RAYMOND M. BROOKS

FINANCIAL MANAGEMENT

CORE CONCEPTS

THIRD EDITION

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CORE CONCEPTS

THIRD EDITION

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To Greta, Michael, Aracely, Tyler, and Allyson

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

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ABOUT THE AUTHOR

RAYMOND M. BROOKS is a Professor of Finance at Oregon State University. He has taught a variety of finance courses, including introduction to financial management, investments, advanced corporate finance, financial institutions, financial planning, and risk management. Previously, he taught at Washington University in St. Louis; the University of Southern Illinois, Edwardsville; and the University of Missouri–Columbia. Professor Brooks has authored a variety of articles on topics from dividends to when-issued trading. He has twice won best papers awards at financial conferences.

Professor Brooks was a springboard diver for the Oregon State swim team and continues to enjoy swimming, hiking, music, reading, and watching OSU athletic teams.

THE STUDENT FRONT AND CENTER

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

- Using tools
- Making connections
- Studying for success

Using the Power Tools of Finance

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

MyFinanceLab Video

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 $r = 4\%$:

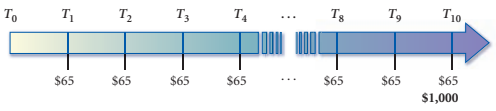
$$\frac{1 - [1/(1 + 0.04)^{30}]}{0.04} = \frac{[1 - (0.308319)]}{0.04} = 17.292033$$

Then multiply the annuity payment by this factor:

$$PV = \$50{,}000 \times 17.292033 = \mathbf{\$864{,}601.67}$$

Early TVM Tools. The author identifies the key concepts of finance as "tools." Students first need to learn how to use these tools of finance before they can apply them to larger problems. That's why the author drills down to basics quickly by 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.



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.

Problem Solving: Technology Tools and the Three-Methods Approach

The author helps students develop their skills in problem solving by using a three-pronged approach that shows there are several paths to the same destination.

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

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 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}.

Equation. He presents the equation and solves the problem mathematically.

METHOD 1 Using the equation

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

Calculator. He then solves the problem 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

Spreadsheet. For some examples, an Excel® solution is added. The author explains the basic spreadsheet variables and 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			

The Overall Intent? To develop in the student an intuition about which problem-solving approach works best for a particular problem—in other words, to develop an informed "do-it-yourself" attitude toward the tools of technology.

THE STUDENT FRONT AND CENTER

Finance Follies boxes in *Financial Management*

CHAPTER 1

The Financial Meltdown of 2008

CHAPTER 7

Irrational Expectations: Bulbs and Bubbles

CHAPTER 8

"Dangerous to Your Wealth": Is Investing Just Gambling?

"Scam of the Century": Bernie Madoff and the $50 Billion Fraud

CHAPTER 9

IBM Exits the Consumer Software Market: Misreading Future Cash Flows

CHAPTER 10

Boston's "Big Dig" Gets Dug Under

CHAPTER 14

Cooking the Books at Enron and WorldCom

CHAPTER 16

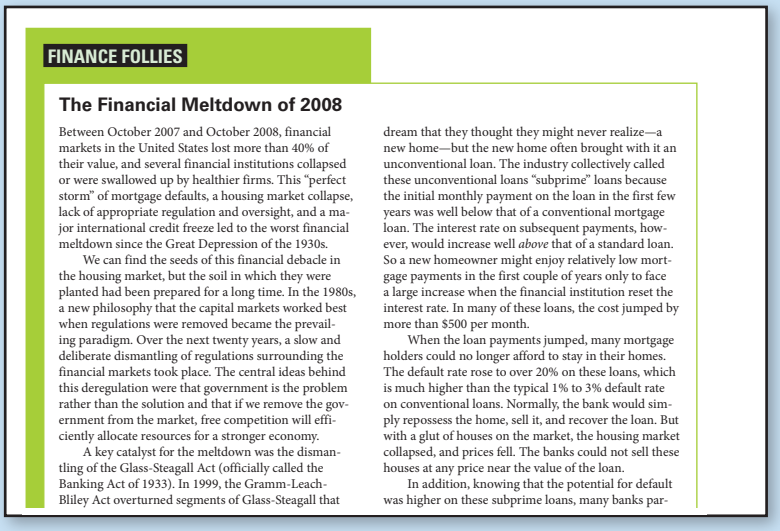
Hedge Funds: Some Really Smart Guys Get into Big Trouble

CHAPTER 18

Rino International

Making 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

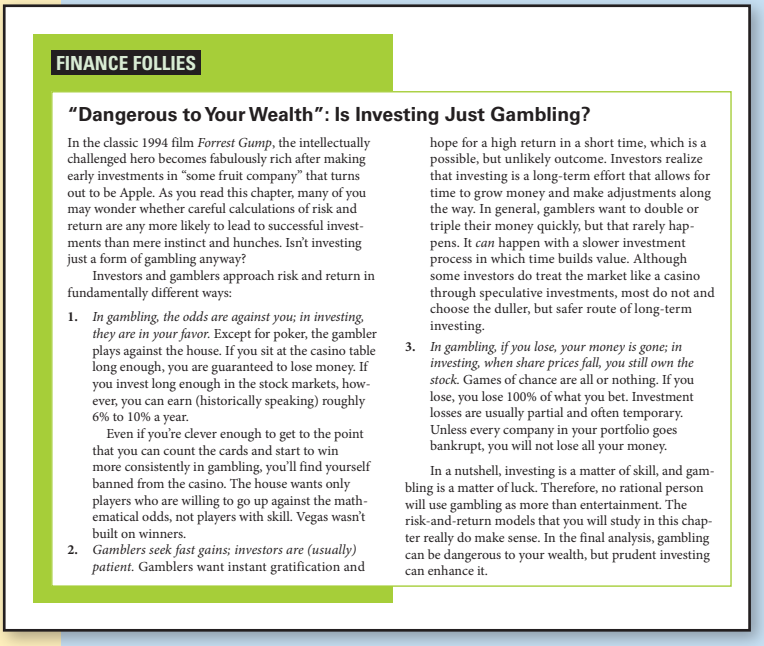
Between October 2007 and October 2008, financial markets in the United States lost more than 40% of their value, and several financial institutions collapsed or were swallowed up by healthier firms. This "perfect storm" of mortgage defaults, a housing market collapse, lack of appropriate regulation and 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 ideas behind this deregulation were 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 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 market collapsed, and prices fell. The banks could not sell these houses at any price near the value of the loan.

In addition, knowing that the potential for default was higher on these subprime loans, many banks par-



FINANCE FOLLIES

"Dangerous to Your Wealth": Is Investing Just Gambling?

In the classic 1994 film *Forrest Gump*, the intellectually challenged hero becomes fabulously rich after making early investments in "some fruit company" that turns out to be Apple. As you read this chapter, many of you may wonder whether careful calculations of risk and return are any more likely to lead to successful investments than mere instinct and hunches. Isn't investing just a form of gambling anyway?

Investors and gamblers approach risk and return in fundamentally different ways:

1. *In gambling, the odds are against you; in investing, they are in your favor.* Except for poker, the gambler plays against the house. If you sit at the casino table long enough, you are guaranteed to lose money. If you invest long enough in the stock markets, however, you can earn (historically speaking) roughly 6% to 10% a year.

   Even if you're clever enough to get to the point that you can count the cards and start to win more consistently in gambling, you'll find yourself banned from the casino. The house wants only players who are willing to go up against the mathematical odds, not players with skill. Vegas wasn't built on winners.
2. *Gamblers seek fast gains; investors are (usually) patient.* Gamblers want instant gratification and hope for a high return in a short time, which is a possible, but unlikely outcome. Investors realize that investing is a long-term effort that allows for time to grow money and make adjustments along the way. In general, gamblers want to double or triple their money quickly, but that rarely happens. It *can* happen with a slower investment process in which time builds value. Although some investors do treat the market like a casino through speculative investments, most do not and choose the duller, but safer route of long-term investing.
3. *In gambling, if you lose, your money is gone; in investing, when share prices fall, you still own the stock.* Games of chance are all or nothing. If you lose, you lose 100% of what you bet. Investment losses are usually partial and often temporary. Unless every company in your portfolio goes bankrupt, you will not lose all your money.

In a nutshell, investing is a matter of skill, and gambling is a matter of luck. Therefore, no rational person will use gambling as more than entertainment. The risk-and-return models that you will study in this chapter really do make sense. In the final analysis, gambling can be dangerous to your wealth, but prudent investing can enhance it.

With 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 such as CVS or Walgreen's that seems to sell everything from alarm clocks to zinc tablets, the problem stretches the imagination. Without such information, our plans and forecasts are little more than a shot in the dark.

Fortunately, financial executives can usually retrieve accurate and timely data with a few keystrokes or clicks of the mouse. Business software can produce many types of protecting, transmitting, and retrieving such information lie in the realm of information technology, or IT. Those who work in the management of information go by many names, including systems analysts, business analysts, information technology specialists, information managers, and database managers. Whatever we call them, their role is critical to an organization's financial management. They design, develop, implement, and support the systems that make this information usable, retrievable, and secure. Depending on their area of specialization, they may design or adapt software to specific requirements, and they can play a key role in choosing and supporting hardware to run the systems. Because they work closely with managers and staff in the major business functions such as marketing, operations, accounting, and finance, IT specialists must have a good understanding of those functions and their needs. Often, different functions such as finance and marketing will need the same information, but in different formats.

College students who major in computer science, computer engineering, or management information systems prepare for careers in information technology. Some schools offer information technology as a concentration within the business major. These programs, and others with similar names, overlap considerably, but computer science and computer engineering programs usually re-

With 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, Inc.: The Continuing Saga

This mini-case is available in MyFinanceLab.

Richardses' Tree Farm, Inc. is doing well after its incorporation. Jake Richards, president, chief of operations, and majority shareholder, currently has a planting of 10,000 three-year-old Japanese dogwood trees in a recently introduced pink-flowered variety. Richards can sell this type of tree at a higher price than the more common white-flowered variety. The trees are now 6 feet tall on average and can command $24 each. At present, Richards has priced 8-foot trees at $34 and 10-foot trees at $40. Landscape contractors avoid trees larger than 10 feet tall because they are difficult to transplant successfully. With average weather, the 6-foot trees will be 8 feet tall in three years and 10 feet tall in six years.

Jake has to make financial decisions almost every day. Today's decision involves present value and future value computations, which Jake learned as a student at Oregon State University. He wants to know if he should sell the trees immediately at 6 feet tall, three years from now at 8 feet tall, or six years from now at 10 feet tall.

Size	Age	Current Market Value
6′	3 years	$24.00
8′	6 years	$34.00
10′	9 years	$40.00

Questions

1. Because of inflation, Jake expects the price at which he can sell the trees to increase by 3% per year. What price does he expect to receive if he keeps the trees until they reach 8 feet or 10 feet tall?
2. If Jake discounts the future price of the trees at 10% per year, what is the present value of their future prices?
3. Using the time value of money equation, compute the growth rate of the trees between the third year and the sixth year and between the sixth year and the ninth year.
4. When should Jake sell the trees?
5. **Challenge question**. A major landscape contractor who has bid successfully on a large-scale Boston beautification and urban greening project has offered to buy all 10,000 flowering dogwood trees at a price of $28,000, payable immediately. However, the contractor does not need the trees for three years. If Jake accepts, he will be obliged to deliver 10,000 trees three years from today. If anything should happen to his own crop, he would need to buy trees on the open market at the prevailing price, which might be higher or lower than the price estimated in Question 1. Should Jake accept the offer if his required rate of return is 10%? *Hint*: What is the present value of the price he expects to receive for the trees three years in the future?

Putting Finance to Work boxes in *Financial Management*

CHAPTER 1
Now Hiring

CHAPTER 2
Look Before You Leap

CHAPTER 3
Sports Agent

CHAPTER 4
Modeling the Future with Actuarial Science

CHAPTER 6
Municipal Manager

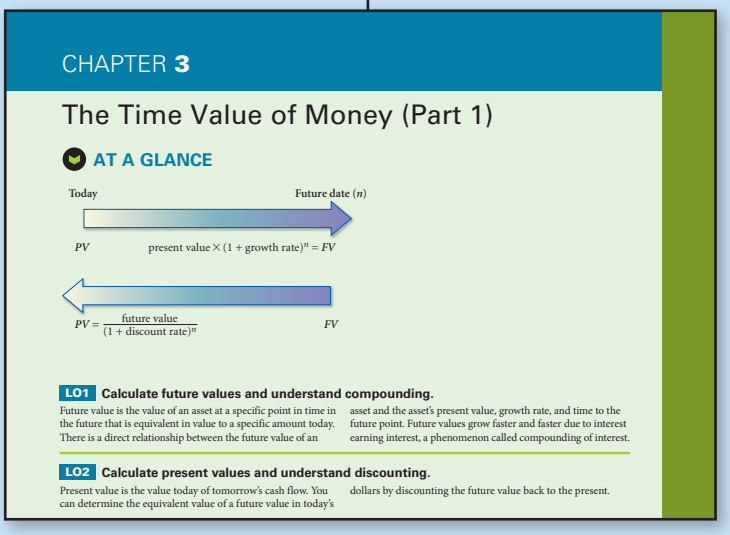
CHAPTER 9
Marketing and Sales: Your Product = Your Customer's Capital Budgeting Decision

CHAPTER 12
Information Technology

CHAPTER 13
Operations Management

CHAPTER 15
Corporate Law

THE STUDENT FRONT AND CENTER



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.**

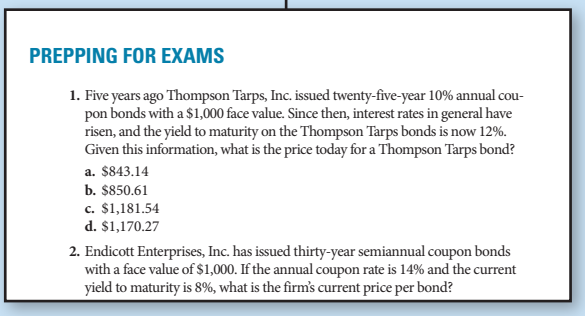
Future value is the value of an asset at a specific point in time in the future that is equivalent in value to a specific amount today. There is a direct relationship between the future value of an asset and the asset's present value, growth rate, and time to the future point. Future values grow faster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

Studying for Success

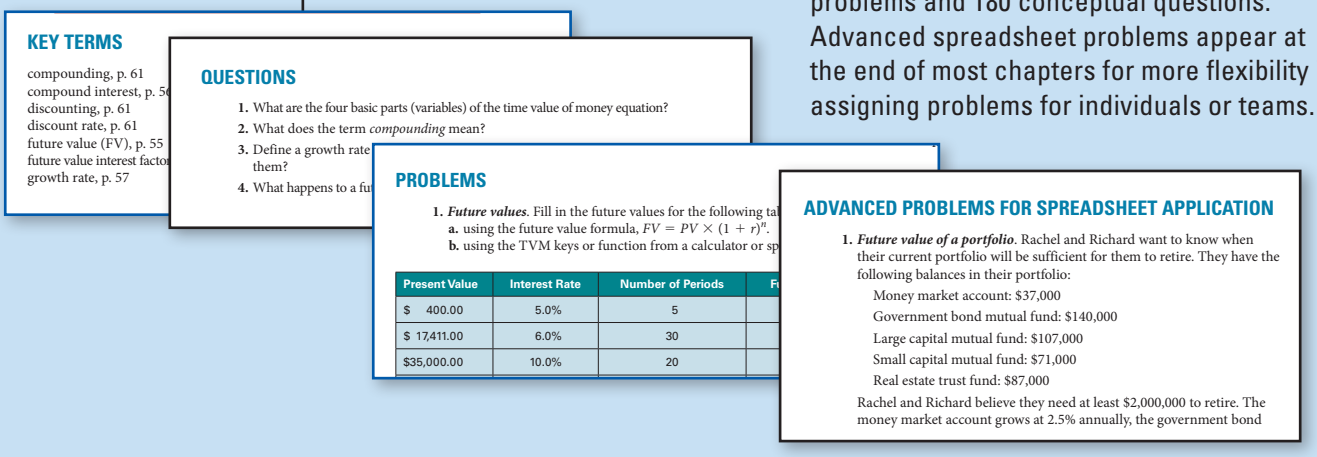
For the Student on the Go. Tear-out Summary Cards for every chapter provide instantaneous mini-reviews. In addition to summarizing the main points of the chapter, these portable study aids include mathematical notation, calculator keys, and key equations, all great to read over right before an exam!



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
2. Endicott Enterprises, Inc. has issued thirty-year semiannual coupon bonds with a face value of $1,000. If the annual coupon rate is 14% and the current yield to maturity is 8%, what is the firm's current price per bond?

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.



KEY TERMS

compounding, p. 61
compound interest, p. 5
discounting, p. 61
discount rate, p. 61
future value (FV), p. 55
future value interest factor
growth rate, p. 57

QUESTIONS

1. What are the four basic parts (variables) of the time value of money equation?
2. What does the term *compounding* mean?
3. Define a growth rate
   them?
4. What happens to a fu

PROBLEMS

1. ***Future values***. Fill in the future values for the following ta
   a. using the future value formula, $FV = PV \times (1 + r)^n$.
   b. using the TVM keys or function from a calculator or sp

Present Value	Interest Rate	Number of Periods	F
$ 400.00	5.0%	5	
$ 17,411.00	6.0%	30	
$35,000.00	10.0%	20	

ADVANCED PROBLEMS FOR SPREADSHEET APPLICATION

1. ***Future value of a portfolio***. Rachel and Richard want to know when their current portfolio will be sufficient for them to retire. They have the following balances in their portfolio:
   Money market account: $37,000
   Government bond mutual fund: $140,000
   Large capital mutual fund: $107,000
   Small capital mutual fund: $71,000
   Real estate trust fund: $87,000
   Rachel and Richard believe they need at least $2,000,000 to retire. The money market account grows at 2.5% annually, the government bond

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.

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.

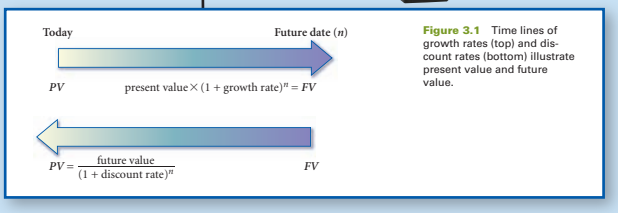


Figure 3.1 Time lines of growth rates (top) and discount rates (bottom) illustrate present value and future value.

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

The compounding of interest over time accelerates the growth of money.

For the Student Who Wants More Practice. MyFinanceLab, a fully integrated online home and tutorial system, enables students to complete problems and receive immediate feedback and help. **MyFinanceLab** also has a special section of spreadsheet problems for Chapters 2 through 18 that provide an opportunity to work more data-intensive problems with spreadsheet applications. See the front endpapers for more details on **MyFinanceLab**.

MyFinanceLab

RESOURCES FOR THE INSTRUCTOR

Instructor's Manual

Written by Jim DeMello of Western Michigan University, the Instructor's Manual contains the following for each chapter:

- 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

PowerPoint Presentation

Prepared by Jim DeMello of Western Michigan University, the PowerPoint presentation includes lecture outlines, with equations and examples on separate slides; an assortment of new worked-out examples to provide fresh input on key points; and all chapter figures.

Computerized Test Bank

Written by Curt Bacon of Southern Oregon University and checked for accuracy by Michael J. Woodworth, the computerized test bank features approximately 1,800 questions and solutions broken down by chapter into multiple-choice questions of conceptual and numeric types, true-or-false questions, and short-essay questions. The test bank is written in TestGen, an easy-to-use testing software program that allows instructors to view, edit, and add questions. It is also available in MyFinanceLab.

MyFinanceLab

MyFinanceLab, a fully integrated online homework and tutorial system, enables students to complete problems and receive immediate feedback and help. See the front endpapers for details.

FROM THE AUTHOR

WITH THE ENCOURAGEMENT of Donna Battista and a wonderful set of individuals at Pearson, our team started out on the journey of writing this textbook. We are now in the third edition of a process that has been a great adventure. The first and second editions were very successful, and our audience (student users), reviewers, and adopters provided some insightful suggestions for this third edition. But the general concepts and approach to the book have remained true to the original design we followed in the first edition.

What's New in the Third Edition

- Of course, we have updated the material that was time-related. For example, the interest rates now reflect the historically low levels of the first decade of the twenty-first century.
- Additionally, we have continued to strengthen the Chapter 12 material on cash flow.
- We have increased the coverage on cash flow management in Chapter 13.
- We have provided additional insight on ratio analysis in Chapter 14 so that the temporal nature of these ratios is more apparent.
- We have added a new tear-out Summary Card of key formulas and spreadsheet functions following the chapter Summary Cards at the back of the book.
- The third edition MyFinanceLab course will include an enhanced eText with animated figures and author-created solutions videos for in-text examples.

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 shows 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 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.

The evolution of technical support has also been great for the instructor. MyFinanceLab has been developed to provide the extra support that time constraints often prevent an instructor from providing to students. With every end-of-chapter problem formatted in MyFinanceLab, 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 individual student homework assignments is completed by MyFinanceLab. In addition, MyFinanceLab has features such as Help Me Solve This, which leads students step by step through the problem with a different set of numbers.

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

ACKNOWLEDGMENTS

I OWE A GREAT DEAL OF GRATITUDE to the many people who helped create this book.

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I have been most fortunate in having a talented team of supplement authors on this project. Curt Bacon of Southern Oregon University did an excellent job on the test bank, and Jim DeMello of Western Michigan University made great contributions with his authorship of the Instructor's Manual and PowerPoint slides. I would also like to single out Joe Walker of the University of Alabama at Birmingham, who did a meticulous job of reviewing the chapters for accuracy and checking the end-of-chapter solutions in the Instructor's Manual, as well as Michael J. Woodworth, who reviewed the test bank for accuracy. Also, a special thank-you to Kevin Thorpe, one of my teaching assistants, who helped with the solutions to the end-of-chapter questions and problems.

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To all these people, my profound thanks. Your countless contributions have made for a better book and the writing of it all worthwhile.

Raymond M. Brooks

REVIEWERS

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Thomas Lyon, *Rockhurst University*
Yulong Ma, *California State University, Long Beach*
Anne Macy, *West Texas A&M University*
Inayat Mangla, *Western Michigan University*
Iqbal Mansur, *Widener University*
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Stefano Mazzotta, *Kennesaw State University*
Lee McClain, *Western Washington University*
Ilhan Meric, *Rider University*
Cynthia Miglietti, *Bowling Green State University*
Richard Mikolajczak, *Tidewater Community College*
James A. Milanese, *University of North Carolina, Greensboro*

Lalatendu Misra, *University of Texas, San Antonio*
John Mitchell, *Central Michigan University*
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William B. Nelson, *Indiana University Northwest*
Srinivas Nippani, *Texas A&M University, Commerce*
Rosilyn Overton, *New Jersey City University*
James Owens, *West Texas A&M University*
Warren Palmer, *Beloit College*
Coleen Pantalone, *Northeastern University*
James Papademas, *Wilbur Wright College*
Ohannes George Paskelian, *University of Houston, Downtown*
Tony Plath, *University of North Carolina, Charlotte*
Rose Prasad, *Central Michigan University*
Vijayan Ramachandran, *Oklahoma City Community College*
Rathin Rathinasamy, *Ball State University*
Mario Reyes, *University of Idaho*
Stanley Roesler, *Eastern Connecticut State University*
David Russell, *California State University, Northridge*
William Sawatski, *Southwestern College*
Atul Saxena, *Georgia Guinnett College*
Dennis Shannon, *Webster University*
Maneesh Sharma, *Indiana-Purdue University*
Kilman Shin, *Ferris State University*
David Suk, *Rider University*
Kenneth Surbrugg, *Labette Community College*
Michael Townsend, *Canyon College*
Victor Wakeling, *Kennesaw State University*
Joe Walker, *University of Alabama, Birmingham*
Sally Wells, *Columbia College of Missouri*
Susan White, *University of Maryland*
Alex Wilson, *University of Arizona*
Fred Yeager, *St. Louis University*
Emily Zietz, *Middle Tennessee State University*

Focus Group Participants

John Banko, *University of Central Florida*
Rafiqul Bhuyan, *California State University, San Bernardino*
George Chang, *Bradley University*
Chiaku Chukwuogor-Ndu, *Eastern Connecticut State University*
Cetin Ciner, *University of North Carolina, Wilmington*
Beverly Frickel, *University of Nebraska, Kearney*
Luis Garcia-Feijoo, *Creighton University*
Anne Gleason, *University of Central Oklahoma*
Terry Grieb, *University of Idaho*
Thomas Krissek, *Northeastern Illinois University*
Francis Laatsch, *Bowling Green State University*
Richard Levy, *Roosevelt University*
Piman Limpaphayom, *Chulalongkorn University, Thailand*
Angelo Luciano, *Columbia College, Chicago*
Elisa Muresan, *Long Island University, Brooklyn*
Prakash Pai, *University of Texas of the Permian Basin*
Debbie Psihountas, *Webster University*
Rasoul Rezvanian, *Northeastern Illinois University*
Jimmy Senteza, *Drake University*
Janikan Supanvanij, *St. Cloud State University*
Chu-Sheng Tai, *Texas Southern University*
Jill Wetmore, *Saginaw Valley State University*

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PART **ONE**

Fundamental Concepts and Basic Tools of Finance

1

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

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.

owners through a model called agency theory. Finally, we will touch on how corporations govern their activities and how the U.S. government attempts to regulate and monitor these activities.

Finance helps people and businesses make decisions about when to buy and when to sell and about what to buy and what to sell. Whether you are the manager of a small retail store or a senior officer in a large firm, the economic objective of your financial decision is the same: to make the enterprise and yourself better off.

Finance is not just about money and investing; it is much broader. Finance is the art and science of managing wealth. Generally defined, **financial management** includes many activities that create or preserve the economic value of the assets of an individual, small business, or corporation. The job of financial managers is to make, and to help others make, sound financial decisions. This book is designed to help you understand the processes used in making financial decisions and the effect these decisions have on the wealth of a company. Let's begin our journey here with an overview of the cycle of money.

1.1 The Cycle of Money

Say you borrow $5 from a friend today and repay it a few days later. Your friend (the lender) is willing to forgo the use of the $5 for a temporary period while you (the borrower) need the $5 for a purchase today. You will be able to return the $5 in a few days and thereby repay the loan. Both parties benefit from the arrangement: your friend is able to help a friend in need, and you are able to spend $5 at a time when you are short on cash.

The finance function of borrowing and lending is usually much more complicated than this scenario, but the objective of these types of transactions is always the same: to make both parties better off. The movement of money from lender to borrower and back again is called the **cycle of money**. In the business world, however, most lenders are not in direct contact with their borrowers. Most lenders invest their money with a financial institution such as a bank, which, in turn, loans these funds to another party. The bank in this instance is called a **financial intermediary**, an institution that acts as a "middleman" between borrowers and lenders. The borrower makes payments back to the bank, and the bank, in turn, pays back the lender. Figure 1.1 depicts these roles in the cycle of money.

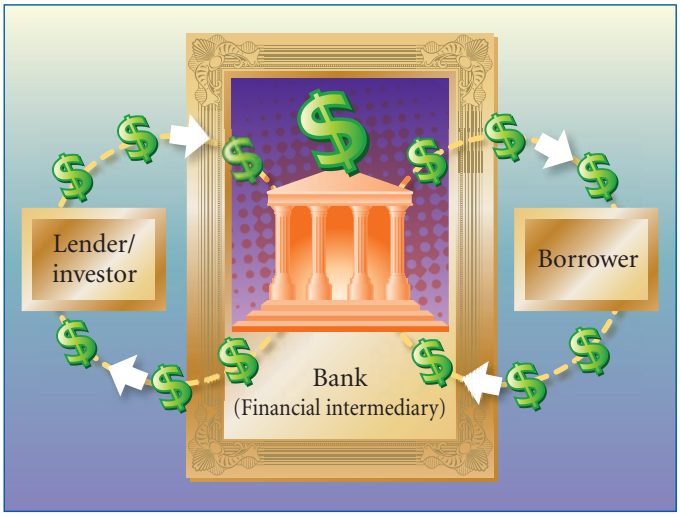

Figure 1.1 The cycle of moving money from lender to borrower and back again is often accomplished through a financial intermediary like a bank.

Let's look at an example of the lending and investing activity of one individual and the borrowing activity of a second individual through a commercial bank. Paula decides to deposit $500 in the bank by purchasing a certificate of deposit (CD). The CD is a promise by the bank that it will return the $500 and pay Paula

$25 (5% interest) if she keeps the entire deposit in the bank for one year. Scott comes to the bank in need of $500 for a tuition payment. The bank agrees to loan Scott $500 if he will repay the loan principal of $500 and an additional $40 (8% interest) at the end of the year. These transactions benefit all three parties—Scott, the bank, and Paula. Scott is able to pay his tuition on time. If he then pays back $540 to the bank, the bank can redeem Paula's CD for $525 and keep $15 for the services it provided: (1) matching the borrower and lender and (2) bearing the risk that Scott would not be able to pay back the loan with interest at the end of the year. And Paula has earned $25 interest on her money.

You might reasonably ask why Paula gave away a chance to earn an additional $15 of interest by not lending directly to Scott. One simple answer is that Paula would have risked losing the entire $500 had Scott not repaid the loan. But for now, let's just say that some additional complications underlie this set of transactions, and we will explore those in Chapter 15.

As noted at the beginning of this chapter, finance is about making decisions: when to buy and when to sell, and what to buy and what to sell. In our first example, it is fairly easy to see that Paula is buying a CD from the bank and the bank is selling the CD, but what is Scott buying or selling? Let's consider the cycle of money in this example in terms of buying and selling:

- Scott was selling a future stream of money ($540 a year from now) for $500 today.
- The bank was buying a promised future stream of money ($540 at the end of the year) for $500 today.
- The bank was selling a CD promising $525 at the end of the year for $500 today.
- Paula was buying a promised future stream of money (the CD with a payoff of $525) for $500 today.

So here we actually have two separate transactions at the start of the cycle of money. Scott is the seller and the bank is the buyer in one transaction. The bank is the seller and Paula is the buyer in the other transaction. Note that all transactions always have a buyer and a seller. To Scott, the transaction was a loan of $500. To Paula, the $500 was an investment. Loans are from the perspective of the borrower, and investments are from the perspective of the lender, but lending and investing are buying and selling activities.

As you proceed through this book, the transactions may become more complex as they involve increasingly more players and ever more complicated contracts. Nevertheless, two things remain constant: (1) the cycle of money and (2) the economic objective of improving each participant's wealth.

1.2 Overview of Finance Areas

We often partition finance into four main areas:

1. Corporate finance
2. Investments
3. Financial institutions and markets
4. International finance

Corporate finance, as its name implies, is the set of financial activities that support the operations of a corporation or business, its use of money, and those decisions that affect the wealth of the owners. These activities can include

borrowing funds to finance projects of the corporation such as plant expansions, launching new products, and supplementing short-term cash needs. They also include repaying these borrowed funds through dividends, interest payments, and principal payments.

Investments are generally the activities centering on the buying and selling of assets, both real and financial. **Real assets** are physical assets such as property, buildings, and commodities, including corn, oil, and gold. **Financial assets** are intangible assets such as stocks and bonds. This area of finance is concerned with the accurate pricing of these assets, the process of buying and selling them, and the rules and regulations that govern the players and activities in these transactions.

Financial institutions and markets are the organized financial intermediaries and the forums that promote the cycle of money. The institutions take the form of commercial banks, investment banks, insurance companies, pension companies, and foreign exchanges. The activities of financial institutions range from matching lenders and borrowers in a simple transaction like Paula's in our example to managing large retirement portfolios for large classes of employees. The markets are the locations, both physical and virtual, where these activities take place. Some of these institutions and markets are icons of finance, such as the New York Stock Exchange (NYSE). Although the NYSE is a financial institution with a physical market, it operates mainly in the investments area, conducting activity in a sophisticated financial market.

International finance deals with the addition of multinational aspects of the finance activities outlined previously. Multinational corporations have operations in more than one country and must often finance these operations with local investors. Some of the decisions become more complicated because the rules and regulations for operating a business vary from country to country. In addition, economic conditions vary from country to country, making the process of assessing risk more difficult. Finally, most countries have their own currency, which adds another dimension—the converting of currency from one country to currency of another country—to international finance.

These four areas cover the main activities of finance, but they are not mutually exclusive. Rather, they are interconnected to establish a well-organized network for the cycle of money.

1.3 Financial Markets

Financial markets are the forums in which buyers and sellers of financial assets (such as stocks and bonds) and commodities (such as grains, oil, and gold) meet. Again, financial markets are the locations, both physical and virtual, where transactions take place. The NYSE has a physical trading floor at 11 Wall Street in New York City where buying and selling take place. Other markets are virtual spaces where transactions occur over a network of computers, such as the National Association of Securities Dealers Automated Quotations (NASDAQ).

We can classify financial markets in a number of ways. Let's examine four: (1) by type of asset traded, (2) by the maturity of the assets, (3) by the owner of the assets, and (4) by the method of sale.

First, we can classify financial markets by the type of asset that sells in the market:

- *Equity markets*, where stocks are bought and sold
- *Debt markets*, where bonds are bought and sold

- *Derivatives markets*, where futures contracts on commodities are bought and sold (futures markets) or where options on equities, futures, or currencies are bought and sold (options markets)
- *Foreign exchange markets*, where currencies are bought and sold

Second, we can classify financial markets by the maturity of the assets. *Maturity* means the length of time the borrower has to pay back the borrowed funds. Investors buy and sell financial assets that will mature within the year in **money markets**. These assets are *short-term loans*, sometimes for as short as a day or two. Financial assets that have maturities over a year transact in the **capital markets**. These assets are *long-term loans* and may include bonds or stocks. Remember, loans are investments from the perspective of the lender who is buying a future cash flow from the borrower who is selling the future cash flow.

Third, we can categorize financial markets by who owns the assets. When a company offers stock for sale for the first time and the proceeds of the sale go to the company, the sale takes place in the **primary (first) market**. The Securities and Exchange Commission (SEC) regulates sales in the primary market.

After the initial public sale of stocks or bonds, the initial buyer of the stock or bond may choose to resell the asset to another party. When that happens, the sale takes place in the **secondary market**. Here the money from the sale goes to the initial buyer, with a notification to the original issuer (the company) that there is now a new owner of record. The SEC also regulates sales in the secondary markets.

A fourth classification of financial markets is by type of sale. Dealer markets and auction markets fall into this category. In a **dealer market**, an individual (or firm) buying and selling securities (stocks or bonds) does so out of his or her own inventory, much as in a used-car dealership. The dealer makes money by purchasing the asset at one price and then selling the same asset later at a higher price. In an **auction market** (such as the government bond market), many securities sell at the same time to many buyers. The various auctions for financial assets have specific procedures covering who can bid, what types of bids are allowed, and how they distribute the financial assets to the winning bidders. The auctioneers, usually investment banks, receive a percentage of the sale as compensation for conducting the sale.

We will take a more detailed look at the financial markets in Chapters 7 and 15.

1.4 The Finance Manager and Financial Management

As noted, we generally define financial management activities as those that create or preserve the economic value of the assets of an individual, small business, or corporation. In a company, many different individuals perform these activities at many different levels. A **chief financial officer (CFO)** oversees all the company's financial activities, such as determining the best repayment structure for borrowed funds, which ensures that the company meets its debt obligations in a timely fashion and still has sufficient cash for its daily operations. Beyond the CFO, everyone in the corporation—from the person who decides where to advertise the company's products or services to the person who decides what type of copying machines will best meet the company's needs—faces similar challenges. If the managers of a large company fail to maintain the value of the company assets, the company may be forced into bankruptcy, losing millions of dollars for the owners.

You make these same types of decisions every day. You, too, must ensure that your monthly payments for a house or car are appropriate to your current income level so that you can meet your other daily obligations. You make many personal financial management decisions, some simple (Do I have enough money to have fries with my hamburger?) and some complex (How should I structure my retirement portfolio?). And like a poorly managed company, if you fail to budget properly, you may lose many of your possessions.

Companies and individuals engage in parallel activities and make similar choices concerning financial matters. At times, we use corporations in this book to illustrate different financial management activities and decisions. At other times, we use individuals and personal objectives to illustrate financial management issues.

We can divide financial management into three main categories:

1. **Capital budgeting**: the process of planning, evaluating, comparing, and selecting the long-term operating projects of the company. This answers the question, *What business should we be in over the long term?*

   Capital budgeting requires a company to answer fundamental questions about its business focus. For Nike, that means making and selling athletic wear. For Coca-Cola, it is selling beverages. For Wal-Mart, it is the retail business of selling consumer products from multiple manufacturers. Each company picks its business based on its ability to generate a profit in its field over an extended period of time. This evaluation and selection of the products and services in which the company will invest its funds is called capital budgeting. In Chapter 9, we will study the various ways in which a company evaluates whether to invest in a product or service.

2. **Capital structure**: the means by which a company finances its business activities; for public companies, usually a mix of bonds (debt) and stocks (equity) sold to investors and owners. This answers the question, *Where do we raise the money to conduct our business activities?*

   Once the company selects the appropriate business area and product mix, it is usually necessary to raise funds to support its business activities and pursue its objectives. The sources and amounts of that funding are called the capital structure of the company. In Chapters 15 and 16, we examine the different choices of how and where to raise funds as well as the availability of different types of funds.

3. **Working capital management**: the process of managing the day-to-day operating needs of the company through its current assets and current liabilities (we also refer to this as the short-term financing activities of the company). This answers the question, *How will we manage our day-to-day business needs?*

   Working capital management focuses on short-term operating needs and the company's day-to-day finance requirements. The company needs sufficient cash on hand to pay employees, suppliers, and others. It also needs policies for collecting funds from its customers on a timely basis. Working capital management involves the selection of inventory levels, payment policies, and short-term cash holdings—all to enable the company to provide its products and services in a competitive marketplace and still meet current financial obligations. This financial management activity also includes efforts to seek short-term funding and to negotiate with creditors to restructure payments. We examine these topics in more depth in Chapters 12 and 13.

A finance manager is anyone who engages in any—or all three—of these financial management activities. Every finance manager, whether the top finance officer of a large company with the title of chief financial officer or the manager of a small business, helps decide what new products or services the company should sell, how to finance these products or services, and the optimal level of products or services to have available for customers. The CFO of a large company may be faced with a capital budgeting decision about the number and types of trucks that will effectively and efficiently deliver the company's products to warehouses. The business manager of a small plant nursery may need to select only one delivery truck rather than a fleet. Yet both managers face the same challenge: making a prudent financial decision. Both individuals are making capital budgeting decisions, and both are performing financial management activities.

1.5 Objective of the Finance Manager

If the main objective of the finance manager is to create or preserve the economic value of the assets of the corporation, how should the manager accomplish this goal? Should the manager try to

- maximize profits?
- keep all the company's customers happy?
- foster good relationships with the local community?
- maintain a safe and enjoyable workplace?
- attract and retain good employees?

All these and many more objectives may be desirable. However, managers must often decide between different strategies for pursuing a single objective. For example, should the company add a new product line to keep the customers happy even though it will cause problems with the local community? When some objectives conflict with others, how does a manager choose or set priorities among them?

Profit Maximization

Let's consider two strategies that might maximize profit. First, a manager might decide to increase this year's profits at the expense of future years' profits by avoiding routine maintenance. Avoiding maintenance this year will decrease costs, which, in turn, will increase profits, but it will also potentially add greater costs in future years because postponed maintenance costs are often greater than current maintenance costs. Second, the manager might consider reducing inventories. By scaling down the inventories, the manager can avoid the restocking costs, but also runs the risk of losing sales (and profits) if the products are not available for future customers to purchase. Clearly, profit maximization can involve many trade-offs for a company's manager.

To home in on the primary objective of the finance manager, return for a moment to the original statement. Remember that financial management is about creating and maintaining wealth and ask yourself, "Whose wealth is a manager trying to increase or maintain?" It is a good question to ask because a manager ultimately manages the firm for a large set of individuals, from employees to suppliers to customers to owners. On reflection, you should conclude that it is the *owners* to whom a manager owes allegiance and it is the owners whom a manager must satisfy. The owners' wealth in the company is the equity value of the company. For a publicly traded company, it is the stock value.

Maximizing Current Stock Price

The primary goal of the finance manager is to maximize the current stock price of the firm. This goal incorporates many other desirable goals that ultimately influence the value of the company's stock.

For a public company, a rising stock price makes the owners better off, whereas a falling stock price makes them worse off. Therefore, in a publicly traded firm, *the primary objective of the finance manager is to maximize the current stock price of the firm*. Let's examine this objective more closely.

At first glance, maximizing the current stock price may appear to harm stakeholders such as employees, suppliers, or customers by seeming to ignore many other desirable company objectives, such as maintaining a safe workplace, or inducing some trade-offs. However, maximizing the current stock price implies or embeds many of these other desirable objectives. To determine how this is true, let's take a closer look at what actions a company can perform to raise the price of its stock.

The ownership of stock entitles one to a proportional part of the future cash flow of the company. Later we will explore how to determine stock prices, but for now, the key point is that stock prices reflect the company's future cash flow. The goal then is to increase this future cash flow. One way to do this is to maintain a safe and enjoyable workplace to attract and retain good employees. Good employees understand the business, are reliable, and add value to the products or services of the company. Another way is to work closely with customers to ensure that the products or services are meeting their needs. Another way is to establish good working relationships with suppliers so that the company receives quality materials in a timely fashion. Similarly, the firm must take into account the effect that the business has on the environment and the surrounding community. Failure to consider these issues may result in lawsuits and fines that could severely damage the future cash flow of the firm.

If all these factors play a role in increasing the firm's future cash flow, they also have an effect on its current stock price. Therefore, it bears repetition: the objective of the finance manager is to *maximize the current stock price of the company*. It is not a simple task to raise stock prices given competition, conflicts in some of the desired goals, and the uncertainty of the economy.

Maximizing Equity Value

A broader definition of the goal of the finance manager is to *maximize the current market value of the equity of the company*. The **equity value** of a company is its value to the owners. Whereas equity value equals stock value for a publicly traded company, how do we value companies that are not publicly traded and therefore do not have stock? The equity value of a privately held company is the market value of the company's assets minus the claims against the company (the liabilities). Thus, the goal of the finance manager is to do those things that increase or maintain the wealth of the company's owners, whether by increasing the current stock price of a publicly held company or by increasing the current equity value of a privately held company.