GLOBAL EDITION

FINANCIAL MANAGEMENT

CORE CONCEPTS

FOURTH EDITION

RAYMOND M. BROOKS

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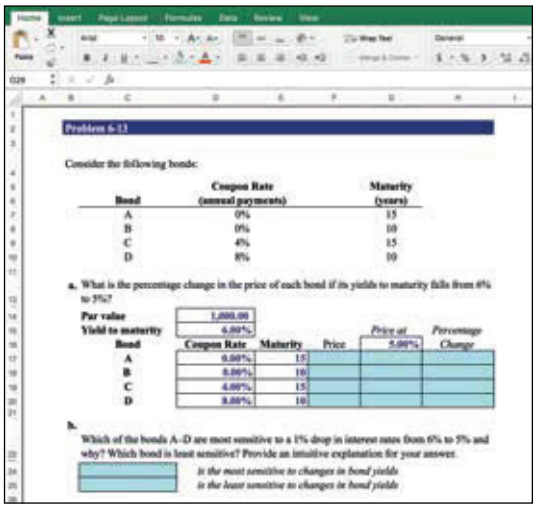

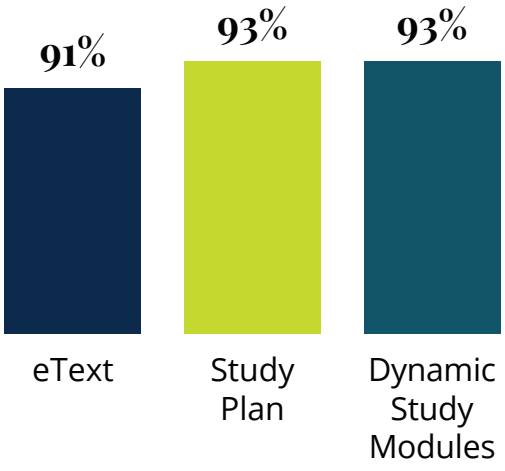

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88%

of students would tell their instructor to keep using MyLab Finance

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FINANCIAL MANAGEMENT

Raymond M. Brooks

CORE CONCEPTS

FOURTH EDITION
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To Greta, Michael, Aracely, Ariana, Tyler, and Allyson

Thanks for giving me such an enjoyable and fun-filled life.

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PREFACE

New to This Edition

Many updates and enhancements are featured in this fourth edition of ***Financial Management: Core Concepts***, including the following key material:

- We have updated the material that was time-related. For example, the interest rates now reflect the historically low levels of the twenty-first century.
- We have continued to strengthen Chapter 16 on helping the student have a better understanding on valuing firms. We have added the distinction between the value of a firm as a whole and the value of the firm to the owner.
- We have used the helpful suggestions of reviewers to clarify topics, present enhanced examples, and arrange the order of topic presentations.
- We have provided additional insight on ratio analysis in Chapter 14 by expanding the horizon for analysis with data comparisons over an extended time frame.
- The fourth edition MyLab Finance course includes an enhanced eText with animated figures and author-created solutions videos for in-text examples.
- The chapter-ending Advanced Problems for Spreadsheet Application are now offered in MyLab Finance as auto-graded Excel Projects. Using proven, field-tested technology, auto-graded Excel Projects allow instructors to seamlessly integrate Microsoft Excel® content into their course without having to manually grade spreadsheets. Students have the opportunity to practice important finance skills in Excel, helping them to master key concepts and gain proficiency with the program.

We began with a simple concept. When a student takes an introductory finance class, he or she may encounter a wonderful instructor with great teaching talent and insight. But outside of class, it is the book and the support materials with which the student forms a learning partnership. *Therefore, the book and support materials need to put the student front and center.* They need to present the information in such a way that it connects directly to the student's experiences. So our goal in this book is to introduce the core concepts of finance in a way that reconnects the student to his or her personal financial experiences, provides student-centered feedback in a timely and understandable fashion, and then uses such experiences as a springboard into the world of corporate finance.

The introductory finance class is the first and last class in finance for the vast majority of college students. The perspective of these students often differs from that of students majoring in finance. They need a book that demonstrates why finance matters across disciplines and that builds from the basics to more complex topics in an organic approach. Our purpose throughout the presentation of topics has been to make the material as simple as possible, but not overly simplified. It is this balance that we hope creates a solid foundation for the fundamental concepts of finance for *all* students.

The student is at the heart of this book. Our hope is that we have made the path easier and finance more transparent.

SOLVING TEACHING AND LEARNING CHALLENGES

The evolution of technical support for finance has been amazing. Students now have advanced calculators and spreadsheet software that can provide solutions to many of the basic financial problems. However, understanding finance is more than just solving a financial problem with the aid of these technological tools. These different tools are all interconnected, and students who can move seamlessly from one to another gain a better understanding of the basics behind the answer. So the book presents three methods to solve many financial problems: the equation approach, the calculator approach, and the spreadsheet approach. In this way, students see that there are different roads to the same destination.

Designed for the nonfinance major, ***Financial Management: Core Concepts*** structures a student-centric learning environment built around three major competencies:

- Using the tools of finance
- Making connections
- Studying for success

Using the Tools of Finance

Problem Solving: Technology Tools and the Three-Methods Approach: Students can develop their skills in problem solving by using a three-pronged approach that shows there are several paths to the same destination. Taking a single problem, three methods can be used to solve the problem.

EXAMPLE 3.4 **Let's make a deal! (future value)** MyLab Finance Video

Problem In 1867, Secretary of State William H. Seward purchased Alaska from Russia for the sum of $7,200,000, or about two cents per acre. At the time, the deal was dubbed Seward's Folly, but from our vantage point today, did Seward get a bargain after all? What would it cost today (assume it is 2015) if the land were in exactly the same condition as it was 148 years ago and the prevailing interest rate over this time were 4%?

Solution At first glance, it seems as if we have a present value problem, not a future value problem, but it all depends on where we are standing in reference to time. Phrasing this question another way, we could ask, "What will the value of $7,200,000 be in 148 years at an annual interest rate of 4%?" Restated this way, we can more easily view the problem as a future value problem. A time line is particularly helpful in this instance. We can show the 148-year span from T_{-148} to T_0 or from T_0 to T_{148}.

Method one is the equation approach: Equation is presented and the problem is solved mathematically.

METHOD 1 **Using the equation**

$$FV = PV \times (1 + r)^n = \$7{,}200{,}000 \times (1.04)^{148}$$
$$= \$7{,}200{,}000 \times 313.8442 = \mathbf{\$2{,}389{,}278{,}156}$$

Method two is using a calculator with time value of money keys: The problem is solved using a financial calculator, explaining the key strokes. The answer is displayed in red on the appropriate calculator key.

METHOD 2 **Using the TVM keys**

Input	148	4.0	−7,200,000	0	?
Key	N	I/Y	PV	PMT	FV
CPT					2,389,278,156

Method three is using a spreadsheet: For some examples, an Excel solution is added. Basic spreadsheet variables are explained as well as how to set up the application.

METHOD 3 **Using a spreadsheet**

B6	*fx*	=FV(B1,B2,B3,B4,B5)

Use the future value function to find the price of Alaska if purchased today instead of 148 years ago.

	A	B	C	D	E
1	Rate	0.04			
2	Nper	148			
3	Pmt	0			
4	Pv	($ 7,200,000.00)			
5	Type	0			
6	Fv	$2,389,278,156			

Making Connections

MyLab Finance Video

EXAMPLE 4.2 **Making retirement golden (present value of an annuity)**

Problem Ben and Donna determine that upon retirement they will need to withdraw $50,000 annually at the end of each year for the next thirty years. They know that they can earn 4% each year on their investment. What is the present value of this annuity? In other words, how much will Ben and Donna need in their retirement account (at the beginning of their retirement) to generate this future cash flow?

Solution In this problem, we assume that Ben and Donna need to have the present value of the thirty-year annuity in their account at the start of their retirement, even though they will not make the first withdrawal of $50,000 until the end of the first year of retirement. They will make thirty withdrawals from this account during retirement. The investment rate is 4%. It is the same as the discount rate for the future payments of $50,000 that will come at the end of each year for the next thirty years. The known variables are $r = 4\%$, $n = 30$, and $PMT = \$50{,}000$. Solve for PV.

METHOD 1 **Using the equation**

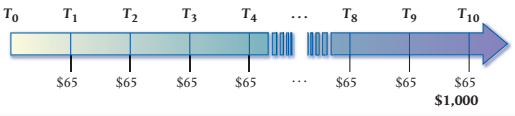
First, calculate the PVIFA value for $n = 30$ and $r = 4\%$:

$$\frac{1 - [1/(1 + 0.04)^{30}]}{0.04} = \frac{1 - 0.308319}{0.04} = 17.292033$$

Then multiply the annuity payment by this factor:

Early TVM Tools. The key concepts of finance are identified as "tools." Students first need to learn how to use these tools of finance before they can apply them to larger problems. The material drills down to basics quickly, developing time value of money (TVM) concepts and interest rates early in the course.

Figure 6.3 Future cash flow of the Merrill Lynch bond.



value or principal—in this case, the $1,000 par value of the bond—at the maturity date of July 15, 2018. Recall from Chapter 4 that this is one method of paying back a loan: interest as you go and principal repaid at maturity.

We can set out the future cash flow as shown in Figure 6.3. Note that in the time line, T_0 represents the original issue date of July 15, 2008, and T_1 is the first annual coupon payment date of July 15, 2009. The annual payments continue for ten years, with T_{10} being the last payment on July 15, 2018. This point is a moment of recognition in which we can apply previously learned concepts: the coupon payments constitute an annuity stream, the same amount at regular intervals. The principal or par value of $1,000 also pays out at maturity. Here we recognize another key concept: the final amount is a lump-sum payment. So we now have the promised set of future cash flows for the Merrill Lynch bond.

Later Application and Visual Links. Students soon begin to see just how powerful these tools are. They learn to forge links between basic principles and new applications. A tool icon alerts students when a new tool is introduced and when a tool can be applied in a new situation.

Connections with the Real World. "Finance Follies" capture some fascinating examples of current and historical scandals and manias and give the student context for the necessity of studying finance.

FINANCE FOLLIES

The Financial Meltdown of 2008

Between October 2007 and October 2008, financial markets in the United States lost more than 40% of their value, and several financial institutions collapsed or were swallowed up by healthier firms. This "perfect storm" of mortgage defaults, a housing market collapse, a lack of appropriate regulation and oversight, and a major international credit freeze led to the worst financial meltdown since the Great Depression of the 1930s.

We can find the seeds of this financial debacle in the housing market, but the soil in which they were planted had been prepared for a long time. In the 1980s, a new philosophy that the capital markets worked best when regulations were removed became the prevailing paradigm. Over the next twenty years, a slow and deliberate dismantling of regulations surrounding the financial markets took place. The central idea behind these deregulation efforts was that government is the problem rather than the solution and that if we remove the government from the market, free competition will efficiently allocate resources for a stronger economy.

A key catalyst for the meltdown was the dismantling of the Glass-Steagall Act (officially called the Banking Act of 1933). In 1999, the Gramm-Leach-Bliley Act overturned segments of Glass-Steagall that prevented investment banks from competing with commercial banks in areas like mortgage lending. Later the SEC would relax requirements on investment banks regarding the amount of borrowing in which they could engage, and the race was on to sell more and more mortgages.

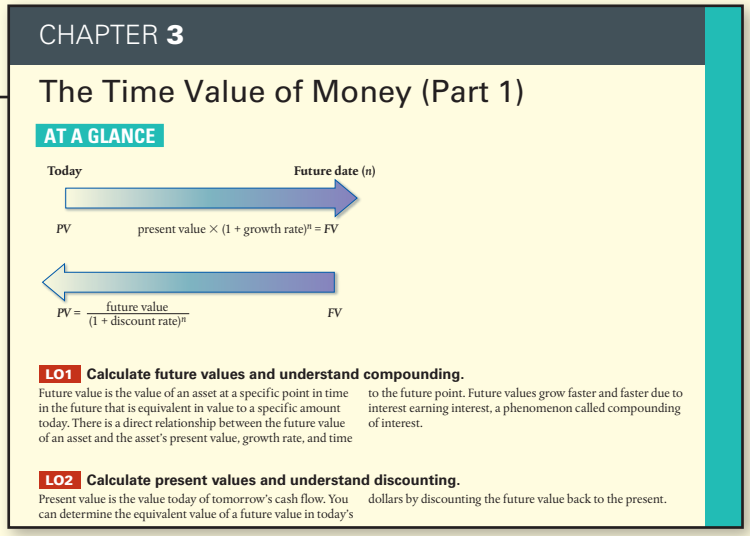
continue lending through conventional loans to qualified applicants or lower the qualifying standards with new, unconventional loans and risk higher defaults. Because mortgage originators could eliminate most risk by selling off the mortgages—which they repackaged and sold as securities—they naturally chose the latter course.

With relaxed loan qualifications, red-hot demand heated up the residential housing market. Many individuals found themselves in the middle of the American dream that they thought they might never realize—a new home—but the new home often brought with it an unconventional loan. The industry collectively called these unconventional loans "subprime" loans because the initial monthly payment on the loan in the first few years was well below that of a conventional mortgage loan. The interest rate on subsequent payments, however, would increase well *above* that of a standard loan. So a new homeowner might enjoy relatively low mortgage payments in the first couple of years only to face a large increase when the financial institution reset the interest rate. In many of these loans, the cost jumped by more than $500 per month.

When the loan payments jumped, many mortgage holders could no longer afford to stay in their homes. The default rate rose to over 20% on these loans, which is much higher than the typical 1% to 3% default rate on conventional loans. Normally, the bank would simply repossess the home, sell it, and recover the loan. But with a glut of houses on the market, the housing mar-

Studying for Success

For the Student on the Go. Summary Cards for every chapter provide instantaneous mini-reviews. In addition to summarizing the main points of the chapter, these portable study aids include mathematical notation, calculator keys, and key equations, all great to read over right before an exam!



CHAPTER 3

The Time Value of Money (Part 1)

AT A GLANCE

Today — Future date (*n*)

PV — present value × (1 + growth rate)^n = *FV*

$PV = \frac{\text{future value}}{(1 + \text{discount rate})^n}$ — *FV*

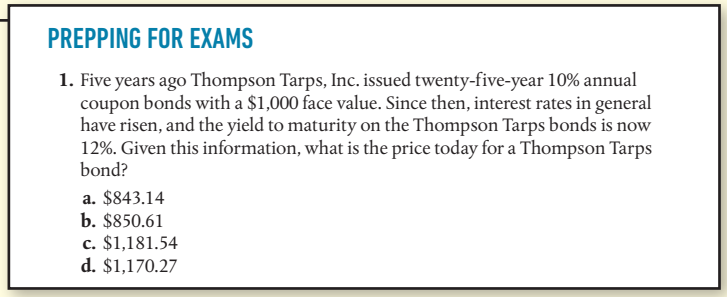
LO1 Calculate future values and understand compounding.

Future value is the value of an asset at a specific point in time in the future that is equivalent in value to a specific amount today. There is a direct relationship between the future value of an asset and the asset's present value, growth rate, and time to the future point. Future values grow faster and faster due to interest earning interest, a phenomenon called compounding of interest.

LO2 Calculate present values and understand discounting.

Present value is the value today of tomorrow's cash flow. You can determine the equivalent value of a future value in today's dollars by discounting the future value back to the present.

For Students with Test Anxieties. "Prepping for Exams" is designed for those students who worry about how well they will do on the finance exam. To build confidence and expose students to the types of problems they will see on some exams, multiple-choice questions at the end of each chapter are pulled directly from the test bank. Answers are printed in the back of the book in Appendix 5.

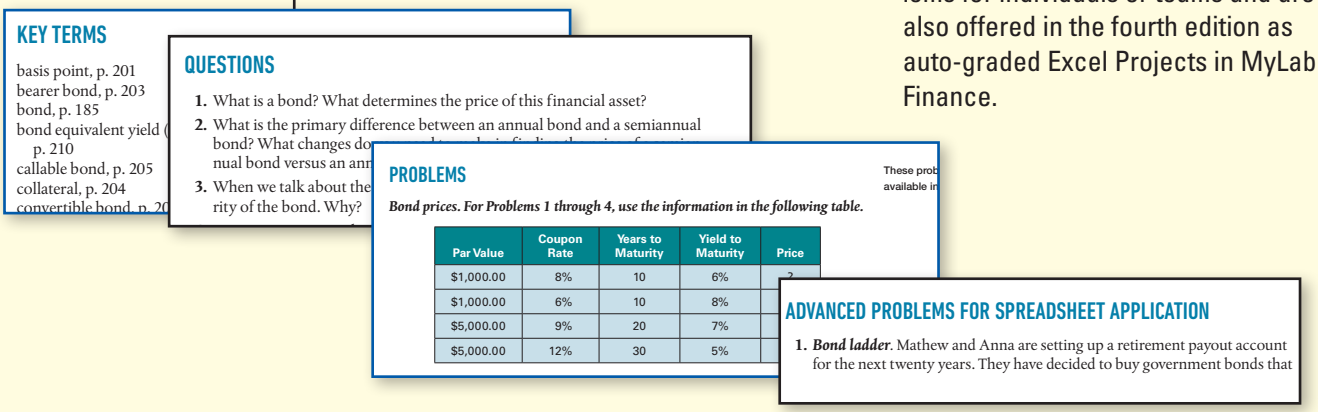


PREPPING FOR EXAMS

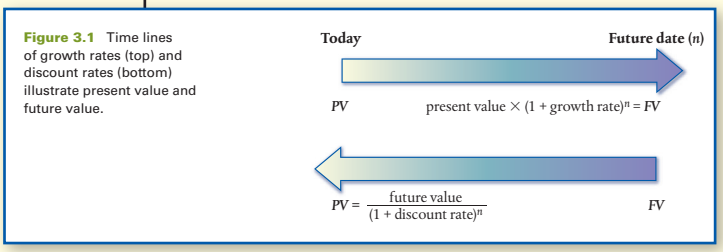
1. Five years ago Thompson Tarps, Inc. issued twenty-five-year 10% annual coupon bonds with a $1,000 face value. Since then, interest rates in general have risen, and the yield to maturity on the Thompson Tarps bonds is now 12%. Given this information, what is the price today for a Thompson Tarps bond?

   a. $843.14
   b. $850.61
   c. $1,181.54
   d. $1,170.27

For the Student Who Wants Practice. The book features approximately 400 end-of-chapter problems and 180 conceptual questions. Advanced spreadsheet problems appear at the end of most chapters for more flexibility in assigning problems for individuals or teams and are also offered in the fourth edition as auto-graded Excel Projects in MyLab Finance.



For the Visual Student. Illustrations with a Purpose help students visualize important financial concepts. The time line is given special treatment in the all-important time value of money and capital budgeting chapters. To depict movement, present value is always in a lighter shade and future value in a darker shade, and PV is always on the left and FV always on the right. This setup makes it easier to see compounding from the present into the future and discounting "back from the future" to the present.



Graphic illustrations are occasionally presented as another way of "seeing" a concept. All illustrations say something about finance.

MYLAB FINANCE

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Teach Your Course Your Way

Your course is unique. So whether you'd like to build your own assignments, teach multiple sections, or set prerequisites, MyLab gives you the flexibility to easily create *your* course to fit *your* needs.

Improve Student Results

When you teach with MyLab, student performance improves. That's why instructors have chosen MyLab for over 15 years, touching the lives of over 50 million students.

Just as the evolution of technical support has been great for students, it has also been great for the instructor. MyLab Finance provides the extra support that time constraints often prevent an instructor from providing to students. With every end-of-chapter problem formatted in MyLab Finance, an instructor can assign a text-related problem that students solve online with technical support. The problem's solution is available to students, and the marking of student homework assignments is completed by MyLab Finance. In addition, MyLab Finance includes features such as Help Me Solve This, which leads students step by step through the problem with a different set of numbers.

New to the fourth edition, MyLab Finance now offers auto-graded Excel Projects for the Advanced Problems for Spreadsheet Application in Chapters 2 through 18. These data-intensive problems offer more flexibility in assigning problems and provide students with the opportunity to practice important finance skills in Excel.

DEVELOPING EMPLOYABILITY SKILLS

One of the major objectives of all students is to develop and improve those skills that increase their employability. Regardless of a student's major, there are certain common skills that employers seek from their new hires across all facets of the business. In *Financial Management: Core Concepts*, students are challenged to hone these skills by learning which of the factors in a decision are relevant and which are irrelevant. They learn how to properly weigh different factors so that the solution is driven by the most important facts, not the minor or marginal facts that often lead to poor solutions.

Additionally, students develop *technical skills* with calculators and spreadsheets. This book teaches not only how to manipulate input for calculators and spreadsheets, but also what the reasoning is behind the inputs that produce the desired solution. For example, we use a three-method approach to problems, with the starting method being the basic equation that forms the theoretical understanding of the problem. We then help translate this equation directly into a calculator that solves the problem efficiently. Finally, we translate the problem so it can be solved using a spreadsheet. In fact, this book provides many problems that utilize spreadsheet applications. Job seekers who are able to translate a problem from its original setting into either a calculator or a spreadsheet problem are more employable because they can work with large sets of information and find correct answers more quickly and efficiently.

Lastly, *Financial Management: Core Concepts* helps develop *analytical skills*—increasing students' ability to analyze performance and make decisions based on this analysis. Students learn how to compare performance over time and with competitors. By analyzing differences in performance over time or across companies, students can make decisions about what actions will be beneficial to their future employers' business. Employees who can understand what actions influence performance in either a positive or a negative direction and can then advocate for actions that will increase performance are the most critical employees in a business.

Careers. "Putting Finance to Work" answers a question students often ask: "Why do I need to take a finance course, anyway?" These snapshots of widely varied careers show that specific finance concepts are used in many different career paths.

PUTTING FINANCE TO WORK

Information Technology

The quality of short-term financial plans and forecasts depends completely on the quality of information that goes into them. The cash flow forecast requires us to know what inventory we have on hand, where it is, how long we expect to hold it before we sell it, and how long it takes us to replace it. It requires us to know how much money our customers owe us and when we expect them to pay. The sales forecast requires data on what we sold recently, what we sold in the same period last year, and what trends are developing. For a company like McDonald's that handles thousands of transactions a minute in every corner of the globe, an apparently simple question such as "How much cash do we have on hand?" is not that simple.

These data requirements present a challenge even for relatively uncomplicated businesses that manufacture just a few products like furniture or that retail a single product like automobiles. For a company such as Procter and Gamble that manufactures an array of consumer products from many different raw materials in many locations or for a retailer

Different Kinds of Businesses. "Mini-Cases" at the end of every chapter put abstract concepts to work in the types of organizations for which students will later work. The cases feature small businesses, large corporations, town organizations, and start-ups.

MINI-CASE

Richardses' Tree Farm Grows Up

This mini-case is available in **MyLab Finance.**

Jake Richards is surprised to hear from Paul Augustus, his accountant for many years, that income from his tree farm is just over $150,000 for the year and that his land and other assets are valued at almost $2,000,000. The $600,000 he owes to the bank is not a surprise.

Twenty years ago Jake realized that with seven long days of backbreaking labor a week, his western Massachusetts dairy farm was just about breaking even. Without his wife's income as a high school science teacher and the health insurance that came with it, the young family would have been struggling.

Along the way, Jake sold the dairy herd, but he did want to keep the land that had been farmed by his family for three generations. At the time, his plan was to repurpose the farm and some of its equipment by boarding horses, selling hay bales to construction companies, starting a small landscaping business, and plowing snow in the winter. Almost on a whim, he planted a few acres with seedling-size blue spruces and Fraser firs, expecting to sell them as Christmas trees. He quickly found that he could use them more profitably in his landscaping business and that he could sell them to local nurseries and other landscapers. Gradually, he added plantings of other popular landscape trees: arborvitae, yew, dogwood, red maple, corporation, and a limited liability company, or LLC. He asks Jake to look them over and get back to him in a week or two.

Questions

1. Major financial management decisions involve capital budgeting, capital structure, and working capital management. Give an example of each that relates to Richardses' Tree Farm.
2. Should the Richardses form a regular corporation or choose one of the hybrid forms? Whichever form they use, they intend to distribute ownership equally among Jake, his wife, and their two children so that each party will own 25% of the shares. Consider the tax consequences of their decision.
3. How does incorporating affect the family's overall risk exposure?
4. How does incorporating affect the ability of the business to expand?
5. Jake is concerned that if the business gets much bigger or if he should just decide to slow down and enjoy life a little more, he will need to hire professional management and possibly lose control over key business decisions. Are his concerns justified?
6. Jake occasionally hires day workers, who may or may not be in the United States legally. What are

TABLE OF CONTENTS OVERVIEW

Part 1	**Fundamental Concepts and Basic Tools of Finance**	
	Ch. 1: Financial Management	Introduces the movement of money from lender to borrower and back, the main areas of finance, and the setting of finance in a paradigm know as agency theory.
	Ch. 2: Financial Statements	Introduces the four key financial statements and the cash flow identity to prepare students for analyzing cash flow.
	Ch. 3: The Time Value of Money (Part 1)	Presents the time value of money for single (lump sum) payments and the four variables; time, interest rate, present value, and future value.
	Ch. 4: The Time Value of Money (Part 2)	Expands time value of money with multiple payment streams and the annuity concept. Introduces different loan formats and amortization schedules.
	Ch. 5: Interest Rates	Discusses the various ways interest rates are quoted and introduces the components of interest rates.
Part 2	**Valuing Stocks and Bonds and Understanding Risk and Return**	
	Ch. 6: Bonds and Bond Valuation	Introduces the terminology of bonds, bond pricing, bond ratings, and the relationship between coupon rates and yields.
	Ch. 7: Stocks and Stock Valuation	Explains the characteristics of stocks, primary and secondary stock markets, and values stocks based on historical dividends of the individual stock.
	Ch. 8: Risk and Return	Calculates profits and returns using the holding period and converts the holding period return to annual return. Defines risk and ways to measure risk using standard deviation and beta.
Part 3	**Capital Budgeting**	
	Ch. 9: Capital Budget Decision Models	Introduces capital budgeting and six models: pay-back, discounted pay-back, net present value, internal rate of return, modified internal rate of return, and profitability index for capital budgeting decision making.
	Ch. 10: Cash Flow Estimation	Introduces incremental cash flow for capital budgeting and how to calculate depreciation and cost recovery using an accelerated depreciation method.
	Ch. 11: The Cost of Capital	Presents the different types of funding available for companies, the calculation of weighted average cost of capital, and the application of the cost of capital to individual projects of the company.
Part 4	**Financial Planning and Evaluating Performance**	
	Ch. 12: Forecasting and Short Term Financial Planning	Introduces the sources and uses of cash and the use of forecasting to predict cash flow, timing of production costs, potential cash excess or cash short-fall, and the preparation of pro forma statements.
	Ch. 13: Working Capital Management	Models the cash conversion cycle, introduces issues with credit, and introduces inventory management models.
	Ch. 14: Financial Ratios and Firm Performance	Introduces financial ratios and provides ways to interpret the ratios across time for individual companies and between competitors.
Part 5	**Other Selected Finance Topics**	
	Ch. 15: Raising Capital	Introduces the life cycle of a business and how that impacts the different funding sources of a business. Explains the process to legally end a business.
	Ch. 16: Capital Structure	Explains different borrowing rates based on the ability to repay and introduces optimal capital structure through a combination of debt and equity financing.
	Ch. 17: Dividends, Dividend Policy, and Stock Splits	Explains the process for paying dividends, individual preferences for different types of dividends, and how a company determines dividend policy and stock splits.
	Ch. 18: International Financial Management	Introduces the cultural, business, and political differences for a multinational business. Explains exchange rates, cross-rates, and forward rates and their impact on business profits.

INSTRUCTOR TEACHING RESOURCES

The program is offered with the following teaching resources.

Supplements available to instructors at www.pearsonglobaleditions.com	Features of the Supplement
Instructor's Manual Authored by Jim DeMello of Western Michigan University	• Answers and solutions to all end-of-chapter questions and problems • Big-picture overviews • Lecture launchers, often with real-world examples of the chapter concepts • Chapter outlines, suitable as lecture notes, with appropriate PowerPoint slides referenced • Trouble spots or pitfalls that students often encounter • Additional examples and homework problems with worked-out solutions
Test Bank Authored by Curt Bacon of Southern Oregon University	Approximately 1,800 multiple-choice, true/false, short-answer, and essay questions with these annotations: • Difficulty level (1 for straight recall, 2 for some analysis, 3 for complex analysis) • Type (Multiple-choice, true/false, short-answer, essay) • Topic (The term or concept the question supports) • Learning outcome • AACSB learning standard (Ethical Understanding and Reasoning; Analytical Thinking Skills; Information Technology; Diverse and Multicultural Work; Reflective Thinking; Application of Knowledge)
Computerized TestGen	TestGen allows instructors to: • Customize, save, and generate classroom tests • Edit, add, or delete questions from the Test Item Files • Analyze test results • Organize a database of tests and student results
PowerPoints Authored by Jim DeMello of Western Michigan University	Slides include all the graphs and tables from the textbook; lecture outlines, with equations and examples on separate slides; and an assortment of new worked-out examples to provide fresh input on key points. PowerPoints meet accessibility standards for students with disabilities. Features include, but are not limited to: • Keyboard and Screen Reader access • Alternative text for images • High color contrast between background and foreground colors

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Raymond M. Brooks

PART ONE

Fundamental Concepts and Basic Tools of Finance

CHAPTER 1

Financial Management

In this text, we embark on a journey of the study of finance and financial management. It is probably your first trip through these uncharted waters, but you may already have an intuitive understanding of certain aspects of finance. If you have saved money, borrowed money, or loaned money, you have performed a fundamental activity of finance. Your intuition should serve you well as you develop your personal skill set for finance and financial management.

In this chapter, you will learn about finance activities, the main areas of finance, the key financial players, and the types of business organizations. Together, we'll examine the relationship of a company's officers to its owners through a

LEARNING OBJECTIVES

LO1
Describe the cycle of money, the participants in the cycle, and the common objective of borrowing and lending.

LO2
Distinguish the four main areas of finance and briefly explain the financial activities that each encompasses.

LO3
Explain the different ways of classifying financial markets.

LO4
Discuss the three main categories of financial management.

LO5
Identify the main objective of the finance manager and how he or she might meet that objective.

LO6
Explain how the finance manager interacts with both internal and external players.

LO7
Delineate the three main legal categories of business organizations and their respective advantages and disadvantages.

LO8
Illustrate agency theory and the principal-agent problem.

LO9
Define issues in corporate governance and business ethics.

LO10
Explain why studying finance improves your employability.