

TENTH EDITION

FOUNDATIONS OF FINANCE

Keown

Martin

Petty



Foundations of Finance

The Logic and Practice of Financial Management

Tenth Edition

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Foundations of Finance

The Logic and Practice of Financial Management

Tenth Edition

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To my parents, from whom I learned the most.
Arthur J. Keown

*To the Martin women—wife Sally and daughter-in-law Mel, the
Martin men—sons Dave and Jess, and the Martin boys—grandsons
Luke and Burke.*
John D. Martin

*To Carter and Greg, who are great husbands to our lovely daughters,
Krista and Kate, and the fathers of our five wonderful
grandchildren—Ashley, Cameron, Erin, John, and Mackenzie.
We feel their constant love and friendship.*
J. William Petty

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Arthur J. Keown is the Department Head and R. B. Pamplin Professor of Finance at Virginia Polytechnic Institute and State University. He received his bachelor's degree from Ohio Wesleyan University, his M.B.A. from the University of Michigan, and his doctorate from Indiana University. An award-winning teacher, he is a member of the Academy of Teaching Excellence; has received five Certificates of Teaching Excellence at Virginia Tech, the W. E. Wine Award for Teaching Excellence, and the Alumni Teaching Excellence Award; and in 1999 received the Outstanding Faculty Award from the State of Virginia. Professor Keown is widely published in academic journals. His work has appeared in the *Journal of Finance*, *Journal of Financial Economics*, *Journal of Financial and Quantitative Analysis*, *Journal of Financial Research*, *Journal of Banking and Finance*, *Financial Management*, *Journal of Portfolio Management*, and many others. In addition to *Foundations of Finance*, two others of his books are widely used in college finance classes all over the country—*Basic Financial Management* and *Personal Finance: Turning Money into Wealth*. Professor Keown is a Fellow of the Decision Sciences Institute, was a member of the Board of Directors of the Financial Management Association, and is the head of the finance department at Virginia Tech. In addition, he served as the co-editor of *the Journal of Financial Research* for 6½ years and as the co-editor of the Financial Management Association's *Survey and Synthesis* series for 6 years. He lives with his wife in Blacksburg, Virginia, where he collects original art from *Mad Magazine*.

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J. William Petty, PhD, Baylor University, was Professor of Finance and W. W. Caruth Chair of Entrepreneurship from 1990 until 2017. Dr. Petty taught entrepreneurial finance at both the undergraduate and graduate levels. He was designated a University Master Teacher. In 2008, the Acton Foundation for Entrepreneurship Excellence selected him as the National Entrepreneurship Teacher of the Year. His research interests included the financing of entrepreneurial firms and shareholder value-based management. He served as the co-editor for the *Journal of Financial Research* and the editor of the *Journal of Entrepreneurial Finance*. He has published articles in various academic and professional journals, including *Journal of Financial and Quantitative Analysis*, *Financial Management*, *Journal of Portfolio Management*, *Journal of Applied Corporate Finance*, and *Accounting Review*. Dr. Petty is co-author of a leading textbook in small business and entrepreneurship, *Small Business Management: Launching and Growing Entrepreneurial Ventures*. He also co-authored *Value-Based Management: Corporate America's Response to the Shareholder Revolution* (2010). He served on the Board of Directors of a publicly traded oil and gas firm. Finally, he serves on the Board of the Baylor Angel Network, a network of private investors who provide capital to start-ups and early-stage companies.

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Preface

The study of finance focuses on making decisions that enhance the value of the firm. This is done by providing customers with the best products and services in a cost-effective way. In a sense we, the authors of *Foundations of Finance*, share the same purpose. We have tried to create a product that provides value to our customers—both students and instructors who use the text. It was this priority that led us to write *Foundations of Finance: The Logic and Practice of Financial Management*, which was the first “shortened book” of financial management when it was originally published. This text launched a trend that has since been followed by all the major competing texts in this market. The text broke new ground not only by reducing the breadth of materials covered but also by employing a more intuitive approach to presenting new material. From that first edition, the text has met with success beyond our expectations for nine editions. For that success, we are eternally grateful to the multitude of finance instructors who have chosen to use the text in their classrooms.

New to the Tenth Edition

Many of the changes in the 10th edition stem from comments and suggestions made by adopters, and we thank them for all they have done to improve this edition. Other changes were inspired by the passage of the Tax Cuts and Jobs Act of 2017. This new law brought sweeping changes to corporate taxes. Some of the tax changes that will impact corporate finance decisions include a dramatic reduction in the corporate tax rate, the ability to depreciate the full purchase price of capital investments in the year the investment is put into service, a limitation on the tax deductibility of interest payments, and a change in the taxation of foreign profits. Needless to say, the impact of these tax changes ripple throughout the book. For example, corporate decision making, with respect to new investments in new projects and how those projects are financed, are impacted by the new tax law.

In addition to the integration of the new tax law throughout the book, we have made some chapter-by-chapter updates in response to the continued development of financial thought and reviewer comments. By chapter, some of these changes include:

Chapter 1

An Introduction to the Foundations of Financial Management

- ◆ Revised and updated chapter introduction
- ◆ Revised and updated section on the Organizational Form and Taxes to include changes resulting from the new tax laws and changes to pass-through entities

Chapter 2

The Financial Markets and Interest Rates

- ◆ Revised and updated chapter introduction
- ◆ Revised coverage to include recent changes in the financial markets
- ◆ Updated coverage of the term structure of interest rates to address the very low rates that characterize today’s markets

Chapter 3**Understanding Financial Statements and Cash Flows**

- ◆ Streamlined bullet point presentations that can be reviewed by the reader to quickly grasp new concepts
- ◆ Updated to illustrate the principles of financial statements, using a company that will be of interest to students—Walmart
- ◆ Rather than merely present Walmart's financial statements in isolation, background material is provided about Walmart that will give context to the company's financials

Chapter 4**Evaluating a Firm's Financial Performance**

- ◆ Streamlined chapter presentation makes it easier for the reader to review the process used in conducting the analysis
- ◆ Comparative financial performance analysis provided using retail giants Walmart and Target

Chapter 5**The Time Value of Money**

- ◆ Revised to make the subject matter more accessible to all students regardless of their level of mathematical skill
- ◆ Expanded problem set

Chapter 6**The Meaning and Measurement of Risk and Return**

- ◆ Updated to show an illustration of the large differences in returns over the time periods of 2007–2009, 2009–2018, and 2007–2018
- ◆ Provides an examination of average rates of return and the variability of the returns for different types of securities, such as government bonds, corporate bonds and stock for 90 years, from 1926 to 2016
- ◆ Updated to show examples of firms like Nike and eBay, which clearly illustrate the chapter concepts.
- ◆ Includes a new mini-case highlighting Walmart and Target

Chapter 7**The Valuation and Characteristics of Bonds**

- ◆ Provides additional real-world examples
- ◆ A new *Finance at Work* feature describes a bond issued by Apple called a *green bond*

Chapter 8**The Valuation and Characteristics of Stock**

- ◆ Revised to describe the events leading to Netflix becoming one of the most highly valued stocks in the marketplace
- ◆ The *Finance at Work* box has been revised on reading stock quotes in the *Wall Street Journal*
- ◆ Includes updated chapter examples

Chapter 9**The Cost of Capital**

- ◆ All illustrative examples have been updated to reflect changed financial conditions
- ◆ Includes an updated discussion of tax considerations to reflect the 2017 revision to the U. S. tax code, which imposes a maximum corporate tax rate of 21 percent

- ◆ New *Finance at Work* insert discusses the new tax law and limitations to the deductibility of interest expense to a maximum of 30 percent of firm earnings before interest and taxes plus depreciation and amortization (EBITDA)
- ◆ Figure revision illustrates the dramatic differences in capital structures used by firms in very different types of industries to reflect the current capital structures of retailer Bed, Bath and Beyond (BBBY) and oil and gas production company, Wildhorse Resources (WRD)

Chapter 10

Capital-Budgeting Techniques and Practice

- ◆ Includes an extensively revised chapter introduction, which looks at Disney's decision to build the Shanghai Disney Resort
- ◆ Offers a simplified, intuitive discussion of the IRR and MIRR
- ◆ Offers a simplified, intuitive discussion of the ranking of mutually exclusive projects
- ◆ Includes an expanded problem set.

Chapter 11

Cash Flows and Other Topics in Capital Budgeting

- ◆ Revised the calculation of operating cash flows to reflect the changes resulting from passage of the Tax Cuts and Jobs Act of 2017, in particular bonus depreciation
- ◆ Includes revised examples and problems, which reflect the change in the calculation of depreciation
- ◆ Includes an expanded problem set.

Chapter 12

Determining the Financing Mix

- ◆ Offers a revised chapter introduction using a comparison of social media firm, Snap Inc. and computer chip maker, Broadcom (AVGO)
- ◆ Revised problem examples and end-of-chapter exercises reflect the tax code revision of 2017
- ◆ A new mini-case that analyzes the capital structure of Wildhorse Resources (WRD) focuses on whether a bank should agree to a loan extension for the firm considering its current capital structure and operating conditions

Chapter 13

Dividend Policy and Internal Financing

- ◆ Updated discussion of dividend policy reflects the revision to the U.S. tax code
- ◆ A streamlined discussion of tax implications for dividend policy focuses on the applicable tax rates for dividends and capital gains
- ◆ Revised end-of-chapter study problems reflect changes in the tax code

Chapter 14

Short-Term Financial Planning

- ◆ Revised end-of-chapter problems and in-chapter examples reflect changes to the U.S. tax code

Chapter 15

Working-Capital Management

- ◆ New *Finance at Work* insert evaluates the cost of Payday loans using the same method used to evaluate the cost of trade credit. Students will be surprised to see how expensive these loans are and the fact that they are indeed legal

Chapter 16 International Business Finance

- ◆ Extensive revisions reflect changes in exchange rates and global financial markets
- ◆ A new section titled “Repatriation of Profits and Taxation of Profits Abroad” deals with the changes resulting from the passage of the Tax Cuts and Jobs Act of 2017

Web Chapter 17 Cash, Receivables, and Inventory Management

- ◆ Discussion of cash management has been simplified and reduced in coverage so that students can more easily grasp the important concepts underlying its management

The *Foundations of Finance* Tenth Edition Program

The 10th Edition of *Foundations of Finance* continues its drive to provide the student with an intuitive understanding of financial management while providing them with the concepts and skills needed for the successful manager. An understanding that emphasizes the logic and fundamental principles that drive the field of finance allows students to effectively deal with financial problems in an ever-changing financial environment.

To improve student results, we recommend pairing the text content with MyLab Finance, which is the teaching and learning platform that empowers you to reach every student. By combining trusted author content with digital tools and a flexible platform, MyLab personalizes the learning experience and will help your students learn and retain key course concepts while developing skills that future employers are seeking in their candidates. Select end-of-chapter problems in the text 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.

Another form of learning technology offered with this course is the lecture video. We have recorded brief (10–15 minute) lecture videos to accompany all the numbered in-text examples so that the students can replay them as many times as they need to help them understand more fully each of the in-text examples. Students will benefit from being “tutored” when it comes to the primary examples in the text. The videos can be found in the Multimedia Library as well as the eText within MyLab Finance.

Solving Teaching and Learning Challenges

In our opinion, the success of this textbook derives from our focus on maintaining *pedagogy that works*. We endeavor to provide students with a conceptual understanding of the financial decision-making process that includes a survey of the tools and techniques of finance. For the student, it is all too easy to lose sight of the logic that drives finance and to focus instead on memorizing formulas and procedures. As a result, students have a difficult time understanding the interrelationships among the topics covered. Moreover, later in life, when the problems encountered do not match the textbook

presentation, students may find themselves unprepared to abstract from what they have learned. We have worked to be “good at the basics.” To achieve this goal, we have refined the book over the last ten editions to include the following features.

Building on Foundational Finance Principles

Chapter 1 presents five foundational principles of finance which are the threads that bind all the topics of the book. Then throughout the text, we provide reminders of the foundational principles in “Remember Your Principles” boxes.

The five principles of finance allow us to provide an introduction to financial decision making rooted in current financial theory and in the current state of world economic conditions. What results is an introductory treatment of a discipline rather than the treatment of a series of isolated financial problems that managers encounter.

LO2 Understand the basic principles of finance, their importance, and the importance of ethics and trust.

Five Principles That Form the Foundations of Finance

To the first-time student of finance, the subject matter may seem like a collection of unrelated decision rules. This impression could not be further from the truth. In fact, our decision rules, and the logic that underlies them, spring from five simple principles that do not require knowledge of finance to understand. These five principles guide the financial manager in the creation of value for the firm’s owners (the stockholders).

As you will see, although it is not necessary to understand finance to understand these principles, it is necessary to understand these principles in order to understand finance. These principles may at first appear simple or even trivial, but they provide the driving force behind all that follows, weaving together the concepts and techniques presented in this text, and thereby allowing us to focus on the logic underlying the practice of financial management. Now let’s introduce the five principles.

PRINCIPLE 1

Principle 1: Cash Flow Is What Matters

You probably recall from your accounting classes that a company’s profits can differ dramatically from its cash flows, which we will review in Chapter 3. But for now

Use of an Integrated Learning System

The text is organized around the learning objectives that appear at the beginning of each chapter to provide the instructor and student with an easy-to-use integrated learning system. Numbered icons identifying each objective appear next to the related material throughout the text and in the summary, allowing easy location of material related to each objective.

A Focus on Valuation

Although many professors and instructors make valuation the central theme of their course, students often lose sight of this focus when reading their text. We reinforce this focus in the content and organization of our text in some very concrete ways:

- ◆ We build our discussion around the five finance principles that provide the foundation for the valuation of any investment.
- ◆ We introduce new topics in the context of “what is the value proposition?” and “how is the value of the enterprise affected?”

Real-World Opening Vignettes

Each chapter begins with a story about a current, real-world company faced with a financial decision related to the chapter material that follows. These vignettes have been carefully prepared to stimulate student interest in the topic to come and can be used as a lecture tool to provoke class discussion.

CHAPTER 1

An Introduction to the Foundations of Financial Management

Learning Objectives

LO1 Identify the goal of the firm.	The Goal of the Firm
LO2 Understand the basic principles of finance, their importance, and the importance of ethics and trust.	Five Principles That Form the Foundations of Finance
LO3 Describe the role of finance in business.	The Role of Finance in Business
LO4 Distinguish among the different legal forms of business organization.	The Legal Forms of Business Organization
LO5 Explain what has led to the end of the multinational corporation.	Finance and the Multinational Firm: The New Role
LO6 Describe how this course and the skills you will develop in it will help you in your career and in your life.	Developing Skills for Your Career

Apple Computer (AAPL) ignited the personal computer revolution in the 1970s with the Apple I and reinvented the personal computer in the 1980s with the Macintosh. But by 1997, Apple stock was selling for 50 cents per share and it looked like it might be nearing the end for Apple. Mac users were on the decline, and the company didn't seem to be headed in any real direction. It was at that point that Steve Jobs reappeared, taking back his old job as CEO of Apple, the company he cofounded in 1976. To say the least, things began to change. In fact, 22 years later, in 2018, the price of Apple's common stock was up to \$180 per share, climbing about 360-fold!

How did Apple accomplish this? The company did it by going back to what it does best, which is to produce products that make the optimal trade-off among ease of use, complexity, and features. Apple took its special skills and applied them to more than just computers, introducing new products such as the iPod, iTunes, the sleek iMac, the MacBook air, the iPad Touch, and the iPhone along with its untold “spin-off” products. Although all these products have done well, the success of the iPod has been truly amazing.

Between the introduction of the iPod in October 2001 and the beginning of 2005, Apple sold more than 60 million of the devices. Then, in 2004, it came out with the iPod Mini, about the length and width of a business card, which has also been a huge success, particularly among women. How successful has this new product been? By 2004, Apple was selling more iPods than its signature Macintosh desktop and notebook computers.

How do you follow up on the success of the iPod? You keep improving and retooling your products, and you keep developing and introducing new products that consumers want—the iPhone. With this in mind, in September 2017, Apple unveiled its iPhone 8 and iPhone X, which immediately dominated smart phone sales, accounting for 61 percent of smartphone sales in the fourth quarter of 2017.

In effect, Apple seems to have a never-ending supply of new, exciting products that we all want. In 2014 Apple bought Beats for \$3 billion; then in April 2015, Apple introduced the Apple Watch; and while there have been rumors about introducing an Apple Car in 2020, it now looks like Apple is gearing up to release an augmented reality headset in the near future. Through all of this, Apple has developed and expanded its services including Apple Pay, Apple Music, the iTunes Store, and iCloud to the point where, in 2018, these new services account for about 16 percent of their total revenue.

How did Apple make the decision to introduce the original iPod and then the iPad? The answer is by identifying a customer need, combined with sound financial management. Financial management deals with the maintenance and creation of economic value or wealth by focusing on decision-making with an eye toward creating wealth. This text deals with financial decisions such as when to introduce a new product, when to invest in new assets, when to replace existing assets, when to borrow from banks, when to sell stocks or bonds, when to extend credit to a customer, and how much cash and inventory to maintain. All of these aspects of financial management were factors in Apple's decision to introduce and continuously improve the iPod, iPhone, and iPad, and the end result is having a major financial impact on Apple.

In this chapter, we lay the foundation for the entire book by explaining the key goal that guides financial decision-making: maximizing shareholder wealth. From there we introduce the thread that ties everything together: the five basic principles of finance. Finally, we discuss the legal forms of business. We close the chapter with a brief look at what has led to the rise in multinational corporations.

The Goal of the Firm

The fundamental goal of a business is to create value for the company's owners (i.e., its shareholders). This goal is frequently stated as “maximization of shareholder wealth.” Thus, the goal of the financial manager is to create wealth for the shareholders by making decisions that will maximize the price of the existing common stock.

2

3

A Step-by-Step Approach to Problem Solving and Analysis

As anyone who has taught the core undergraduate finance course knows, students demonstrate a wide range of math comprehension and skill. Students who do not have the math skills needed to master the subject sometimes end up memorizing formulas rather than focusing on the analysis of business decisions using math as a tool. We address this problem in terms of both text content and pedagogy.

- ◆ First, we present math only as a tool to help us analyze problems, and only when necessary. We do not present math for its own sake.
- ◆ Second, finance is an analytical subject and requires that students be able to solve problems. To help with this process, numbered chapter examples appear throughout the book. All of these examples follow a very detailed and structured three-step approach to problem solving that helps students develop their problem-solving skills:

STEP 1: Formulate a Decision Strategy

A company's financing decisions can be evaluated by considering two questions: (1) How much debt is used to finance the firm's assets? (2) Does a company have the ability to service its debt interest payments? These two issues can be assessed by using the debt ratio and the times interest earned ratio, respectively, calculated as follows:

$$\text{Debt ratio} = \frac{\text{total debt}}{\text{total assets}}$$

$$\text{Times interest earned} = \frac{\text{operating profits}}{\text{interest expense}}$$

STEP 2: Crunch the Numbers

A comparison of Disney's debt ratio and times interest earned with the industry is as follows:

	Disney	Industry
Debt ratio	56%	34.21%
Times interest earned	36.81X	8.50X

STEP 3: Analyze Your Results

Disney uses significantly more debt financing than the average firm in the industry. The higher debt ratio implies that the firm has greater financial risk. Even so, Disney appears to have no difficulty servicing its debt, covering its interest 36.81 times compared only to 8.5 times for the average firm in the industry. Disney's higher *times interest earned* is attributable to a significantly higher operating return on its assets (14.79% for Disney and 9.24% for the industry), which more than offsets the firm's use of more debt.

Step 1: Formulate a Solution Strategy. For example, what is the appropriate formula to apply? How can a calculator or spreadsheet be used to "crunch the numbers"?

Step 2: Crunch the Numbers. Here we provide a completely worked out step-by-step solution. We present first a description of the solution in prose and then a corresponding mathematical implementation.

Step 3: Analyze Your Results. We end each solution with an analysis of what the solution means. This stresses the point that problem solving is about analysis and decision making. Moreover, in this step we emphasize that decisions are often based on incomplete information, which requires the exercise of managerial judgment, a fact of life that is often learned on the job.

CAN YOU DO IT?

Solving for the Real Rate of Interest

Your banker just called and offered you the chance to invest your savings for 1 year at a quoted rate of 10 percent. You also saw on the news that the inflation rate is 6 percent. What is the real rate of interest you would be earning if you made the investment? (The solution can be found on page 42.)

DID YOU GET IT?

Solving for the Real Rate of Interest

$$\begin{aligned} \text{Nominal or quoted rate of interest} &= \text{real rate of interest} + \text{anticipated rate of inflation} + \text{product of the real rate of interest and the inflation rate} \\ 0.10 &= \text{real rate of interest} + 0.06 + 0.06 \times \text{real rate of interest} \\ 0.04 &= 1.06 \times \text{real rate of interest} \end{aligned}$$

Solving for the real rate of interest:

$$\text{Real rate of interest} = 0.0377 = 3.77\%$$

"Can You Do It?" and "Did You Get It?"

The text provides examples for the students to work at the conclusion of each major section of a chapter, which we call "Can You Do It?," followed by "Did You Get It?" later in the chapter. This tool provides an essential ingredient in the building-block approach to the material that we use.

Concept Check

At the end of major chapter sections we include a brief list of questions that are designed to highlight key ideas presented in the section.

Concept Check

1. According to Principle 3, how do investors decide where to invest their money?
2. What is an efficient market?
3. What is the agency problem, and why does it occur?
4. Why are ethics and trust important in business?

Financial Decision Tools

A feature that has proven popular with students has been our recapping of key equations shortly after their discussion. Students get to see an equation within the context of related equations.

FINANCIAL DECISION TOOLS		
Name of Tool	Formula	What It Tells You
Bond value when interest is paid semiannually	$V_0 = \frac{\$t/2}{(1 + \frac{r}{2})^1} + \frac{\$t/2}{(1 + \frac{r}{2})^2} + \frac{\$t/2}{(1 + \frac{r}{2})^3} + \dots + \frac{\$t/2}{(1 + \frac{r}{2})^{2n}} + \frac{\$M}{(1 + \frac{r}{2})^{2n}}$	Calculates the value of a bond as the present value of both future interest payments received semiannually and the par value of the bond to be received at maturity.

Financial Calculators and Excel Spreadsheets

The use of financial calculators and Excel spreadsheets has been integrated throughout the text, especially with respect to presentation of the time value of money and valuation. Where appropriate, actual calculator and spreadsheet solutions appear in the text.

CALCULATOR SOLUTION	
Data Input	Function Key
360	N
6.5/12	I/Y
-1,250	PMT
0	FV
Function Key	Answer
CPT	
PV	197,763.52

	A	B
1	interest rate (rate) =	0.5417%
2	number of periods (nper) =	360
3	payment (pmt) =	1,250
4	future value (fv) =	0
5		
6	present value (pv) =	(\$197,763.52)
7	Entered values in cell b6: =PV((6.5/12)% ,b2,b3,b4)	
8		

Chapter Summaries That Bring Together Concepts, Terminology, and Applications

The chapter summaries have been written in a way that connects them to the in-chapter sections and learning objectives. For each learning objective, the student sees in one place the concepts, new terminology, and key equations that were presented in the objective.

Revised Study Problems

With each edition, we have provided new and revised end-of-chapter study problems to refresh their usefulness in teaching finance. Also, the study problems continue to be organized according to learning objective so that both the instructor and student can readily align text and problem materials. New to this edition, the Study Problems with Excel icons indicate that Auto Graded Excel Project spreadsheets are available in MyLab Finance.



Chapter Summaries

LO1 Explain the purpose and importance of financial analysis. (pgs. 100–103)

SUMMARY: A variety of groups find financial ratios useful. For instance, both managers and shareholders use them to measure and track a company's performance over time. Financial analysts outside of the firm who have an interest in its economic well-being also use financial ratios. An example of this group would be a loan officer of a commercial bank who wishes to determine the creditworthiness of a loan applicant and its ability to pay the interest and principal associated with the loan request.

KEY TERMS

Financial ratios, page 101 accounting data identify some of the financial strengths and restated in relative terms to help people weaknesses of a company.

-  **10-12. (NPV with different required rates of return)** Mooby's is considering building a new theme park. After future cash flows were estimated, but before the project could be evaluated, the economy picked up and with that surge in the economy interest rates rose. That rise in interest rates was reflected in the required rate of return Mooby's used to evaluate new projects. As a result, the required rate of return for the new theme park jumped from 9.5 percent to 11.00 percent. If the initial outlay for the park is expected to be \$250 million and the project is expected to return free cash flows of \$50 million in years 1 through 5 and \$75 million in years 6 and 7, what is the project's NPV using the new required rate of return? How much did the project's NPV change as a result of the rise in interest rates?
-  **10-13. (IRR with uneven cash flows)** The Tiffin Barker Corporation is considering introducing a new currency verifier that has the ability to identify counterfeit dollar bills. The required rate of return on this project is 12 percent. What is the IRR on this project if it is expected to produce the following free cash flows?

Mini Case

This Mini Case is available in MyLab Finance.

The final stage in the interview process for an assistant financial analyst at Caledonia Products involves a test of your understanding of basic financial concepts. You are given the following memorandum and asked to respond to the questions. Whether you are offered a position at Caledonia will depend on the accuracy of your response.

To: Applicants for the position of Financial Analyst
 From: Mr. V. Morrison, CEO, Caledonia Products
 Re: A test of your understanding of basic financial concepts and of the corporate tax code

Please respond to the following questions:

- a. What is the appropriate goal for the firm and why?
- b. What does the risk–return trade-off mean?
- c. Why are we interested in cash flows rather than accounting profits in determining the value of an asset?
- d. What is an efficient market, and what are the implications of efficient markets for us?
- e. What is the cause of the agency problem, and how do we try to solve it?
- f. What do ethics and ethical behavior have to do with finance?
- g. Define (1) sole proprietorship, (2) partnership, and (3) corporation.

Comprehensive Mini Cases

A comprehensive Mini Case appears at the end of almost every chapter, covering all the major topics included in that chapter. Each Mini Case can be used as a lecture or review tool by the professor. For the students, the Mini Case provides an opportunity to apply all the concepts presented within the chapter in a realistic setting, thereby strengthening their understanding of the material.

Additional MyLab Finance Features

A Powerful Homework and Test Manager. A powerful homework and test manager lets you create, import, and manage online homework assignments, quizzes, and tests that are automatically graded. You can choose from a wide range of assignment options, including time limits, proctoring, and maximum number of attempts allowed. The

bottom line: MyLab Finance means less time grading and more time teaching. Please visit www.pearson.com/mylab/finance to access the full set of features available in MyLab Finance.

Study Plan. The Study Plan gives personalized recommendations for each student, based on his or her ability to master the learning objectives in your course. This allows students to focus their study time by pinpointing the precise areas they need to review, and allowing them to use customized practice and learning aids — such as videos, eTexts, tutorials, and more — to help students stay on track.

Pearson eText. Pearson eText enhances learning — both in and out of the classroom. Students can take notes, highlight, and bookmark important content, or engage with interactive lecture and example videos that bring learning to life anytime, anywhere via MyLab or the app. Pearson eText enhances learning — both in and out of the classroom. Worked examples, videos, and interactive tutorials engage students while algorithmic practice and self-assessment opportunities test students' understanding of the material via MyLab or the app.

Learning Management System (LMS) Integration. You can now link from Blackboard Learn, Brightspace by D2L, Canvas, or Moodle to MyLab Finance. Access assignments, rosters, and resources, and synchronize grades with your LMS gradebook. For students, single sign-on provides access to all the personalized learning resources that make studying more efficient and effective.

Excel Projects. Using proven, field-tested technology, auto-graded Excel Projects let you seamlessly integrate Microsoft Excel content into your course without having to manually grade spreadsheets. Students can practice important statistical skills in Excel, helping them master key concepts and gain proficiency with the program. They simply download a spreadsheet, work live on a statistics problem in Excel, and then upload that file back into MyLab Finance. Within minutes, they receive a report that provides personalized, detailed feedback to pinpoint where they went wrong in the problem.

Financial Calculator. Students can access a fully functional Financial Calculator inside MyLab Finance and a financial calculator app that they can download to their iPhone®, iPad®, or Android device — so they can perform financial calculations and complete assignments, all in the same place.

Question Help. Question Help consists of homework and practice questions to give students unlimited opportunities to master concepts. If students get stuck, learning aids like Help Me Solve This, View an Example, eText Pages, and a Financial Calculator walk them through the problem and show them helpful info in the text — giving them assistance when they need it most.

Worked Out Solutions. Worked Out Solutions are available to students when they are reviewing their submitted and graded homework. They provide step-by-step explanations on how to solve the problem using the exact numbers and data presented in the original problem. Instructors have access to Worked Out Solutions in preview and review mode.

Please visit www.pearson.com/mylab/finance to access the full set of features available in MyLab Finance.

Developing Employability Skills

For students to succeed in a rapidly changing job market, they should be aware of their career options and how to go about developing the necessary skills. With MyLab Finance and *Foundations of Finance*, we focus on developing these skills in the following ways:

Excel Skills Today, Excel is the primary spreadsheet analysis and modeling tool used in business, and a basic competence in Excel will go a long way towards a successful business career. The power to import data from various files and documents makes Excel the perfect tool for business analysis. In MyLab Finance, there are numerous problems available as auto-graded Excel Projects, which are identified in the text with an Excel icon. Using proven, field-tested technology, these projects seamlessly integrate Microsoft Excel content into the course while avoiding the need to manually grade spreadsheets. This feature allows students the opportunity to practice important finance skills in Excel, helping them to master key concepts and gain proficiency with the program.

Critical Thinking Skills This text begins with the presentation of five foundational principles of finance, which are the threads that bind all the topics of the book. Then, throughout the book, these five foundational principles are revisited in “Remember Your Principles” boxes. These five principles of finance allow us to tie the material together and, as a result, demonstrate the common root of financial theory and financial practice. The end result is an introductory treatment of a discipline rather than the treatment of a series of isolated financial problems that managers encounter. This approach allows students to learn more than simply how to calculate the correct answers to problems. It allows them to understand why problems are approached in different ways and to critically interpret problems, design solutions, and analyze and evaluate their solutions. In effect, students learn the tools of analysis, but more importantly, develop an intuitive understanding of why and what they are doing in their analysis. To conduct this analysis, forecast the future, and discount those cash flows, they must make many assumptions about specific variables. By tying together the logic and fundamental principles that drive the field of finance, students are encouraged to develop their critical thinking skills and effectively deal with financial problems in an ever-changing financial environment.

Data Analysis Skills Finance deals with decision making within the firm—when to introduce a new product, make an investment, or how to value a financial asset like a bond or a share of common stock. Gaining an understanding of the decision-making process and the analytical tool set necessary to make those decisions reflects the core of finance and this text.

Table of Contents Overview

Part 1	The Scope and Environment of Financial Management	
	1 An Introduction to the Foundations of Financial Management	Introduces the framework for the maintenance and creation of shareholder wealth, which should be the goal of the firm and its managers, followed by a look at the basic principles of finance. The different legal forms of organization are also discussed along with multinational corporations.
	2 The Financial Markets and Interest Rates	Examines key components of the US financial market system and the financing of business, and the process of raising funds in capital markets. Historical rates of return are examined along with the fundamentals of interest rate determination.
	3 Understanding Financial Statements and Cash Flows	Financial statements are in some ways the “language of business.” As a manager, there are simply some things about a business that can only be understood through a firm’s financial statements. This chapter examines the three basic financial statements that are used to understand how a firm is doing financially, including (1) income statements, (2) balance sheets, and (3) statements of cash flows.
	4 Evaluating a Firm’s Financial Performance	Identifies important financial relationships of interest to managers, lenders, and shareholders to give more meaning to the financial statements.
Part 2	The Valuation of Financial Assets	
	5 The Time Value of Money	Examines the time value of money, looking at calculations associated with moving money through time.
	6 The Meaning and Measurement of Risk and Return	Explains the nature of risk and how risk <i>should</i> relate to expected returns on investments.
	7 The Valuation and Characteristics of Bonds	Explains how bonds and stocks are valued in the marketplace; identifies the different kinds of bonds and their features; and examines the procedures for valuing an asset and applying these ideas to valuing bonds.
	8 The Valuation and Characteristics of Stock	Focuses on the characteristics of common and preferred stocks, and examines how to value them using the same concept for valuing both preferred stock and common stock.
	9 The Cost of Capital	The cost of capital is a key determinant of whether a firm’s investment choices will create value for the firm’s stockholders. In this chapter we evaluate a firm’s overall cost of capital and discuss the estimation of divisional costs of capital.
Part 3	Investment in Long-Term Assets	
	10 Capital-Budgeting Techniques and Practice	Presents capital-budgeting techniques, including the payback period, discounted payback period, net present value, internal rate of return, and the modified internal rate of return.
	11 Cash Flows and Other Topics in Capital Budgeting	Presents cash flow guidelines and examines the calculation of a project’s free cash flows; focuses on options in capital budgeting, closing with an examination of risk and the investment decision.
Part 4	Capital Structure and Dividend Policy	
	12 Determining the Financing Mix	When firms make investment decisions they must simultaneously decide what investments to undertake and how they will finance those investments. In this chapter we investigate the factors underlying the decision process that sometimes leads the firms to borrow money and at other times issue new shares of stock.
	13 Dividend Policy and Internal Financing	Dividend policy and a firm’s decision to retain earnings to help finance its investments are opposite sides of the same coin. A decision to pay out a portion of firm earnings to its stockholders in the form of a cash dividend or a stock repurchase is a decision not to retain those earnings and reinvest them in the firm. In this chapter we review various theories concerning why firms choose to pay cash dividends or retain and reinvest earnings.

Part 5 Working-Capital Management and International Business Finance		
	14 Short-Term Financial Planning	In order to assure that the firm has the funds it needs to support its day-to-day operations, it is crucial that it forecast those financing needs as part of its planning process. In this chapter we discuss the percent of sales method for preparing a financial forecast as well as the cash budget.
	15 Working-Capital Management	Overviews working capital management as it relates to the analysis of the firm's investment in short-term or current assets and its use of short-term or current liabilities. Discusses how the balancing of these two accounts will determine the ability of the firm to pay its bills on time or firm liquidity.
	16 International Business Finance	Examines foreign exchange markets and currency exchange rates; the concepts of interest rate parity, purchasing power parity, and the law of one price; and capital budgeting for direct foreign investment.
	Web 17 Cash, Receivables, and Inventory Management	Discusses the theory behind managing a firm's liquidity by managing its working capital and the fact that this is primarily accomplished by the management of cash, accounts receivables, and inventories.

Instructor Teaching Resources

The Instructor's Resource Center, accessible at <http://www.pearsonhighered.com/irc>, hosts all of the instructor resources that follow. Instructors can register online for access or may contact their sales representative for further information.

Supplements available to instructor at www.pearsonhighered.com/irc	Features of the Supplement
Instructor's Resource Manual Authored by Sonya Britt-Lutter from Kansas State University	<ul style="list-style-type: none"> • Chapter orientations • Chapter outlines • Solutions to end-of-chapter Review Questions, Study Problems, and Mini Cases, as well as any associated Excel files
Test Bank Authored by Rodrigo J. Hernandez from Radford University	<p>More than 1600 multiple-choice, true/false, short-answer, and graphing Questions with these annotations:</p> <ul style="list-style-type: none"> • Type (multiple-choice, true/false, short-answer, essay) • Topic (the term or concept the question supports) • Learning outcome • AACSB learning standard (written and oral communication; ethical understanding and reasoning; analytical thinking; information technology; interpersonal relations and teamwork; diverse and multicultural work; reflective thinking; application of knowledge)
Computerized TestGen	<p>TestGen allows instructors to:</p> <ul style="list-style-type: none"> • 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 Sonya Britt-Lutter from Kansas State University	<p>PowerPoints include lecture notes, key equations, and figures and tables from the text. In addition, these the slides meet accessibility standards for students with disabilities. Features include, but are not limited to:</p> <ul style="list-style-type: none"> • Keyboard and screen reader access • Alternative text for images • High color contrast between background and foreground colors

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Joan Anderssen, Arapahoe Community College	Robert W. Everett, Lock Haven University
Chris Armstrong, Draughons Junior College	Cheryl Fetterman, Cape Fear Community College
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—A.J.K./J.D.M./J.W.P.

CHAPTER

1

An Introduction to the Foundations of Financial Management

Learning Objectives

LO1	Identify the goal of the firm.	The Goal of the Firm
LO2	Understand the basic principles of finance, their importance, and the importance of ethics and trust.	Five Principles That Form the Foundations of Finance
LO3	Describe the role of finance in business.	The Role of Finance in Business
LO4	Distinguish among the different legal forms of business organization.	The Legal Forms of Business Organization
LO5	Explain what has led to the era of the multinational corporation.	Finance and the Multinational Firm: The New Role
LO6	Describe how this course and the skills you will develop in it will help you in your career and in your life.	Developing Skills for Your Career

Apple Computer (AAPL) ignited the personal computer revolution in the 1970s with the Apple II and reinvented the personal computer in the 1980s with the Macintosh. But by 1997, Apple stock was selling for 50 cents per share and it looked like it might be nearing the end for Apple. Mac users were on the decline, and the company didn't seem to be headed in any real direction. It was at that point that Steve Jobs reappeared, taking back his old job as CEO of Apple, the company he cofounded in 1976. To say the least, things began to change. In fact, 22 years later, in 2018, the price of Apple's common stock was up to \$180 per share, climbing about 360 fold!

How did Apple accomplish this? The company did it by going back to what it does best, which is to produce products that make the optimal trade-off among ease of use, complexity, and features. Apple took its special skills and applied them to more than just computers, introducing new products such as the iPod, iTunes, the sleek iMac, the MacBook Air, the iPod Touch, and the iPhone along with its unlimited "apps." Although all these products have done well, the success of the iPod has been truly amazing.

Between the introduction of the iPod in October 2001 and the beginning of 2005, Apple sold more than 6 million of the devices. Then, in 2004, it came out with the iPod Mini, about the length and width of a business card, which has also been a huge success, particularly among women. How successful has this new product been? By 2004, Apple was selling more iPods than its signature Macintosh desktop and notebook computers.

How do you follow up on the success of the iPod? You keep improving and revising your products, and you keep developing and introducing new products that consumers want—the iPhone. With this in mind, in September 2017, Apple unveiled its iPhone 8 and iPhone X, which immediately dominated smart phone sales, accounting for 61 percent of smartphone sales in the fourth quarter of 2017.

In effect, Apple seems to have a never-ending supply of new, exciting products that we all want. In 2014 Apple bought Beats for \$3 billion; then in April 2015, Apple introduced the Apple Watch; and while there have been rumors about introducing an Apple Car in 2020s, it now looks like Apple is gearing up to release an augmented reality headset in the near future. Through all of this, Apple has developed and expanded its services including Apple Pay, Apple Music, the iTunes Store, and iCloud to the point where, in 2018, these new services account for about 16 percent of their total revenue.

How did Apple make the decision to introduce the original iPod and then the iPad? The answer is by identifying a customer need, combined with sound financial management. Financial management deals with the maintenance and creation of economic value or wealth by focusing on decision making with an eye toward creating wealth. This text deals with financial decisions such as when to introduce a new product, when to invest in new assets, when to replace existing assets, when to borrow from banks, when to sell stocks or bonds, when to extend credit to a customer, and how much cash and inventory to maintain. All of these aspects of financial management were factors in Apple's decision to introduce and continuously improve the iPod, iPhone, and iPad, and the end result is having a major financial impact on Apple.

In this chapter, we lay the foundation for the entire book by explaining the key goal that guides financial decision making: maximizing shareholder wealth. From there we introduce the thread that ties everything together: the five basic principles of finance. Finally, we discuss the legal forms of business. We close the chapter with a brief look at what has led to the rise in multinational corporations.



The Goal of the Firm

The fundamental goal of a business is to create value for the company's owners (i.e., its shareholders). This goal is frequently stated as "maximization of shareholder wealth." Thus, the goal of the financial manager is to create wealth for the shareholders by making decisions that will maximize the price of the existing common stock.

LO1 Identify the goal of the firm.

Not only does this goal directly benefit the shareholders of the company, but it also provides benefits to society as scarce resources are directed to their most productive use by businesses competing to create wealth.

We have chosen maximization of shareholder wealth—that is, maximizing the market value of the existing shareholders' common stock—because all financial decisions ultimately affect the firm's stock price. Investors react to poor investment or dividend decisions by causing the total value of the firm's stock to fall, and they react to good decisions by pushing up the price of the stock. In effect, under this goal, good decisions are those that create wealth for the shareholder.

Obviously, some serious practical problems arise when we use changes in the value of the firm's stock to evaluate financial decisions. Many things affect stock prices. Attempting to identify a reaction to a particular financial decision would simply be impossible, and fortunately, unnecessary. To employ this goal, we need not consider every stock price change to be a market interpretation of the worth of our decisions. Other factors, such as changes in the economy, also affect stock prices. What we do focus on is the effect that our decision *should have* on the stock price if everything else were held constant. The market price of the firm's stock reflects the value of the firm as seen by its owners and takes into account the complexities and complications of the real-world risk. As we follow this goal throughout our discussions, we must keep in mind one more question: Who exactly are the shareholders? The answer: Shareholders are the legal owners of the firm.

Concept Check

1. What is the goal of the firm?
2. How would you apply this goal in practice?

LO2 Understand the basic principles of finance, their importance, and the importance of ethics and trust.

Five Principles That Form the Foundations of Finance

To the first-time student of finance, the subject matter may seem like a collection of unrelated decision rules. This impression could not be further from the truth. In fact, our decision rules, and the logic that underlies them, spring from five simple principles that do not require knowledge of finance to understand. These five principles guide the financial manager in the creation of value for the firm's owners (the stockholders).

As you will see, although it is not necessary to understand finance to understand these principles, it is necessary to understand these principles in order to understand finance. These principles may at first appear simple or even trivial, but they provide the driving force behind all that follows, weaving together the concepts and techniques presented in this text, and thereby allowing us to focus on the logic underlying the practice of financial management. Now let's introduce the five principles.

PRINCIPLE 1

Principle 1: Cash Flow Is What Matters

You probably recall from your accounting classes that a company's profits can differ dramatically from its cash flows, which we will review in Chapter 3. But for now understand that cash flows, not profits, represent money that can be spent. Consequently, it is cash flow, not profits, that determines the value of a business. For this reason when we analyze the consequences of a managerial decision, we focus on the resulting cash flows, not profits.

In the movie industry, there is a big difference between accounting profits and cash flow. Many a movie is crowned a success and brings in plenty of cash flow for the studio but doesn't produce a profit. Even some of the most successful box

office hits—*Forrest Gump*, *Coming to America*, *Batman*, and *My Big Fat Greek Wedding*—realized no accounting profits at all after accounting for various movie studio costs. That’s because “Hollywood Accounting” allows for overhead costs not associated with the movie to be added on to the true cost of the movie. In fact, the movie *Harry Potter and the Order of the Phoenix*, which grossed almost \$1 billion worldwide, actually lost \$167 million according to the accountants. Was *Harry Potter and the Order of the Phoenix* a successful movie? It certainly was—in fact, it was the 42nd highest grossing film of all time. Without question, it produced cash, but it didn’t make any profits.

We need to make another important point about cash flows. Recall from your economics classes that we should always look at marginal, or **incremental, cash flows** when making a financial decision. The incremental cash flow to the company as a whole is *the difference between the cash flows the company will produce with versus without the investment it’s thinking about making*. To understand this concept, let’s think about the incremental cash flows of the movie *Frozen*. Not only did Disney make money on this movie, but it also made an awful lot of money on merchandise from the movie. While Anna and Elsa pulled in an incredible \$1.3 billion at the box office, sales of *Frozen* toys, clothing, and games along with the soundtrack brought in about that same amount. And now, with *Frozen* on Broadway and a sequel coming in late 2019, Disney is singing “Let It Go” all the way to the bank.

incremental cash flow the difference between the cash flows a company will produce both with and without the investment it is thinking about making.

Principle 2: Money Has a Time Value

Perhaps the most fundamental principle of finance is that money has a “time” value. Very simply, a dollar received today is more valuable than a dollar received one year from now because we can invest the dollar we have today to earn interest so that at the end of one year we will have more than one dollar.

For example, suppose you have a choice of receiving \$1,000 either today or one year from now. If you decide to receive it a year from now, you will have passed up the opportunity to earn a year’s interest on the money. Economists would say you suffered an “opportunity loss” or an “opportunity cost.” The cost is the interest you could have earned on the \$1,000 if you had invested it for one year. The concept of opportunity costs is fundamental to the study of finance and economics. Very simply, the **opportunity cost** of any choice you make is *the highest-valued alternative that you had to give up when you made the choice*. So if you loan money to your brother at no interest, money that otherwise would have been loaned to a friend (who is equally likely to repay you) for 8 percent interest, then the opportunity cost of making the loan to your brother is 8 percent.

In the study of finance, we focus on the creation and measurement of value. To measure value, we use the concept of the time value of money to bring the future benefits and costs of a project, measured by its cash flows, back to the present. Then, if the benefits or cash inflows outweigh the costs, the project creates wealth and should be accepted; if the costs or cash outflows outweigh the benefits or cash inflows, the project destroys wealth and should be rejected. Without recognizing the existence of the time value of money, it is impossible to evaluate projects with future benefits and costs in a meaningful way.

PRINCIPLE 2

opportunity cost the cost of making a choice in terms of the next best alternative that must be foregone.

Principle 3: Risk Requires a Reward

Even the novice investor knows there are an unlimited number of investment alternatives to consider. But without exception, investors will not invest if they do not expect to receive a return on their investment. They will want a return that satisfies two requirements:

- ◆ *A return for delaying consumption.* Why would anyone make an investment that would not at least pay them something for delaying consumption? They won’t—even if there is no risk. In fact, investors will want to receive at least the same

PRINCIPLE 3

return that is available for risk-free investments, such as the rate of return being earned on U.S. government securities.

- ◆ *An additional return for taking on risk.* Investors generally don't like risk. Thus, risky investments are less attractive—*unless* they offer the prospect of higher returns. That said, the more unsure people are about how an investment will perform, the higher the return they will demand for making that investment. So, if you are trying to persuade investors to put money into a risky venture you are pursuing, you will have to offer them a higher expected rate of return.

FIGURE 1-1 The Risk–Return Trade-off

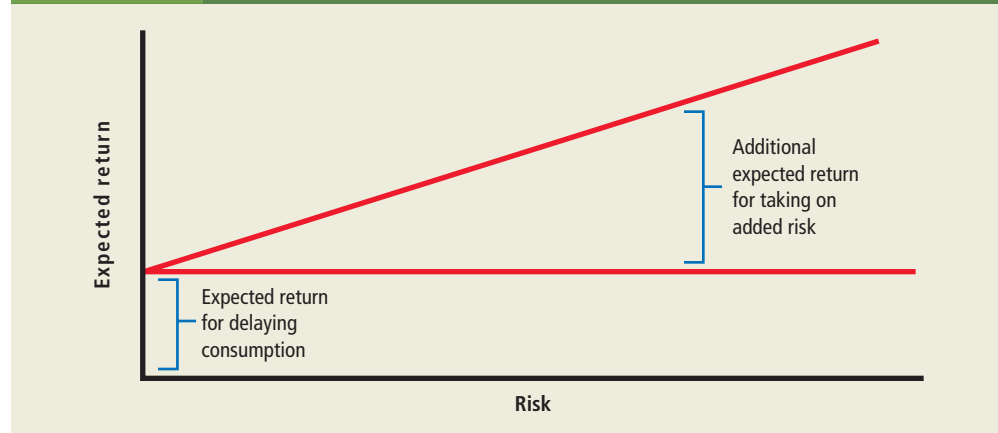


Figure 1-1 depicts the basic notion that an investor's rate of return should equal a rate of return for delaying consumption plus an additional return for assuming risk. For example, if you have \$5,000 to invest and are considering either buying stock in Apple (AAPL) or investing in a new biotech startup firm that has no past record of success, you would want the startup investment to offer the prospect of a higher expected rate of return than the investment in an established company like Apple.

Notice that we keep referring to the *expected* return rather than the *actual* return. As investors, we have expectations about what returns our investments will earn. However, we can't know for certain what they *will* be. For example, if investors could have seen into the future, no one would have bought stock in Tetrphase Pharmaceuticals (TPPH) on February 13, 2018. Why? Because on that day the company reported that the clinical trials of its IGNITE3 drug did not meet its primary endpoints. The result was that, within minutes of the announcement, the company's stock price dropped by a whopping 60 percent.

The risk–return relationship will be a key concept as we value stocks, bonds, and proposed new investment projects throughout this text. We will also spend some time determining how to measure risk. Interestingly, much of the work for which the 1990 Nobel Prize for economics was awarded centered on the relationship depicted in the graph in Figure 1-1 and how to measure risk. Both the graph and the risk–return relationship it depicts will reappear often in our study of finance.

PRINCIPLE
4

Principle 4: Market Prices Are Generally Right

To understand how securities such as bonds and stocks are valued or priced in the financial markets, it is necessary to understand the concept of an efficient market. An **efficient market** is one in which the prices of the assets traded in that market fully reflect all available information at any instant in time.

Security markets such as the stock and bond markets are particularly important to our study of finance because these markets are the place where firms can go to

efficient market a market in which the prices of securities at any instant in time fully reflect all publicly available information about the securities and their actual public values.

raise money to finance their investments. Whether a security market such as the New York Stock Exchange (NYSE) is efficient depends on the speed with which newly released information is impounded into prices. Specifically, an efficient stock market is characterized by a large number of profit-driven individuals who act very quickly by buying (or selling) shares of stock in response to the release of new information.

If you are wondering just how vigilant investors in the stock market are in watching for good and bad news, consider the following set of events. While Nike (NKE) CEO William Perez flew aboard the company's Gulfstream jet one day in November 2005, traders on the ground sold off a significant amount of Nike's stock. Why? Because the plane's landing gear was malfunctioning, and they were watching TV coverage of the event! Before Perez landed safely, Nike's stock dropped 1.4 percent. Once Perez's plane landed, Nike's stock price immediately bounced back. This example illustrates that in the financial market there are ever-vigilant investors who are looking to act even *in the anticipation* of the release of new information.

Another example of the speed with which stock prices react to new information deals with Disney. Beginning with *Toy Story* in 1995, Disney (DIS) was on a roll, making one hit after another, including *Monsters, Inc.*, *Finding Nemo*, the *Pirates of the Caribbean* series, *The Incredibles*, the *Ironman* series, *Frozen* and *Guardians of the Galaxy*. In spite of all this success, in 2018, Disney took a big gamble and released *Black Panther*. Based on a relatively unknown Marvel comic book series about T'Challa a.k.a. "Black Panther" returning to his fictitious African Country of Wakanda to begin his reign as king after his father was killed in *Captain America: Civil War*. This movie was very different from previous superhero movies as it featured a black cast, black writers, and a black director. No one had a good idea of how it might be received. In the movie's opening weekend, however, receipts were truly amazing. It earned \$192 million. Within a month its revenues had reached \$1 billion. How did the stock market respond to the unexpected box office reaction during the movie's opening weekend? On the Tuesday following the opening weekend (it was released over Presidents' Day weekend), Disney stock opened over 1.3 percent higher, on a day where the stock market barely moved. Apparently, the news of the surprisingly strong box office receipts was reflected in Disney's opening stock price, even before it traded! The same speed in the market reaction to new information also happened to United Airlines in April 2017. Video footage went viral showing two security officers forcibly removing a 69-year-old doctor by dragging him from an overbooked flight. His head smacked against an arm rest as he was pulled down the aisle. As a result, United Airlines stock dropped by \$1.4 billion even before the stock market opened the next day.

The key learning point is the following: Stock market prices are a useful barometer of the value of a firm. Specifically, managers can expect their company's share prices to respond quickly to investors' assessment of their decisions. On the one hand, if investors on the whole agree that the decision is a good one that creates value, then they will push up the price of the firm's stock to reflect that added value. On the other hand, if investors feel that a decision is bad for share prices, then the firm's share value will be driven down.

Unfortunately, this principle doesn't always work perfectly in the real world. You just need to look at the housing price bubble that helped bring on the economic downturn in 2008–2009 to realize that prices and value don't always move in lock-step. Like it or not, the psychological biases of individuals impact decision making and, as a result, our decision-making process is not always rational. Behavioral finance considers this type of behavior and takes what we already know about financial decision making and adds in human behavior with all its apparent irrationality.

We'll try and point out the impact of human behavior on decisions throughout our study. But understand that the field of behavioral finance is a work in progress—we understand only a small portion of what may be going on. We can say, however,

that behavioral biases have an impact on our financial decisions. As an example, people tend to be overconfident and many times mistake luck for skill. As Robert Shiller, a well-known economics professor at Yale, put it, “people think they know more than they do.”¹ This overconfidence applies to their abilities, their knowledge and understanding, and forecasting the future. Because they have confidence in their valuation estimates, they may take on more risk than they should. These behavioral biases impact everything in finance, ranging from making investment analyses to analyzing new projects to forecasting the future.

PRINCIPLE
5

Principle 5: Conflicts of Interest Cause Agency Problems

Throughout this book we will describe how to make financial decisions that increase the value of a firm’s shares. However, managers do not always follow through with these decisions. Often they make decisions that actually lead to a decrease in the value of the firm’s shares. When this happens, it is frequently because the managers’ own interests are best served by ignoring shareholder interests. In other words, there is a conflict of interest between what is best for the managers and what is best for the stockholders. For example, shutting down an unprofitable plant may be in the best interests of the firm’s stockholders, but in so doing the managers will find themselves out of a job or having to transfer to a different job. This very clear conflict of interest might lead the management of the plant to continue running the plant at a loss.

Conflicts of interest lead to what economists describe as an agency cost or **agency problem**. That is, managers are the agents of the firm’s stockholders (the owners), and if the agents do not act in the best interests of their principal, this leads to an agency cost. Although the goal of the firm is to maximize shareholder value, in reality the agency problem may interfere with implementation of this goal. *The agency problem results from the separation of the management and ownership of the firm.* For example, a large firm may be run by professional managers or agents who have little or no ownership in the firm. Because of this separation between decision makers and owners, managers may make decisions that are not in line with the goal of maximizing shareholder wealth. They may approach work less energetically and attempt to benefit themselves in terms of salary and perquisites at the expense of shareholders.

Managers might also avoid any projects that have risk associated with them—even if they are great projects with huge potential returns and a small chance of failure. Why is this so? Because if the project isn’t successful, these agents of the shareholders may lose their jobs.

Agency problems also contributed to our recent financial crisis, with some mortgage brokers being paid to find borrowers. The brokers would then make the loan and sell the mortgage to someone else. Because they didn’t hold the mortgage but only created it, they didn’t care about the quality of the mortgage. In effect, they wrote mortgages when the borrower had a low chance of being able to pay off the mortgage because they got paid per mortgage and then sold the mortgage to someone else almost immediately. There was no incentive to screen for the quality of the borrower, and as a result both the borrower who was misled into thinking he could afford the mortgage and the holder of the mortgage were hurt.

The costs associated with the agency problem are difficult to measure, but occasionally we see the problem’s effect in the marketplace. If the market feels management is damaging shareholder wealth, removal of that management may cause a positive reaction in stock price. For example, on the announcement of the death of Roy Farmer, the CEO of Farmer Brothers (FARM), a seller of coffee-related products, Farmer Brothers’ stock price rose about 28 percent. Generally, the tragic loss of a company’s top executive raises concerns over a leadership void, causing the share price to drop; in the case of Farmer Brothers, however, investors thought a change in management would have a positive impact on the company.

agency problem problems and conflicts resulting from the separation of the management and ownership of the firm.

¹ See Robert J. Shiller, *Irrational Exuberance* (New York: Broadway Books, 2000), p. 142.

If the firm's management works for the owners, who are the shareholders, why doesn't the management get fired if it doesn't act in the shareholders' best interest? In theory, the shareholders pick the corporate board of directors, and the board of directors in turn picks the management. Unfortunately, in reality the system frequently works the other way around. Management selects the board of director nominees and then distributes the ballots. In effect, shareholders are generally offered a slate of nominees selected by the management. The end result is that management effectively selects the directors, who then may have more allegiance to managers than to shareholders. This, in turn, sets up the potential for agency problems, with the board of directors not monitoring managers on behalf of the shareholders as it should.

The root cause of agency problems is conflict of interest. Whenever such conflicts exist in business, individuals may do what is in their own rather than the organization's best interests. For example, in 2000 Edgerrin James was a running back for the Indianapolis Colts and was told by his coach to get a first down and then fall down. That way the Colts wouldn't be accused of running up the score against a team they were already beating badly. However, since James's contract included incentive payments associated with rushing yards and touchdowns, he acted in his own self-interest and ran for a touchdown on the very next play.

We will spend considerable time discussing monitoring managers and the methods used to align their interests with those of shareholders. As an example, managers can be monitored by rating agencies and by auditing financial statements, and compensation packages may be used to align the interests of managers and shareholders. Additionally, the interests of managers and shareholders can be aligned by establishing management stock options, bonuses, and perquisites that are directly tied to how closely managers' decisions coincide with the interests of shareholders. In other words, what is good for shareholders must also be good for managers. If that is not the case, managers will make decisions in their best interest rather than maximizing shareholder wealth. It is this logic that caused Tesla's Elon Musk to implement a bold compensation plan in 2018. Musk is only paid if the company succeeds, over the long term, with significant gains in value—that is, if the shareholders end up much, much better off—otherwise he gets nothing.

The Essential Elements of Ethics and Trust

Though not one of the five principles of finance, ethics and trust are essential elements of the business world. In fact, without ethics and trust, nothing works. This statement could be applied to almost everything in life. Virtually everything we do involves some dependence on others. Although businesses frequently try to describe the rights and obligations of their dealings with others using contracts, it is impossible to write a perfect contract. Consequently, business dealings between people and firms ultimately depend on the willingness of the parties to trust one another.

Ethics or, rather, a lack of ethics in finance is a recurring theme in the news. Financial scandals at Enron, WorldCom, Arthur Andersen, and Bernard L. Madoff Investment Securities demonstrate that ethical lapses are not forgiven in the business world. Not only is acting in an ethical manner morally correct, it is a necessary ingredient to long-term business and personal success.

In 2017, Equifax found itself hacked and the social security numbers, birth dates, addresses, and other information of 145 million people stolen in one of the largest data breaches of all times. Equifax discovered the breach in July, but did not disclose it until September, in spite of the fact that U.S. companies are required by law to quickly report any new information that could materially affect its financial outlook. What happened to Equifax? Its market value dropped by over 20 percent—that's a bit over \$4 billion. How this will all play out for Equifax may take years to determine, but clearly, no one wants to do business with someone they don't trust. More recently, in 2018, Steve Wynn, the CEO of Wynn Resorts, was accused of a pattern of sexual misconduct which he denied. Still, Wynn Resorts almost immediately lost

\$3.5 billion. Just a week later, shares of the apparel company Guess Inc. fell 18% after model and actress Kate Upton accused the company's co-founder of using his power in the industry to harass women. Why might this have happened? If consumers don't feel good about a company, they are less likely to spend money on its products, and that impacts stock prices.

Ethical behavior is easily defined. It's simply "doing the right thing." But what is the right thing? For example, Bristol-Myers Squibb (BMY) gives away heart medication to people who can't afford it. Clearly, the firm's management feels this is the socially responsible and right thing to do. But is it? Should companies give away money and products, or should they leave such acts of benevolence to the firm's shareholders? Perhaps the shareholders should decide if they personally want to donate some of their wealth to worthy causes.

As is true of most ethical questions, the dilemma posited above has no clear-cut solution. We acknowledge that people have a right to disagree about what "doing the right thing" means and that each of us has his or her personal set of values. These values form the basis for what we think is right and wrong. Moreover, every society adopts a set of rules or laws that prescribe what it believes constitutes "doing the right thing." In a sense, we can think of laws as a set of rules that reflect the values of a society as a whole.

You might ask yourself, "As long as I'm not breaking society's laws, why should I care about ethics?" The answer to this question lies in consequences. Everyone makes errors of judgment in business, which is to be expected in an uncertain world. But ethical errors are different. Even if they don't result in anyone going to jail, they tend to end careers and thereby terminate future opportunities. Why? Because unethical behavior destroys trust, and businesses cannot function without a certain degree of trust.

Concept Check

1. According to Principle 3, how do investors decide where to invest their money?
2. What is an efficient market?
3. What is the agency problem, and why does it occur?
4. Why are ethics and trust important in business?

LO3 Describe the role of finance in business.

The Role of Finance in Business

Finance is the study of how people and businesses evaluate investments and raise capital to fund them. Our interpretation of an investment is quite broad. When Apple designed its Apple Watch, it was clearly making a long-term investment. The firm had to devote considerable expenses to designing, producing, and marketing the device with the hope that it would eventually become indispensable to everyone. Similarly, Apple is making an investment decision whenever it hires a fresh new graduate, knowing that it will be paying a salary for at least 6 months before the employee will have much to contribute.

Thus, the study of finance addresses three basic types of issues:

1. What long-term investments should the firm undertake? This area of finance is generally referred to as **capital budgeting**.
2. How should the firm raise money to fund these investments? The firm's funding choices are generally referred to as **capital structure decisions**.
3. How can the firm best manage its cash flows as they arise in its day-to-day operations? This area of finance is generally referred to as **working capital management**.

We'll be looking at each of these three areas of business finance—capital budgeting, capital structure, and working capital management—in the chapters ahead.

capital budgeting the decision-making process with respect to investment in fixed assets.

capital structure decisions the decision-making process with funding choices and the mix of long-term sources of funds.

working capital management the management of the firm's current assets and short-term financing.