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# FOUNDATIONS OF FINANCE



KEOWN · MARTIN · PETTY

# Foundations of Finance

The Logic and Practice of Financial Management

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# Foundations of Finance

## The Logic and Practice of Financial Management

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**Eighth 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  
Martin boys—grandsons Luke and Burke.*

John D. Martin

*To my wife, Donna, who has been my friend,  
encourager, and supporter for more years than  
we care to admit. How quickly time has passed  
since we first met all the way back in high school.*

J. William Petty

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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*, are trying to do the same thing. That is, we have tried to present financial management to students in a way that makes their studies as easy and productive as possible by using a step-by-step approach to walking them through each new concept or problem.

We are very proud of the history of this volume, as it was the first “shortened book” of financial management when it was published in its first edition. The book broke new ground by reducing the number of chapters down to the foundational materials and by trying to present the subject in understandable terms. We continue our quest for readability with the Eighth Edition.

## Pedagogy That Works


This book provides students with a conceptual understanding of the financial decision-making process, rather than just an introduction to 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 learned. To overcome this problem, the opening chapter presents five underlying principles of finance, which serve as a springboard for the chapters and topics that follow. In essence, the student is presented with a cohesive, interrelated perspective from which future problems can be approached.

With a focus on the big picture, we provide an introduction to financial decision making rooted in current financial theory and in the current state of world economic conditions. This focus is perhaps most apparent in the attention given to the capital markets and their influence on corporate financial decisions. What results is an introductory treatment of a discipline rather than the treatment of a series of isolated problems that face the financial manager. The goal of this text is not merely to teach the tools of a discipline or trade but also to enable students to abstract what is learned to new and yet unforeseen problems—in short, to educate the student in finance.

## Innovations and Distinctive Features in the Eighth Edition

### NEW! A Multistep Approach to Problem Solving and Analysis

As anyone who has taught the core undergraduate finance course knows, there is a wide range of math comprehension and skill. Students who do not have the math skills needed

 2 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 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, while it is not necessary to understand finance to understand these principles, it is necessary to understand these principles in order to understand finance. Although these principles may at first appear simple or even trivial, 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: 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

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 both in terms of 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. Each of these examples follows a very detailed and multistep approach to problem solving that helps students develop their problem-solving skills.

*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 first present 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.

## NEW! Financial Decision Tools

This feature recaps keys equations shortly after their application in the chapter.

## NEW! Chapter Summaries

These have been rewritten to make it easier for students to connect the summary with each of the in-chapter sections and learning objectives.

FINANCIAL DECISION TOOLS		
Name of Tool	Formula	What It Tells You
Current ratio	$\frac{\text{current assets}}{\text{current liabilities}}$	Measures a firm's liquidity. A higher ratio means greater liquidity.
Acid-test ratio	$\frac{\text{cash} + \text{accounts receivable}}{\text{current liabilities}}$	Gives a more stringent measure of liquidity than the current ratio in that it excludes inventories and other current assets from the numerator. A higher ratio means greater liquidity.

## NEW! Key Terms List for Each Chapter

New terminology introduced in the chapter is listed along with a brief definition.

## NEW! Study Problems

The end-of-chapter study problems have been improved and dramatically expanded to allow for a wider range of student practice. In addition, the study problems are now organized according to learning objective so that both the instructor and student can readily align text and problem materials.

## NEW! 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 have revised this edition to reinforce this focus in the content and organization of our text in some very concrete ways:

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

## “Cautionary Tale” Boxes

These give students insights into how the core concepts of finance apply in the real world. Each “Cautionary Tale” box goes behind the headlines of finance pitfalls in the news to show how one of the five principles was forgotten or violated.

## 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.

## 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.

### 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 40.)

### DID YOU GET IT?

#### SOLVING FOR THE REAL RATE OF INTEREST

Nominal or quoted rate of interest	=	real rate of interest	+	inflation rate	+	product of the real rate of interest and the inflation rate
0.10	=	real rate of interest	+	0.06	+	$0.06 \times \text{real rate of interest}$
0.04	=	$1.06 \times \text{real rate of interest}$				
Solving for the real rate of interest:						
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?” a few pages later in the chapter. This tool provides an essential ingredient to the building-block approach to the material that we use.

### 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?

## Concept Check

At the end of most major sections, this tool highlights the key ideas just presented and allows students to test their understanding of the material.

### REMEMBER YOUR PRINCIPLES

**Principle** Two principles are especially important in this chapter. **Principle 1** tells us that **Cash Flow Is What Matters**. At times, cash is more important than profits. Thus, considerable time is devoted to measuring cash flows. **Principle 5** warns us that there may be a conflict when managers and owners have different incentives. That is, **Conflicts of Interest Cause Agency Problems**. Because managers' incentives are at times different from those of owners, the firm's common stockholders, as well as other providers of capital (such as bankers), need information that can be used to monitor the managers' actions. Because the owners of large companies do not have access to internal information about the firm's operations, they must rely on public information from any and all sources. One of the main sources of such information comes from the company's financial statements provided by the firm's accountants. Although this information is by no means perfect, it is an important source used by outsiders to assess a company's activities. In this chapter, we learn how to use data from the firm's public financial statements to monitor management's actions.

## Remember Your Principles

These in-text inserts appear throughout to allow the student to take time out and reflect on the meaning of the material just presented. The use of these inserts, coupled with the use of the five principles, keeps the student focused on the interrelationships and motivating factors behind the concepts.



### Mini Case

*This Mini Case is available in MyFinanceLab.*

On the first day of your summer internship, you've been assigned to work with the chief financial officer (CFO) of SanBlas Jewels Inc. Not knowing how well trained you are, the CFO has decided to test your understanding of interest rates. Specifically, she asked you to provide a reasonable estimate of the nominal interest rate for a new issue of Aaa-rated bonds to be offered by SanBlas Jewels Inc. The final format that the chief financial officer of SanBlas Jewels has requested is that of equation (2-1) in the text. Your assignment also requires that you consult the data in Table 2-2.

Some agreed-upon procedures related to generating estimates for key variables in equation (2-1) follow.

- The current 3-month Treasury bill rate is 2.96 percent, the 30-year Treasury bond rate is 5.43 percent, the 30-year Aaa-rated corporate bond rate is 6.71 percent, and the inflation rate is 2.33 percent.
- The real risk-free rate of interest is the difference between the calculated average yield on 3-month Treasury bills and the inflation rate.
- The default-risk premium is estimated by the difference between the average yield on Aaa-rated bonds and 30-year Treasury bonds.
- The maturity-risk premium is estimated by the difference between the average yield on 30-year Treasury bonds and 3-month Treasury bills.
- SanBlas Jewels' bonds will be traded on the New York Bond Exchange, so the liquidity-risk premium will be slight. It will be greater than zero, however, because the secondary market for the firm's bonds is more uncertain than that of some other jewel sellers. It is estimated at 4 basis points. A basis point is one one-hundredth of 1 percent.

Now place your output into the format of equation (2-1) so that the nominal interest rate can be estimated and the size of each variable can also be inspected for reasonableness and discussion with the CFO.

#### CALCULATOR SOLUTION

Data Input	Function Key
10	<b>N</b>
6	<b>I/Y</b>
-500	<b>FV</b>
0	<b>PMT</b>
Function Key	Answer
<b>CPT</b>	
<b>PV</b>	279.20

## Comprehensive Mini Cases

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

## Financial Calculators

The use of financial calculators has been integrated throughout this text, especially with respect to the presentation of the time value of money. Where appropriate, calculator solutions appear in the margin.

## Content Updates

In addition to the innovations of this edition, we have made some chapter-by-chapter updates in response to both the continued development of financial thought, reviewer comments, and the recent economic crisis. Some of these changes include:

### Chapter 1

#### An Introduction to the Foundations of Financial Management

- Revised and updated discussion of the five principles
- New section on the current global financial crisis

### Chapter 2

#### The Financial Markets and Interest Rates

- Revised to reflect recent changes in financial markets
- Simplified to make it livelier and more relevant to students
- Revised coverage of securities markets, reflecting recent technological advances coupled with deregulation and increased competition, which have blurred the difference between an organized exchange and the over-the-counter market
- Updated investment banking coverage, reflecting the dramatic impact of the recent financial crisis on investment banking firms
- Simplified, more intuitive discussion on interest rate determinants
- Additional problems on the determination of interest rates

### Chapter 3

#### Understanding Financial Statements and Cash Flows

- Presents a live company, The Home Depot, instead of a hypothetical company, to illustrate financial statements
- Expanded coverage of balance sheets, focusing on what can be learned from them
- More comprehensive and intuitive presentation of cash flows
- New explanation of fixed and variable costs as part of presenting an income statement
- New appendix that presents free cash flows

## Chapter 4

### Evaluating a Firm's Financial Performance

- Continues the use of The Home Depot's financial data to illustrate how we evaluate a firm's financial performance, compared to industry norms or a peer group. In this case, we compare Home Depot's financial performance to that of Lowe's, a major competitor
- Includes comments from Home Depot's management regarding the firm's financial performance
- Revised presentation of evaluating a company's liquidity to align more closely with how business managers talk about liquidity

## Chapter 5

### The Time Value of Money

- Revised to appeal to students regardless of level of numerical skills
- Increased emphasis on the intuition behind the time value of money, stressing visualizing and setting up the problem
- Additional problems emphasizing complex streams of cash flows

## Chapter 6

### The Meaning and Measurement of Risk and Return

- Updated information on the rates of return that investors have earned over the long term with different types of security investments
- Updated examples of rates of return earned from investing in individual companies

## Chapter 7

### The Valuation and Characteristics of Bonds

- Expanded explanation of efficient markets
- New example of a company's credit rating being lowered, which has been a more frequent occurrence in recent times

## Chapter 8

### The Valuation and Characteristics of Stock

- More current explanation of options for getting stock quotes from the *Wall Street Journal*

## Chapter 9

### The Cost of Capital

- Streamlined exposition and reduced quantity of learning objectives
- Rewritten discussion of the divisional cost of capital

## Chapter 10

### Capital-Budgeting Techniques and Practice

- New introduction looks at Disney's decision to build the Shanghai Disney Resort
- Simplified presentation of the payback period and discounted payback period

## Chapter 11

### Cash Flows and Other Topics in Capital Budgeting

- New introduction examines the complications Toyota faced in estimating future cash flows when it introduced the Prius
- New discussion of the iPad as an example of synergistic effects
- New appendix that presents the modified accelerated cost recovery system

## Chapter 12

### Determining the Financing Mix

- Simplified presentation of chapter materials, including a reduced number of learning objectives

### Chapter 13

#### Dividend Policy and Internal Financing

- Simplified presentation of chapter materials, including a reduced number of learning objectives
- Rewritten introduction focuses on Apple Computer, Inc.'s decision to re-initiate its cash dividend
- Problem set extensively revised with the addition of 13 new exercises

### Chapter 14

#### Short-Term Financial Planning

- New study problem added, focusing on the limitations of the percent of sales forecast method
- New discussion of the regression method of forecasting financial variables in conjunction with the percent of sales method

### Chapter 15

#### Working-Capital Management

- Simplified presentation of chapter materials, including reducing the number of learning objectives

### Chapter 16

#### International Business Finance

- Comprehensively revised and updated to reflect changes in exchange rates and global financial markets in general
- Simplified and streamlined coverage in the section on interest rate parity, discussion of purchasing-power parity and the law of one price, and international capital budgeting

### Web Chapter 17

#### Cash, Receivables, and Inventory Management

- Simplified presentation of chapter materials, including reducing the number of learning objectives

## A Complete Support Package for the Student and Instructor

### MyFinanceLab

This fully integrated online homework system gives students the hands-on practice and tutorial help they need to learn finance efficiently. Ample opportunities for online practice and assessment in MyFinanceLab are seamlessly integrated into each chapter. For more details, see the inside front cover.

### Instructor's Resource Center

This password-protected site, accessible at [www.pearsonhighered.com/irc](http://www.pearsonhighered.com/irc), hosts all of the instructor resources that follow. Instructors should click on the "IRC Help Center" link for easy-to-follow instructions on getting access or may contact their sales representative for further information.

### Test Bank

This online Test Bank, prepared by Curtis Bacon of Southern Oregon University, provides more than 1,600 multiple-choice, true/false, and short-answer questions with complete and detailed answers. The online Test Bank is designed for use with the TestGen-EQ

test-generating software. This computerized package allows instructors to custom design, save, and generate classroom tests. The test program permits instructors to edit, add, or delete questions from the test bank; analyze test results; and organize a database of tests and student results. This software allows for greater flexibility and ease of use. It provides many options for organizing and displaying tests, along with a search and sort feature.

## Instructor's Manual with Solutions

Written by the authors, the Instructor's Manual follows the textbook's organization and represents a continued effort to serve the teacher's goal of being effective in the classroom. Each chapter contains a chapter orientation, an outline of each chapter (also suitable for lecture notes), answers to end-of-chapter review questions, and solutions to end-of-chapter study problems.

The Instructor's Manual is available electronically and instructors can download this file from the Instructor's Resource Center by visiting [www.pearsonhighered.com/irc](http://www.pearsonhighered.com/irc).

## The PowerPoint Lecture Presentation

This lecture presentation tool, prepared by Philip Samuel Russel of Philadelphia University, provides the instructor with individual lecture outlines to accompany the text. The slides include many of the figures and tables from the text. These lecture notes can be used as is or instructors can easily modify them to reflect specific presentation needs.

## Companion Web Site

([www.pearsonhighered.com/keown](http://www.pearsonhighered.com/keown)) The Web site contains various resources related specifically to the Eighth Edition of *Foundations of Finance: The Logic and Practice of Financial Management*, including Web Chapter 17 and Appendix A.

## Excel Spreadsheets

Created by the authors, these spreadsheets correspond to end-of-chapter problems from the text. This student resource is available on both the companion Web site and MyFinanceLab.

## CourseSmart for Instructors

CourseSmart goes beyond traditional teaching resources to provide instant, online access to the textbooks and course materials you need at a lower cost to students. And while students save money, you can save time and hassle with a digital textbook that allows you to search the most relevant content at the very moment you need it. Whether it's for evaluating textbooks or creating lecture notes to help students with difficult concepts, CourseSmart can make life a little easier. See how by visiting the CourseSmart Web site at [www.coursesmart.com/instructors](http://www.coursesmart.com/instructors).

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—A.J.K. / J.D.M. / J.W.P.

# An Introduction to the Foundations of Financial Management

## Learning Objectives

After reading this chapter, you should be able to:

 <b>1</b> Identify the goal of the firm.	<b>The Goal of the Firm</b>
 <b>2</b> Understand the basic principles of finance, their importance, and the importance of ethics and trust.	<b>Five Principles That Form the Foundations of Finance</b>
 <b>3</b> Describe the role of finance in business.	<b>The Role of Finance in Business</b>
 <b>4</b> Distinguish between the different legal forms of business.	<b>The Legal Forms of Business Organization</b>
 <b>5</b> Explain what has led to the era of the multinational corporation.	<b>Finance and the Multinational Firm: The New Role</b>

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, 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, between then and April 2012, the price of Apple's common stock climbed by over one hundred and sixteen-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 between 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, 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 your products and you keep developing and introducing new products that consumers want. With this in mind, in October 2011, Apple unveiled its iPhone 4S, selling over 4 million phones in the first week. Then, in March 2012, during the same week that Apple's App Store downloads topped 25 billion, Apple introduced the New iPad, selling over 3 million units in the first week. In effect, Apple seems to have a never-ending supply of new, exciting products that we all want.

How did Apple make a decision to introduce the original iPod and now 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. As such, 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, Apple TV, 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 (that is, 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. 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.

 Identify the goal of the firm.

Obviously, there are some serious practical problems in using changes in the firm's stock to evaluate financial decisions. Many things affect stock prices; to attempt to identify a reaction to a particular financial decision would simply be impossible, but fortunately that is 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?

 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 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, while it is not necessary to understand finance to understand these principles, it is necessary to understand these principles in order to understand finance. Although these principles may at first appear simple or even trivial, 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: 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*, *My Big Fat Greek Wedding*, and the TV series *Babylon 5*—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 sure was—in fact it was the 16th highest grossing film of all time. Without question, it produced cash, but it didn't make any profits.

There is another important point we need to make 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 both with and without the investment it's thinking about making*. To understand this concept, let's think about the incremental cash flows of the *Pirates of the Caribbean* movies. Not only did Disney make money on the

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

movies, but it also increased the number of people attracted to Disney theme parks to go on the “Pirates of the Caribbean” ride. So, if you were to evaluate a *Pirates of the Caribbean* movie, you’d want to include its impact on sales throughout the entire company.

## 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 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 for 8 percent interest (who is equally likely to repay you), 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.



**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

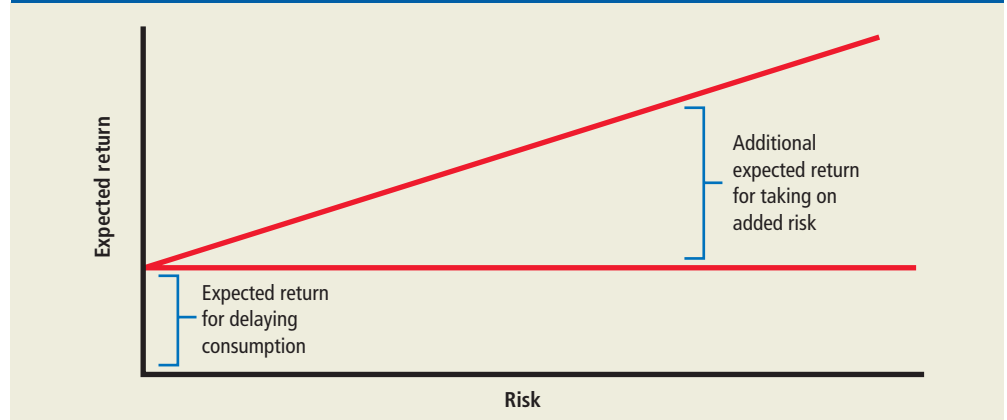
Even the novice investor knows there are an unlimited number of investment alternatives to consider. But without exception, investors will not invest if they do not expect to receive a return on their investment. They will want a return that satisfies two requirements:



- ◆ *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 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 (on page 6) 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 International Business Machines (IBM) or investing in a new bio-tech 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 IBM.

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 AEterna Zentaris, Inc. (AEZS), the late-stage drug development company, on April 2, 2012. Why? Because on that day AEterna Zentaris

**FIGURE 1-1** The Risk–Return Trade-off

reported its colon cancer treatment failed to improve survival rates in a late-stage clinical trial. The result was that within minutes of the announcement, the company's stock price dropped by a whopping 66 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 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.

#### P4 Principle

### Principle 4: Market Prices Are Generally Right

**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.

To understand how securities such as bonds and stocks are valued or priced in the financial markets, it is necessary to have an understanding of the concept of an efficient market. An **efficient market** is *one where 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 since these markets are the place where firms can go to 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) and Pixar (PIXR) were on a roll, making animated hits one after another, including *A Bug's Life*, *Toy Story 2*, *Monsters, Inc.*, *Finding Nemo*, and *The Incredibles*. So in 2006, the hopes for the animated movie *Cars* were very high. However, in the movie's opening weekend, it grossed only \$60 million, or about \$10 million less than investors expected. How did the stock market respond? On the Monday following the opening weekend, Disney stock opened over 2 percent lower.

Apparently, the news of the disappointing box office receipts was reflected in Disney's opening stock price, even before it traded!

The key learning point here 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. 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 lockstep. 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 skill for luck. As Robert Shiller, a well-known economics professor at Yale put it, “people think they know more than they do.”<sup>1</sup> This overconfidence applies to their abilities, their knowledge and understanding, and forecasting the future. Since they have confidence in their valuation estimates, they may take on more risk than they should. These behavioral biases impact everything in finance, from investment analysis, to analyzing new projects, to forecasting the future.

## 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 the stockholders. For example, it may be the case that shutting down an unprofitable plant is 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 are referred to by economists 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 the implementation of this goal. *The agency problem results from the separation of management and the 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 of the 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 doesn't turn out, these agents of the shareholders may lose their jobs.

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

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

<sup>1</sup>See Robert J. Shiller, *Irrational Exuberance*, Broadway Books, 2000, page 142.



shareholder wealth, there may be a positive reaction in stock price to the removal of that management. 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, but in the case of Farmer Brothers, investors thought a change in management would have a positive impact on the company.

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 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 conflicts of interest. Whenever they exist in business, there is a chance that individuals will do what is in their best interests rather than the best interests of the organization. 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' 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 trying 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 interest 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.

## The Current Global Financial Crisis

Beginning in 2007 the United States experienced its most severe financial crisis since the Great Depression of the 1930s. As a result, some financial institutions collapsed while the government bailed others out, unemployment skyrocketed, the stock market plummeted, and the United States entered into a recession. Although the recession is now officially over, the economy still faces the lingering effects of the financial crisis that continue in the form of both a high rate of unemployment and a dramatic rise in our country's debt. Europe continues to face a financial crisis of its own. Many members of the European Union (EU) are experiencing severe budget problems, including Greece, Italy, Ireland, Portugal, and Spain. These nations are all unable to balance their budgets and face a very real prospect of defaulting on payments tied to government loans.

While many factors contributed to the financial crisis, the most immediate cause has been attributed to the collapse of the real estate market in the United States and the resulting real estate loan (mortgage) defaults. The focus of the loan defaults has been on what are commonly referred to as subprime loans. These are loans made to borrowers whose ability to repay them is highly doubtful. When the market for real estate began to falter in 2006, many of the homebuyers with subprime mortgages began to default. As the economy contracted during the recession, people lost their jobs and could no longer make their mortgage loan payments, resulting in even more defaults.

To complicate the problem, most real estate mortgages were packaged in portfolios and resold to investors around the world. This process of packaging mortgages is called

*securitization*. Basically, securitization is a very useful tool for increasing the supply of new money that can be lent to new homebuyers. Here's how mortgages are securitized: First, homebuyers borrow money by taking out a mortgage to finance a home purchase. The lender, generally a bank, savings and loan, or mortgage broker that made the loan, then sells the mortgage to another firm or financial institution that pools together a portfolio of many different mortgages. The purchase of the pool of mortgages is financed through the sale of securities (called *mortgage-backed securities*, or MBS) that are sold to investors who can hold them as an investment or resell them to other investors. This process allows the mortgage bank or other financial institution that made the original mortgage loan to get its money back out of the loan and lend it to someone else. Thus, securitization provides liquidity to the mortgage market and makes it possible for banks to loan more money to homebuyers.

Ok, so what's the catch? As long as lenders properly screen the mortgages to make sure the borrowers are willing and able to repay their home loans and real estate values remain higher than the amount owed, everything works fine. However, if lenders make loans to individuals who really cannot afford to make the payments and real estate prices drop precipitously as they began to do in 2006, there will be problems and many mortgages (especially those where the amount of the loan was a very high percentage of the property value) will be "under water." That is, the homeowner will owe more than the home is worth. When this occurs homeowners may start to default on their mortgage loans. This is especially true when the economy goes into a recession and people lose their jobs and, correspondingly, the ability to make their mortgage payments. This was the scenario in 2006. In essence, this was a perfect storm of bad loans, falling housing prices, and a contracting economy.

Where are we now? As of this writing, in 2012, the recession is officially over, having ended in 2009; however, despite this pronouncement there is evidence that the economy is still not back to normal. Unemployment numbers are still higher than historical norms for nonrecession years. Moreover, these unemployment numbers do not accurately reflect what has become known as underemployment, whereby individuals are taking jobs but these jobs do not take advantage of the individuals' employment credentials (for example, college professors driving taxi cabs). Finally, the risk of financial crisis in many European countries remains at a very high level. Despite a series of financial "fixes" to the imbalances in the budgets of Greece, Spain, and several other European countries, for example, the budgetary woes in Europe continue into 2012.

## Avoiding Financial Crisis—Back to the Principles

Four significant economic events that have occurred during the last decade all point to the importance of keeping our eye closely affixed to the five principles of finance: the dot.com bubble; the accounting scandals headlined by Enron, WorldCom, and Bernie Madoff; the housing bubble; and, finally, the recent economic crisis. Specifically, the problems that firms encounter in times of crisis are often brought on by, and made worse as a result of, not paying close attention to the foundational principles of finance. To illustrate, consider the following:

- ◆ **Forgetting Principle 1: Cash Flow Is What Matters** (*Focusing on earnings instead of cash flow*). The financial fraud committed by Bernie Madoff, WorldCom, and others at the turn of the 21st century was a direct result of managerial efforts to manage the firm's reported earnings to the detriment of the firm's cash flows. The belief in the importance of current period earnings as the most critical determinant of the market valuation of the firm's shares led some firms to sacrifice future cash flows in order to maintain the illusion of high and growing earnings.
- ◆ **Forgetting Principle 2: Money Has a Time Value** (*Focusing on the short run*). When trying to put in place a system that would align the interests of managers and shareholders, many firms tied managerial compensation to short-run performance. Consequently, the focus shifted in many firms from what was best in the long run to what was best in the short run.