlighted in the text and defined in the margins. These **marginal glossaries** enable students to quickly find and review the key topics covered in the chapter.

Self-Test Questions, which serve as checkpoints for students to test their understanding, follow each major section of the chapters.

The detailed spreadsheet model is not provided in the text, but its key outputs were shown in the "Model Outputs" section back in Table 4-5. We see that before the operating changes Allied forecasted a slight increase in NOPAT (net operating profit after taxes), but it projected a very large increase in net operating working capital and in total operating capital. The net result is a very low level of free cash flow, only \$7.1 million. Although we do not show projections of the full financial statements for all eight years of the explicit forecast horizon, here are the initially projected free cash flows (FCFs):

YEARS	2002	2003	2004	2005	2006	2007	2008	2009
FCF	7.3	8.4	8.9	9.8	34.6	63.7	96.9	103.7

As we will see in Chapter 9, investors and financial managers use such forecasts to estimate the firm's stock price. Thus, this model helps managers measure the expected changes in the determinants of value under different strategic and operating alternatives.

SELF-TEST QUESTIONS

What is the AFN, and how is the percent of sales method used to estimate it?

Why do accounts payable and accruals provide "spontaneous funds" to a growing firm?

Would payables and accruals provide spontaneous funds to a no-growth firm? One that is declining?

Why do retained earnings not grow at the same rate as sales? In answering this question, think about a firm whose sales are not growing ($g = 0\%$), but that is profitable and does not pay out all of its earnings as dividends.

THE AFN FORMULA

Most firms forecast their capital requirements by constructing pro forma income statements and balance sheets as described above. However, if the ratios are expected to remain constant, then the following formula can be used to forecast financial requirements. Here we apply the formula to Allied based on the 2001 data, not the revised data, as the revised data do not assume constant ratios.

$$\begin{array}{rclcl} \text{Additional} & \text{Required} & \text{Spontaneous} & \text{Increase in} & \\ \text{funds} & \text{increase} & \text{increase in} & \text{retained} & \\ \text{needed} & \text{in assets} & \text{liabilities} & \text{earnings} & \\ \text{AFN} & = (A^*/S_1)\Delta S & - (L^*/S_1)\Delta S & - (MS_1/RE) & (4-1) \end{array}$$

Here

AFN = additional funds needed

A^* = assets that are tied directly to sales, hence which must increase if sales are to increase. Note that A designates total assets and A^* designates those assets that must increase if sales are to increase. When the firm

Web addresses are included in each chapter to give students access to additional information about the companies and government agencies discussed in the text.



Are you interested in learning more about the history of accounting? If so, take a tour through the "Virtual History of

Accounting" organized by the Association of Chartered Accountants in the United States and located at <http://www.acaus.org/history/index.html>.

The primary purpose of this chapter was to discuss techniques used by investors and managers to analyze financial statements. The key concepts covered are listed below.

- Financial statement analysis generally begins with a set of financial ratios designed to reveal the strengths and weaknesses of a company as compared with other companies in the same industry, and to show whether its financial position has been improving or deteriorating over time.
- Liquidity ratios show the relationship of a firm's current assets to its current liabilities, and thus its ability to meet maturing debts. Two commonly used liquidity ratios are the current ratio and the quick, or acid test, ratio.
- Asset management ratios measure how effectively a firm is managing its assets. These ratios include inventory turnover, days sales outstanding, fixed assets turnover, and total assets turnover.
- Debt management ratios reveal (1) the extent to which the firm is financed with debt and (2) its likelihood of defaulting on its debt obligations. They include the debt ratio, times-interest-earned ratio, and EBITDA coverage ratio.
- Profitability ratios show the combined effects of liquidity, asset management, and debt management policies on operating results. They include the profit margin on sales, the basic earning power ratio, the return on total assets, and the return on common equity.
- Market value ratios relate the firm's stock price to its earnings, cash flow, and book value per share, thus giving management an indication of what investors think of the company's past performance and future prospects. These include the price/earnings ratio, price/cash flow ratio, and the market/book ratio.
- Trend analysis, where one plots a ratio over time, is important, because it reveals whether the firm's condition is improving or deteriorating over time.
- The Du Pont system is designed to show how the profit margin on sales, the assets turnover ratio, and the use of debt interest to determine the rate of return on equity. The firm's management can use the Du Pont system to analyze ways of improving the firm's performance.
- Benchmarking is the process of comparing a particular company with a group of "benchmark" companies.
- RSE is important, but it does not take account of either the amount of investment or risk. Economic Value Added (EVA) adds these factors to the analysis.
- In analyzing a small firm's financial position, ratio analysis is a useful starting point. However, the analyst must also (1) examine the quality of the financial data, (2) ensure that the firm is sufficiently diversified to withstand shifts in customers' buying habits, and (3) determine whether the firm has a plan for the succession of its management.

STARTER PROBLEMS

- 3-1** **Liquidity ratios** Ace Industries has current assets equal to \$3 million. The company's current ratio is 1.5, and its quick ratio is 1.0. What is the firm's level of current liabilities? What is the firm's level of inventory?
- 3-2** **Days sales outstanding** Baker Brothers has a DSO of 40 days. The company's annual sales are \$7,000,000. What is the level of its accounts receivable? Assume there are 365 days in a year.
- 3-3** **Debt ratio** Bartley Brothers has an equity multiplier of 2.4. The company's assets are financed with some combination of long-term debt and common equity. What is the company's debt ratio?
- 3-4** **Debt management ratios** Doublewide Dealers has an ROA of 10 percent, a 2 percent profit margin, and a return on equity equal to 15 percent. What is the company's total assets turnover? What is the firm's equity multiplier?
- 3-5** **Market value ratios** Janer-Jen has \$10 billion in total assets. The left side of its balance sheet consists of \$1 billion in current liabilities, \$3 billion in long-term debt, and \$6 billion in common equity. The company has 400 million shares of common stock outstanding, and its stock price is \$25 per share. What is Janer-Jen's market/book ratio?

EXAM-TYPE PROBLEMS

The problems included in this section are set up in such a way that they could be used as multiple-choice exam problems.

- 3-6** **Ratios calculations** Greener Trucking has \$12 billion in assets, and its tax rate is 40 percent. The company's basic earning power (BEP) ratio is 15 percent, and its return on assets (ROA) is 5 percent. What is Greener's times-interest-earned (TIE) ratio?
- 3-7** **Ratios calculations** Assume you are given the following relationships for the Brasser Corporation:
- | | |
|------------------------|------|
| Sales/total assets | 1.5× |
| Return on assets (ROA) | 7% |
| Return on equity (ROE) | 8% |
- Calculate Brasser's profit margin and debt ratio.
- 3-8** **Liquidity ratios** The Perry Company has \$1,512,500 in current assets and \$325,000 in current liabilities. Its initial inventory level is \$375,000, and it will raise funds as additional notes payable and use them to increase inventory. How much can Perry's short-term debt (notes payable) increase without pushing its current ratio below 2.0? What will be the firm's quick ratio after Perry has raised the maximum amount of short-term funds?
- 3-9** **Ratios calculations** The Keweenaw Company had a quick ratio of 1.4, a current ratio of 1.6, an inventory turnover of 6 times, total current assets of \$40,000, and cash and marketable securities of \$20,000 in 2001. What were Keweenaw's annual sales and its DSO for that year? Assume there are 365 days in a year.
- 3-10** **Times interest earned ratio** The U.R. Pickett Company has \$100,000 of debt outstanding, and it pays an interest rate of 10 percent annually. Pickett's annual sales are \$2 million, its average tax rate is 30 percent, and its pretax profit margin on sales is 5 percent. If the company does not maintain a TIE ratio of at least 5 times, its bank will refuse to renew the loan, and bankruptcy will ensue. What is Pickett's TIE ratio?
- 3-11** **EBITDA coverage ratio** Wilco Publishing has \$50 million in total assets. The company's basic earning power (BEP) ratio is 20 percent, and its times-interest-earned ratio is 6.5. Wilco's depreciation and amortization expense totals \$1.2 billion. It has \$2 billion in lease payments and \$1 billion in unpaid principal payments on outstanding long-term and long-term debt. What is Wilco's EBITDA coverage ratio?
- 3-12** **Return on equity** Midwest Packaging's ROE last year was only 8 percent, but its management has developed a new operating plan designed to improve things. The new plan calls for a total debt ratio of 60 percent, which will result in interest charges of \$100,000 per year. Management projects an EBIT of \$1,000,000 on sales of \$10,000,000, and it expects to have

The end-of-chapter materials contain a large number of Questions, Self-Test Problems, Starter Problems, Exam-Type Problems, Problems, and Spreadsheet Problems. The problems vary in level of difficulty yet cover all the topics discussed in the chapter.

D'LEON INC., PART I

2-26 SECTION I: Financial Statements Donna Jamison, a 1996 graduate of the University of Florida with four years of banking experience, was recently brought in as assistant to the chairman of the board of D'Leon Inc., a small food producer that operates in north Florida and whose specialty is high-quality pecan and other nut products sold in the snack-foods market. D'Leon's president, Al Watkins, decided in 2000 to undertake a major expansion and to "go national" in competition with Frito-Lay, Eagle, and other major snack-food companies. Watkins felt that D'Leon's products were of a higher quality than the competition's, that this quality differential would enable it to charge a premium price, and that the end result would be greatly increased sales, profits, and stock price.

INTEGRATED CASE

Campo, a retired banker who was D'Leon's largest stockholder. Campo agreed to give up a golfing days and to help nurse the company back with Jamison's help.

Jamison began by gathering the financial state other data given in Tables IC2-1, IC2-2, IC2-3, Assume that you are Jamison's assistant, and you her answer the following questions for Campo. will continue with this case in Chapter 3, and y more comfortable with the analysis there, but these questions will help prepare you for Chapter clear explanations, not just yes or no answers.)

- What effect did the expansion have on sales, ing profit after taxes (NOPAT), net operati capital (NOWC), total investor-supplied ope ital, and net income?

An **Integrated Case**, which is generally related to the vignette, appears at the end of each chapter. These "mini-cases" both illustrate and tie together the key topics covered in the chapter, hence, provide an ideal platform for lectures that systematically cover the key materials in the chapter.

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- ***Test Bank***—This large *Test Bank* contains more than 1,200 class-tested questions and problems and is available both in printed and electronic form. Information regarding the topics, degree of difficulty, and the correct answers, along with complete solutions for all numerical problems, is provided with each question.
- ***Computerized Test Bank***—This software has many features that make test preparation, scoring, and grade recording easy. Also, the *Computer-*