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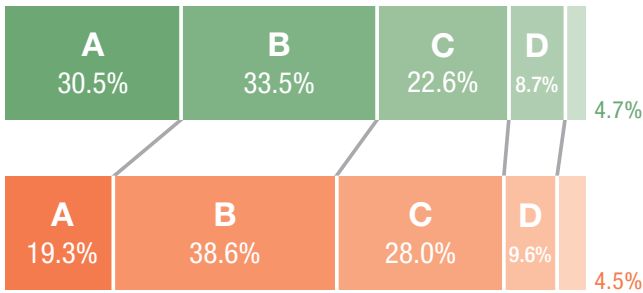
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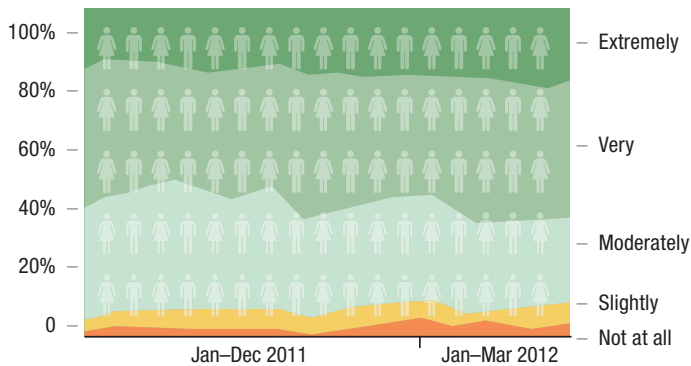
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# finance

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# changes in the third edition

Based on feedback from users and reviewers, we undertook an ambitious revision in order to make the book follow your teaching strategy even more closely. Below are the changes we made for this edition, broken out by chapter.

## OVERALL

- Simplified figures where appropriate and added captions to emphasize the main “takeaways”
- Updated all data, company names, and scenarios to reflect latest available data and real-world changes
- Cross-referenced numbered examples with similar end-of-chapter problems so students can easily model their homework
- Updated the numbers in the end-of-chapter problems to provide variety and limit the transfer of answers from previous classes

## chapter one

### INTRODUCTION TO FINANCIAL MANAGEMENT

- Expanded discussion of agency relationships and problems between managers and stakeholders

## chapter two

### REVIEWING FINANCIAL STATEMENTS

- Added discussion of earnings before interest, taxes, depreciation, and assets (EBITDA) and net operating profit after taxes (NOPAT)
- Added discussion of EPS dilution, including new in-chapter example and end-of-chapter problem
- Added discussion of where to find financial statements for a firm
- Added a new Finance at Work on American Apparel delisting letter
- Added Appendix with financial statements in Excel format

## chapter three

### ANALYZING FINANCIAL STATEMENTS

- Added discussion of gross profit margin and operating profit margin
- Added explanation of debt-to-asset ratio transformed to equity multiplier and debt-to-equity ratios
- Expanded definition of debt management ratios to include coverage ratios
- Added additional end-of-chapter problems on interactions between ratios
- Added Excel file for calculating ratios from financial statements

## chapter four

### TIME VALUE OF MONEY 1: ANALYZING SINGLE CASH FLOWS

- Expanded introductory discussion
- Converted all tables to spreadsheet layout
- Clarified discussion of payment to cash flow
- Added PV and FV labels to all time line diagrams

## chapter five

### TIME VALUE OF MONEY 2: ANALYZING ANNUITY CASH FLOWS

- Converted all tables to spreadsheet layout
- Added PV and FV labels to all time line diagrams
- Updated and revised Finance at Work boxes
- Reduced derivation part of an equation
- Added new Math Coach to compute amortization in TVM calculators

## chapter six

### UNDERSTANDING FINANCIAL MARKETS AND INSTITUTIONS

- Updated all figures, tables, and examples
- Added Finance at Work box on JPMorgan, “London whale,” and derivative losses
- Added discussion on financial institutions’ move away from risk measurement and management to servicers of mortgages and other risky assets
- Added discussion of shadow banks
- Added new example on determinants of interest rates in individual securities
- Added new end-of-chapter problems
- Updated Appendix

## chapter seven

### VALUING BONDS

- Updated real data, real bonds, and real companies in examples and figures
- Converted all tables to spreadsheet layout
- Added a discussion of convertible bonds with margin definition
- Added PV and FV labels to all time line diagrams
- Added TVM calculator to Example 7-6
- Clarified and expanded discussion of the call price
- Updated Greek tragedy Finance at Work box

## chapter eight

### VALUING STOCKS

- Updated real data, real stocks, and real companies in examples and figures
- Converted all tables to spreadsheet layout
- Changed “specialist” to “designated market maker”
- New Example 8-1
- Clarified description of equation 8-6
- Simplified variable growth figure, equation, and discussion
- Added discussion of P/CF and P/B relative price ratios

## chapter nine

### CHARACTERIZING RISK AND RETURN

- Updated real data, real indexes, and real companies in examples, discussions, and tables
- Converted all tables to spreadsheet layout
- Improved discussion of dollar returns and percentage returns
- Moved geometric mean return equation from footnote into the text

## chapter ten

### ESTIMATING RISK AND RETURN

- Updated real data, indexes, betas, and companies in examples, discussions, and tables
- Converted all tables to spreadsheet layout
- Clarified description of equations 10-1 and 10-2
- Changed example from Boeing to General Electric
- New table and description for spreadsheet computation of computing beta

## chapter eleven

### CALCULATING THE COST OF CAPITAL

- Expanded discussion of WACC for projects versus WACC for firm
- Added discussion of WACC from the viewpoint of the investor versus that of the firm
- Expanded discussion of intuition underlying calculation of project WACC
- Enhanced intuitive explanation for the use of divisional WACCs
- Added details concerning flotation costs to the corporation

## chapter twelve

### ESTIMATING CASH FLOWS ON CAPITAL BUDGETING PROJECTS

- Enhanced intuitive explanation of why accelerated depreciation is preferred
- Added additional explanation of adjusting the project’s initial cash flow to account for flotation costs
- Added additional end-of-chapter problems dealing with replacement projects’ cash flows

## chapter thirteen

### WEIGHING NET PRESENT VALUE AND OTHER CAPITAL BUDGETING CRITERIA

- Changed calculation and discussion of profitability index to reflect a benchmark of 1
- Enhanced explanation of calculation of MIRR
- Enhanced discussion of payback
- Added additional clarifications concerning use of NPV profiles

## chapter fourteen

### WORKING CAPITAL MANAGEMENT AND POLICIES

- Added discussion of relationship between working capital management and operations management
- Enhanced explanation and example concerning use of Miller-Orr model

finance 3e



# introduction to financial management

**D**o you know: What finance entails? How financial management functions within the business world? Why you might benefit from studying financial principles? This chapter is the ideal place to get answers to those questions. **Finance** is the study of *applying specific value* to things we own, services we use, and decisions we make. Examples are as varied as shares of stock in a company, payments on a home mortgage, the purchase of an entire firm, and the personal decision to retire early. In this text, we focus primarily on one area of finance, **financial management**, which concentrates on valuing things from the perspective of a company, or firm.

Financial management is critically important to the success of any business organization, and throughout the text

we concentrate on describing the key financial concepts in corporate finance. As a bonus, you will find that many tools and techniques for handling the financial management of a firm also apply to broader types of financial problems, such as personal finance decisions.

In finance, *cash flow* is the term that describes the process of paying and receiving money. It makes sense to start our discussion of finance with an illustration of various financial cash flows. We use simple graphics to help explain the nature of finance and to demonstrate the different *subareas* of the field of finance.

After we have an overall picture of finance, we will discuss four important variables in the business environment that can and do have significant

*continued on p. 4*

## LEARNING GOALS

- LG1-1** Define the major areas of finance as they apply to corporate financial management.
- LG1-2** Show how finance is at the heart of sound business decisions.
- LG1-3** Learn the financial principles that govern your personal decisions.
- LG1-4** Examine the three most common forms of business organization in the United States today.
- LG1-5** Distinguish among appropriate and inappropriate goals for financial managers.
- LG1-6** Identify a firm's primary agency relationship and discuss the possible conflicts that may arise.
- LG1-7** Discuss how ethical decision making is part of the study of financial management.
- LG1-8** Describe the complex, necessary relationships among firms, financial institutions, and financial markets.
- LG1-9** Explain the fundamental causes of the financial crisis that started in 2006.



continued from p. 3

impact on the firm’s financial decisions. These are (1) the organizational form of the business, (2) the agency relationship between the managers and owners of a firm, (3) ethical considerations as finance is applied in the real world, and (4) the source and implications of the current financial crisis. ■

## FINANCE IN BUSINESS AND IN LIFE LG1-1

As you begin this course, what is your first impression of the world of finance? No doubt you’ve experienced the current economic recession firsthand and read, perhaps in detail, about the financial crisis that peaked in the fall of 2008. An understanding of cause, effect, and future impact will be important as we go forward, so please see the nearby Finance at Work reading and the section on the financial crisis at the end of this chapter for brief background information and some analyses to set the stage for more complete explanations to come. But setting aside thoughts of recession and indulging in a quick look at popular culture, you’ll recognize that other influences have been at work for some time. Your opinions already may have been negatively skewed by entertainment. Many movies have portrayed finance professionals as greedy and unethical (see, for example, *Wall Street*, 1987; *Barbarians at the Gate*, 1993; *Boiler Room*, 2000; and *Wall Street: Money Never Sleeps*, 2010). While colorful characters make for good entertainment, fictional depictions do not reflect reality when it comes to what finance professionals actually do and how they contribute to society. The more you study managerial finance, the more you’ll appreciate this discipline’s broad potential to power the managerial decision making that moves our economy forward.

And what exactly makes up this engine of financial decision making? Successful application of *financial theories* helps money flow from individuals who want to improve their financial future to businesses that want to expand the scale or scope of their operations. These exchanges lead to a growing economy and more employment opportunities for people at all income levels. So, two important things result from this simple exchange: the economy will be more productive as a result, and individuals’ wealth will grow into the future.

In this first section, we develop a comprehensive description of finance and its subareas, and we look at the specific decisions that professionals in each subarea must

# viewpoints

## business APPLICATION

Caleb has worked very hard to create and expand his juice stand at the mall. He has finally perfected his products and feels that he is offering the right combination of juice and food. As a result, the stand is making a nice profit. Caleb would like to open more stands at malls all over his state and eventually all over the country.

Caleb knows he needs more money to expand. He needs money to buy more equipment, buy more inventory, and hire and train more people. How can Caleb get the capital he needs to expand?

make. As you will see, all areas of finance share a common set of ideas and application tools.

### What Is Finance?

To get the clearest possible picture of how finance works, let’s begin by grouping all of an economy’s participants along two dimensions. The first dimension is made up of those who may have “extra” money (i.e., money above and beyond their current spending needs) for investment. The second dimension is made up of those who have an ability to develop viable business ideas, a sense of business creativity. Both money and ideas are fuel for the financial engine. In our simple model, these two dimensions result in four groups representing economic roles in society, as shown in Figure 1.1. Of course, people can move from one group to another over time.

Type 1 people in our model do not lend significant sums of money (*capital*) or spend much money in a business context, so they play no direct role in **financial markets**, the mechanisms by which capital is exchanged. Although these people probably play indirect roles by providing labor to economic

FIGURE 1.1 Participants in Our Hypothetical Economy

	No Extra Money	Extra Money
No Economically Viable Business Ideas	Type 1: No money and no ideas	Type 2: Money but no ideas
Economically Viable Business Ideas	Type 3: No money but ideas	Type 4: Both money and ideas

Four groups form according to the availability of money and ideas.

## personal APPLICATION

Dagmar is becoming interested in investing some of her money. However, she has heard about several corporations in which the investors lost all of their money. In the past decade, Dagmar has heard that Lehman Brothers (2008), Chrysler (2009), and Six Flags (2009) have all filed for bankruptcy. These firms' stockholders lost their entire investments in these firms.

Many of the stockholders who lost money were employees of these companies who had invested some of their retirement money in the company stock. Dagmar wonders what guarantee she has as an investor against losing her money.

*What is the best way for Dagmar to ensure a happy retirement?*

Scan the QR code for an extended look. Turn to the back of the book for solutions to these applications.



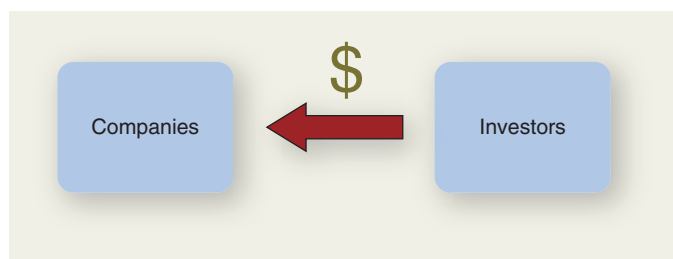
enterprises or by consuming their products, for simplicity we focus on those who play direct roles. Therefore, type 1 participants will be asked to step aside.

Type 4 people use financial tools to evaluate their own business concepts and then choose the ideas with the most potential. From there, they create their own enterprises to implement their best ideas efficiently and effectively. Type 4 individuals, however, are self-funded and do not need financial markets. The financial tools they use and the types of decisions they make are narrowly focused or specific to their own purposes. For our discussion, then, type 4 individuals also are asked to move to the sidelines.

Now for our financial role players, the type 2 and type 3 people. Financial markets and financial institutions allow these people to participate in a mutually advantageous exchange. Type 2 people temporarily lend their money to type 3 people, who put that money to use with their good business ideas.

In most developed economies, type 2 participants are usually individual **investors**. *You* will likely be an individual investor

▼ **FIGURE 1.2** Capital Flow from Investors to Companies



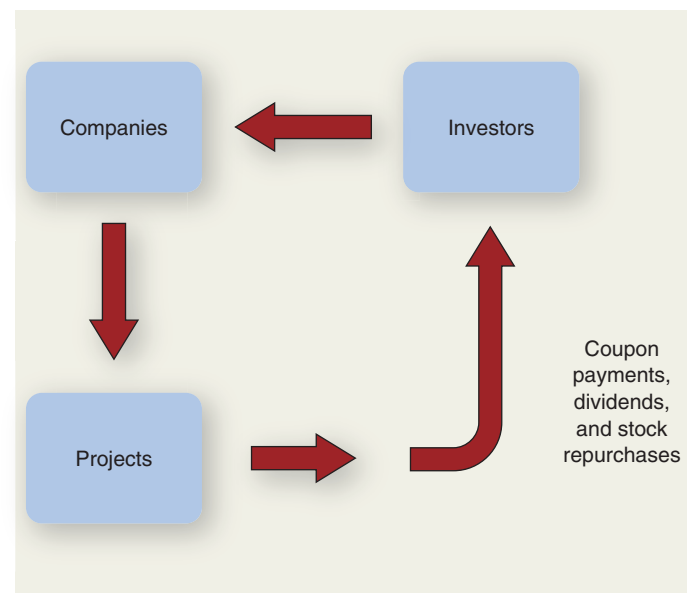
Investors are people or groups who need ideas to make more money, and companies are groups who need money to develop the ideas they do have.

for most of your life. Each of us separately may not have a lot of extra money at any one time, but by aggregating our available funds, we can provide sizable amounts for investment.

Type 3 participants, the idea generators, may be individuals, but they are more commonly corporations or other types of companies with research and development (R&D) departments dedicated to developing innovative ideas. It's easy to see that investors and companies can help one another. If investors lend their "extra" capital to companies, as shown in Figure 1.2, then companies can use this capital to fund expansion projects. Economically successful projects will eventually be able to repay the money (plus profit) to investors, as Figure 1.3 shows.

Of course, not all of the cash will return to the investors. In reality, sources of friction arise in this system, and the amount of capital returned to investors is reduced. Two primary sources of friction are **retained earnings**, which are basically funds the firm keeps for its ongoing operations, and **taxes**, which the government imposes on the company and individuals to help fund public services. Figure 1.4 shows an analysis of cash flows with the associated retained earnings

▼ **FIGURE 1.3** Return of Capital to Investors



In this basic process, the company can expand its business, hire more employees, and create a promising future for its own growth. Meanwhile, the investor can increase wealth for the future.

**finance** The study of applying specific value to things we own, services we use, and decisions we make

**financial management** The process for and the analysis of making financial decisions in the business context.

**financial markets** The places and processes that facilitate the trading of financial assets between investors.

**investors** Those who buy securities or other assets in hopes of earning a return and getting more money back in the future.

**retained earnings** The portion of company profits that are kept by the company rather than distributed to the stockholders as cash dividends.

# finance at work //:markets

## The Financial Crisis: Introduction and Overview

At the time of this writing, the world economy has been reeling for over six years from the effects of the worst financial crisis since the Great Depression of the 1930s. By mid-March 2009, the Dow Jones Industrial Average (DJIA) had fallen in value 53.8 percent in less than 1½ years' time, larger than the decline during the market crash of 1937–1938 when it fell 49 percent. Though the Dow has since recovered much of those losses, the markets continue to be very volatile and unsettled: On May 6, 2010, just after 2:30 pm EST, the Dow plunged by 998.50 points, a loss of 9.2 percent and the biggest one-day fall ever.

The commonly accepted cause of the crisis was the collapse of U.S. home prices in late 2006 and early 2007, but the problem has since spread to affect every part of the economy: The investment banking industry saw the failure or acquisition of all but two of its major firms (Goldman Sachs and Morgan Stanley), and these two firms converted to commercial bank holding companies (i.e., banks much like your neighborhood bank that tend to be safer and less profitable than investment banks). AIG, one of the largest insurance companies in the United States, survived only because of a federal government bailout. Commercial banking giant Citigroup required a massive government guarantee against losses and an injection of cash to prevent failure. The crisis spread internationally, too. Real estate markets fell in many countries across the world. The crisis had a profound impact on the financial health of banks, especially in Europe. In 2010, the unemployment rate had risen to over 10 percent. By 2012, it was still over 8 percent.

The exact mechanisms by which falling home prices led to such dramatic changes in the economic landscape are complicated and have yet to be covered in this book, so we will delay an in-depth discussion of the crisis until later, but we did feel that this is a good place to touch upon the ways that the fallout from the financial crisis are going to affect you, the student, in the years and decades to come.

First, those of you who hoped to fund your education with student loans may be finding it difficult to obtain such loans, especially at favorable rates. If so, thank the financial crisis: Lenders are much

more leery about lending money due to the uncertain economic future they (and you, in your hopeful future employment) face. (And we won't even get into the whole idea of your parents taking out a home equity loan to help you through . . .)

Second, as you've no doubt noticed, jobs are scarce, primarily due to companies' uncertainty about the future. We expect it to stay this way for a while, though the impending retirement of the baby boomers will eventually benefit you.

Third, once you do make it through school and start your career, you may want to hold off on buying a home for a while. Most of the reasons are probably obvious, but compounding the uncertainty about being able to eventually unload any house you buy is the fact that lenders have greatly cut back on the availability of credit, asking for substantial down payments and loan servicing fees when they *do* lend.

By now, you're probably starting to wonder if you missed the part about Eeyore (the gloomy donkey in the Winnie-the-Pooh books) being one of the coauthors of this book. Don't despair: The current financial crisis *does* have potential silver linings to offer to those who are prepared and educated enough to take advantage of them.

After the extent of the crisis had started to become evident to everyone, one of the authors of this book was asked by a television reporter, "Why would anyone want to study finance *now?!?!?*" Well, on the one hand, and in the words of the Spanish-born American philosopher and poet George Santayana, "Those who do not learn from history are doomed to repeat it." You *really* don't want to go through this type of thing again, do you?

Another reason to study finance is that some of those silver linings we referred to are beginning to peek through the clouds: For example, in the aftermath of the crisis, more firms in general (and financial institutions in particular) are much more focused on the concepts of measuring and managing risks than ever before, and to effectively do so they need a trained and informed workforce.

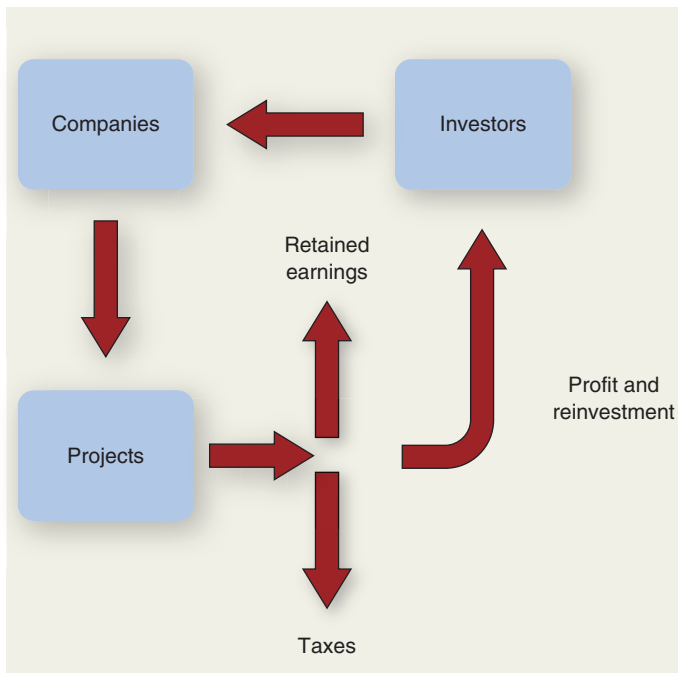
## Want to know more?

Key Words to Search for Updates: **housing bubble, subprime lending, mortgage-backed securities, AIG, Countrywide Financial**

and tax payments. In a very simple way, this figure provides an intuitive overall explanation of finance and of its major subareas. For example, individuals must assess which investment opportunities are right for their needs and risk tolerance; financial institutions and markets must efficiently distribute the

capital; and companies must evaluate their potential projects and wisely decide which projects to fund, what kind of capital to use, and how much capital to return to investors. All of these types of decisions deal with the basic cash flows of finance shown in Figure 1.4, but from different perspectives.

▼ **FIGURE 1.4** The Complete Cash Flows of Finance

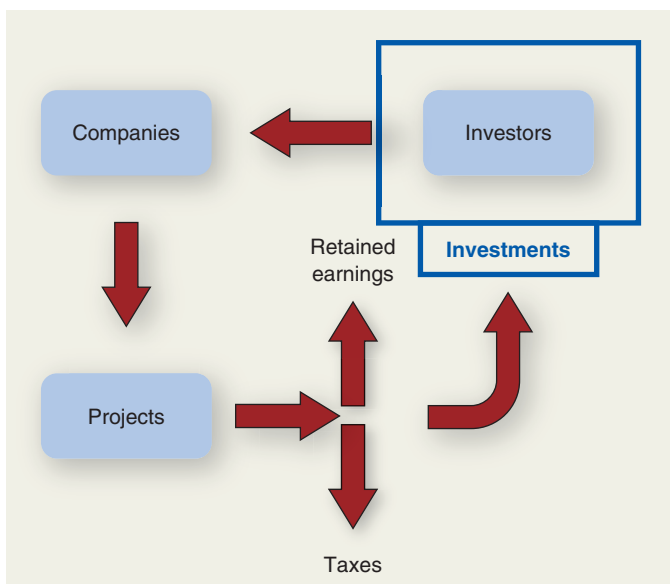


All the subareas of the financial system interact, with retained earnings and taxes playing a role in the flows.

## Subareas of Finance

**Investments** is the subarea of finance that involves methods and techniques for making decisions about what kinds of *securities* to own (e.g., bonds or stocks), which firms' securities to buy, and how to pay the investor back in the form that the investor wishes

▼ **FIGURE 1.5** Investments



Investors mark the start and end of the financial process; they put money in and reap the rewards (or take the risk).

(e.g., the timing and certainty of the promised cash flows). Figure 1.5 models cash flows from the investor's perspective. The concerns of the investments subarea of finance are shown (with the movement of red arrows) from the investor's viewpoint (seen as the blue box).

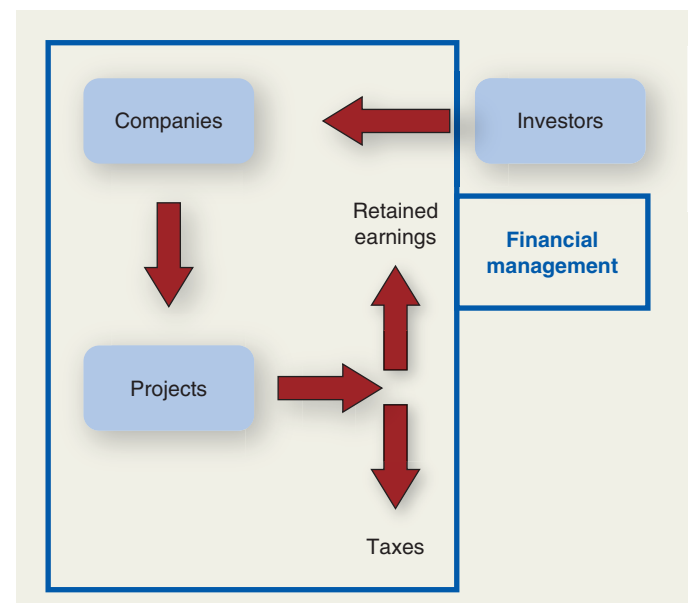
Financial management is the subarea that deals with a firm's decisions in acquiring and using the cash that is received from investors or from retained earnings. Figure 1.6 depicts the financial management process very simply. As we know, this text focuses primarily on financial management. We'll see that this critical area of finance involves decisions about:

- How to organize the firm in a manner that will attract capital.
- How to raise capital (e.g., bonds versus stocks).
- Which projects to fund.
- How much capital to retain for ongoing operations and new projects.
- How to minimize taxation.
- How to pay back capital providers.

All of these decisions are quite involved, and we will discuss them throughout later chapters.

**Financial institutions and markets** make up another major subarea of finance. These two dynamic entities work in different ways to facilitate capital flows between investors and companies. Figure 1.7 illustrates the process in which the firm

▼ **FIGURE 1.6** Financial Management

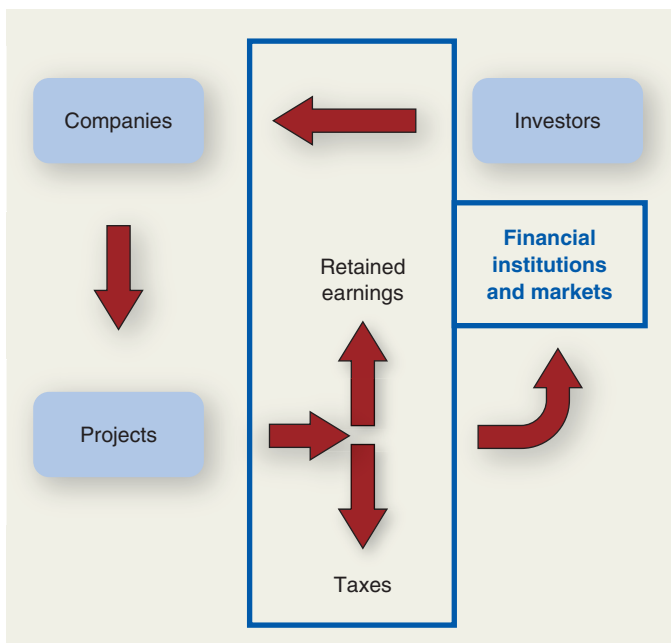


Financial managers make decisions that should benefit both the company and the investor.

**investments** The analysis and process of choosing securities and other assets to purchase.

**financial institutions and markets** The organizations that facilitate the flow of capital between investors and companies.

▼ **FIGURE 1.7** Financial Institutions and Markets



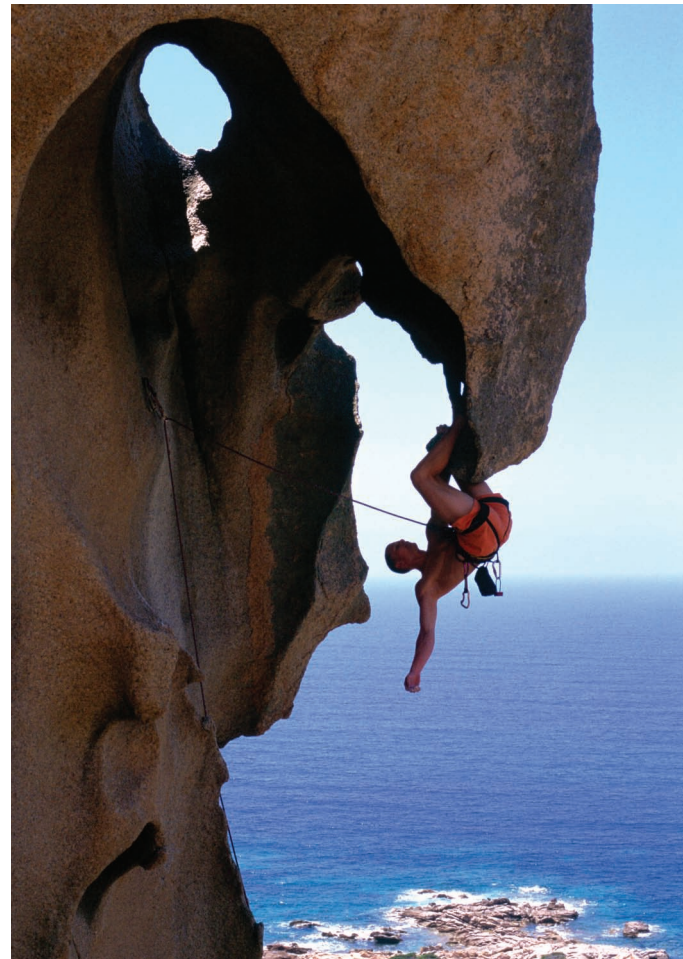
Financial institutions and markets facilitate the flows of money between investors and companies.

acquires capital and investors take part in ongoing securities trading to increase that capital. Financial institutions, such as banks and pension administrators, are vital players that contribute to the dynamics of interest rates.

**International finance** is the final major subarea of finance we will study. As the world has transformed into a global economy, finance has had to become much more innovative and sensitive to changes in other countries. Investors, companies, business operations, and capital markets may all be located in different countries. Adapting to this environment requires understanding of international dynamics, as Figure 1.8 shows. In the past, international financial decisions were considered to be a straightforward application of the other three financial subareas. But experience has shown that the uncertainty about future exchange rates, political risk, and changing business laws across the globe adds enough complexity to these decisions to classify international finance as a subarea of finance in its own right.

## Application and Theory for Financial Decisions

*Cash flows are neither instantaneous nor guaranteed.* We need to keep this in mind as we begin to apply finance theory to



*Risk tolerance varies among individuals.*

real decisions. Future cash flows are uncertain in terms of both timing and size, and we refer to this uncertainty as **risk**. Investors experience risk about the return of their capital. Companies experience risk in funding and operating their business projects. Most financial decisions involve comparing the rewards of a decision to the risks that decision may generate.

Comparing rewards with risks frequently involves assessing the value today of cash flows that we expect to receive in the future. For example, the price of a **financial asset**, something worth money, such as a stock or a bond, should depend on the cash flows you expect to receive from that asset in the future. A stock that's expected to deliver high cash flows in the future will be more valuable today than a stock with low expected future cash flows. Of course, investors would like to buy stocks whose market prices are currently lower than their

Most financial decisions involve comparing the rewards of a decision to the risks that decision may generate.

