NINTH EDITION

FOUNDATIONS OF FINANCE

KEOWN | MARTIN | PETTY

Foundations of Finance

The Logic and Practice of Financial Management

Ninth Edition

The Pearson Series in Finance

Berk/DeMarzo
*Corporate Finance**
*Corporate Finance: The Core**

Berk/DeMarzo/Harford
*Fundamentals of Corporate Finance**

Brooks
*Financial Management: Core Concepts**

Copeland/Weston/Shastri
Financial Theory and Corporate Policy

Dorfman/Cather
Introduction to Risk Management and Insurance

Eakins/McNally
*Corporate Finance Online**

Eiteman/Stonehill/Moffett
*Multinational Business Finance**

Fabozzi
Bond Markets: Analysis and Strategies

Foerster
*Financial Management: Concepts and Applications**

Frasca
Personal Finance

Gitman/Zutter
*Principles of Managerial Finance**
*Principles of Managerial Finance—Brief Edition**

Haugen
The Inefficient Stock Market: What Pays Off and Why
Modern Investment Theory

Holden
Excel Modeling in Corporate Finance
Excel Modeling in Investments

Hughes/MacDonald
International Banking: Text and Cases

Hull
Fundamentals of Futures and Options Markets
Options, Futures, and Other Derivatives

Keown
*Personal Finance: Turning Money into Wealth**

Keown/Martin/Petty
*Foundations of Finance: The Logic and Practice of Financial Management**

Madura
*Personal Finance**

Marthinsen
Risk Takers: Uses and Abuses of Financial Derivatives

McDonald
Derivatives Markets
Fundamentals of Derivatives Markets

Mishkin/Eakins
Financial Markets and Institutions

Moffett/Stonehill/Eiteman
Fundamentals of Multinational Finance

Nofsinger
Psychology of Investing

Pennacchi
Theory of Asset Pricing

Rejda/McNamara
Principles of Risk Management and Insurance

Smart/Gitman/Joehnk
*Fundamentals of Investing**

Solnik/McLeavey
Global Investments

Titman/Keown/Martin
*Financial Management: Principles and Applications**

Titman/Martin
Valuation: The Art and Science of Corporate Investment Decisions

Weston/Mitchel/Mulherin
Takeovers, Restructuring, and Corporate Governance

*Denotes MyFinanceLab titles. Log onto www.myfinancelab.com to learn more.

Foundations of Finance

The Logic and Practice of Financial Management

Ninth Edition

Arthur J. Keown
Virginia Polytechnic Institute and State University
R. B. Pamplin Professor of Finance

John D. Martin
Baylor University
Professor of Finance
Carr P. Collins Chair in Finance

J. William Petty
Baylor University
Professor of Finance
W. W. Caruth Chair in Entrepreneurship

PEARSON

Boston Columbus Indianapolis New York San Francisco
Amsterdam Cape Town Dubai London Madrid Milan Munich Paris Montreal Toronto
Delhi Mexico City Sao Paulo Sydney Hong Kong Seoul Singapore Taipei Tokyo

Vice President, Business Publishing: Donna Battista
Editor-in-Chief: Adrienne D'Ambrosio
Acquisitions Editor: Kate Fernandes
Editorial Assistant: Kathryn Brightney
Vice President, Product Marketing: Maggie Moylan
Director of Marketing, Digital Services, and Products: Jeanette Koskinas
Senior Product Marketing Manager: Alison Haskins
Executive Marketing Manager: Adam Goldstein
Team Lead, Program Management: Ashley Santora
Program Manager: Kathryn Dinovo
Team Lead, Project Management: Jeff Holcomb
Project Manager: Meredith Gertz
Operations Specialist: Carol Melville
Creative Director: Blair Brown
Art Director: Jon Boylan
Vice President, Director of Digital Strategy and Assessment: Paul Gentile
Manager of Learning Applications: Paul DeLuca
Digital Editor: Brian Hyland
Director, Digital Studio: Sacha Laustsen
Digital Studio Manager: Diane Lombardo
Executive Media Producer: Melissa Honig
Digital Studio Project Manager: Andra Skaalrud
Senior Digital Product Manager: Robert St. Laurent
Digital Content Team Lead: Noel Lotz
Digital Content Project Lead: Miguel Leonarte
Project Management, Composition, Art Creation, Text Design, and Cover Design: Cenveo® Publisher Services
Cover Art: © Matej Kotula/Shutterstock
Printer/Binder: RR Donnelley
Cover Printer: Phoenix Color/Hagerstown

Acknowledgments of third-party content appear on the appropriate page within the text.

Photo credits: p. 3: Iain Masterton/Alamy; p. 23: Paul Sakuma/AP Images; p. 55: Bloomberg/Getty Images; p. 107: Robin Nelson/ZUMA Press, Inc./Alamy; p. 153: Jorge Salcedo/Shutterstock; p. 197: ZUMA Press, Inc./Alamy; p. 237: Erich Hafele/Alamy; p. 269: dpa picture alliance/Alamy; 295: PSL Images/Alamy; p. 327: Elvin Cheng/Alamy; p. 369: Larry W Smith/EPA/Newscom; p. 407: Stuwdamdorp/Alamy; p. 445: Daniele Salvatori/Alamy; p. 467: DPD ImageStock/Alamy; p. 487: Paul Sakuma/AP Images; p. 515: Escudero Patrick/hemis.fr/Alamy; w-2: Lourens Smak/Alamy

Library of Congress Cataloging-in-Publication Data

Names: Keown, Arthur J. | Martin, John D. | Petty, J. William
Title: Foundations of finance: the logic and practice of financial management/Arthur J. Keown, John D. Martin, J. William Petty.
Description: Ninth Edition. | Boston : Pearson, 2016. | Series: The pearson series in finance | Revised edition of Foundations of finance, 2014. | Includes bibliographical references and index.
Identifiers: LCCN 2015039822| ISBN 9780134083285 (alk. paper) | ISBN 0134083288 (alk. paper)
Subjects: LCSH: Corporations–Finance.
Classification: LCC HG4026.F67 2016 | DDC 658.15–dc23
LC record available at **http://lccn.loc.gov/2015039822**

10 9 8 7 6 5 4 3 2 1

PEARSON

ISBN 10: 0-13-408328-8
ISBN 13: 978-0-13-408328-5

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 Jack Griggs, who has been a most loyal and dedicated friend for over 55 years, always placing my interests above his own, and made life's journey a lot of fun along the way.
J. William Petty

About the Authors

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*.

John D. Martin holds the Carr P. Collins Chair in Finance in the Hankamer School of Business at Baylor University, where he was selected as the outstanding professor in the EMBA program multiple times. Professor Martin joined the Baylor faculty in 1998 after spending 17 years on the faculty of the University of Texas at Austin. Over his career he has published over 50 articles in the leading finance journals, including papers in the *Journal of Finance*, *Journal of Financial Economics*, *Journal of Financial and Quantitative Analysis*, *Journal of Monetary Economics*, and *Management Science*. His recent research has spanned issues related to the economics of unconventional energy sources, the hidden cost of venture capital, and the valuation of firms filing Chapter 11. He is also co-author of several books, including *Financial Management: Principles and Practice* (13th ed., Prentice Hall), *Foundations of Finance* (9th ed., Prentice Hall), *Theory of Finance* (Dryden Press), *Financial Analysis* (3rd ed., McGraw-Hill), *Valuation: The Art and Science of Corporate Investment Decisions* (3rd ed., Prentice Hall), and *Value Based Management with Social Responsibility* (2nd ed., Oxford University Press).

J. William Petty, PhD, Baylor University, is Professor of Finance and W. W. Caruth Chair of Entrepreneurship. Dr. Petty teaches entrepreneurial finance at both the undergraduate and graduate levels. He is 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 include the financing of entrepreneurial firms and shareholder value-based management. He has 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 serves 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.

Brief Contents

Contents

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 first 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 eight 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 Ninth Edition

Technology is ever present in our lives today, and we are beginning to see its effective use in education. One form of learning technology that we believe has great merit today is the *lecture video*. For all the numbered in-text examples in the Ninth Edition, we have recorded brief (10- to 15-minute) lecture videos that students can replay as many times as they need to help them understand more fully each of the in-text examples. We are confident that many students will enjoy having the authors "tutoring" them when it comes to the primary examples in the text. The videos can be found in the eText within MyFinanceLab.

In addition to the innovations of this edition, we have made some chapter-by-chapter updates in response to 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 chapter introduction
- Revised and updated discussion of the five principles

Chapter 2
The Financial Markets and Interest Rates

- Revised coverage of the term structure of interest rates to address the very low rates that characterize today's markets
- Simplified, more intuitive discussion on interest rate determinants
- Added coverage of the term structure of interest rates into the end-of-chapter problems

Chapter 3
Understanding Financial Statements and Cash Flows

- Uses The Coca-Cola Company, a firm all students are familiar with, to help them understand financial statements
- Expanded coverage of balance sheets, focusing on what can be learned from them

- More intuitive presentation of cash flows
- New explanation of fixed and variable costs as part of presenting an income statement
- Four lecture videos accompany the in-chapter examples.

Chapter 4
Evaluating a Firm's Financial Performance

- Continues the use of The Coca-Cola Company'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 Coca-Cola's financial performance to that of PepsiCo, a major competitor.
- Provides a new Finance at Work box, based on an example from the soft-drink industry
- Revised presentation of evaluating a company's liquidity to align more closely with how business managers talk about liquidity
- Four lecture videos accompany the in-chapter examples.

Chapter 5
The Time Value of Money

- Revised to appeal to all students regardless of their level of mathematical skill
- New section added on "Making Interest Rates Comparable," with new end-of-chapter questions dealing with calculation of the effective annual rate
- Additional problems emphasizing complex streams of cash flows
- Thirteen lecture videos accompany the in-chapter examples.

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
- Numerous new examples involving companies the students are familiar with are presented throughout the chapter to illustrate the concepts and applications in the chapter.
- Two lecture videos accompany the in-chapter examples.

Chapter 7
The Valuation and Characteristics of Bonds

- A number of new examples involving real-life firms
- Two lecture videos accompany the in-chapter examples.

Chapter 8
The Valuation and Characteristics of Stock

- More current explanation of options for getting stock quotes from the *Wall Street Journal*
- Four lecture videos accompany the in-chapter examples.

Chapter 9
The Cost of Capital

- Five lecture videos correspond to the five major in-chapter examples
- Eight end-of-chapter problems revised or replaced by new problem exercises

Chapter 10
Capital-Budgeting Techniques and Practice

- Extensively revised chapter introduction, which looks at Disney's decision to build the Shanghai Disney Resort
- Addition of a new section along with additional discussion of the modified internal rate of return that not only summarizes the tool, but also provides important caveats concerning its use
- Eight lecture videos accompany the in-chapter examples.

Chapter 11
Cash Flows and Other Topics in Capital Budgeting

- Revised introduction examining the difficulties Toyota faced in estimating future cash flows when it introduced the Prius
- New Finance at Work box dealing with Disney World
- Problem set revised to include additional coverage of real options
- Three lecture videos accompany the in-chapter examples.

Chapter 12
Determining the Financing Mix

- Problem set revised to include two new and one revised exercise
- Two lecture videos accompany the in-chapter examples.

Chapter 13
Dividend Policy and Internal Financing

- Updated discussion of the tax code for personal tax treatment of dividends and capital gains
- A lecture video accompanies the in-chapter example.

Chapter 14
Short-Term Financial Planning

- Two new problems added
- Two lecture videos accompany the in-chapter examples.

Chapter 15
Working-Capital Management

- Four new problem exercises added
- Five lecture videos accompany the in-chapter examples.

Chapter 16
International Business Finance

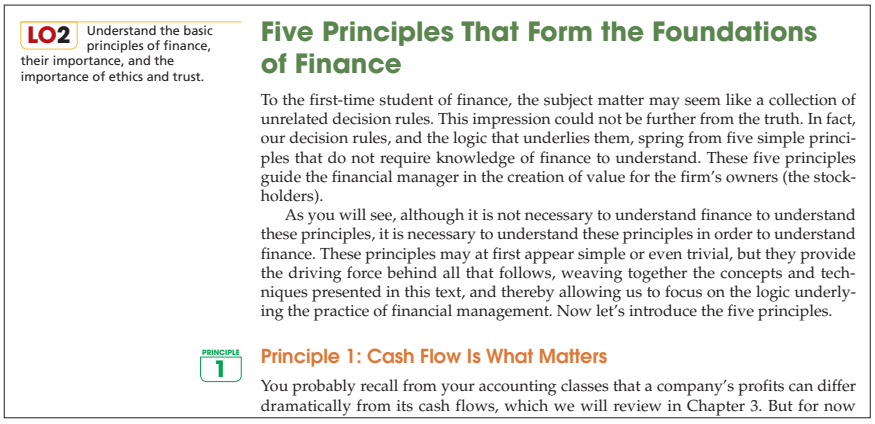
- Revised extensively to reflect changes in exchange rates and global financial markets
- A new section titled "What a Change in the Exchange Rate Means for Business" deals with the implications of exchange rate changes
- Three lecture videos accompany the in-chapter examples.

Web Chapter 17
Cash, Receivables, and Inventory Management

- Simplified presentation of chapter materials

Pedagogy That Works

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 eight editions to include the following features.



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

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.

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.

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 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?" 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.

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

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 × real rate of interest
0.04	=	1.06 × real rate of interest				

Solving for the real rate of interest:

Real rate of interest = 0.0377 = 3.77%

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
Return on equity	$\frac{\text{net income}}{\text{total common equity}}$	Measures the shareholders' accounting return on their investment.

CALCULATOR SOLUTION

Data Input	Function Key
10	N
6	I/Y
−500	FV
0	PMT
Function Key	**Answer**
CPT	
PV	279.20

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.

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.

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 asks 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.

a. 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.
b. The real risk-free rate of interest is the difference between the calculated average yield on 3-month Treasury bills and the inflation rate.
c. The default-risk premium is estimated by the difference between the average yields on Aaa-rated bonds and 30-year Treasury bonds.
d. The maturity-risk premium is estimated by the difference between the average yields on 30-year Treasury bonds and 3-month Treasury bills.
e. 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.

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.

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 **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 Rodrigo Hernandez of Radford 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 and updated by Mary Schranz, 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, 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 it from the Instructor's Resource Center by visiting **http://www.pearsonhighered.com/irc**.

The PowerPoint Lecture Presentation

This lecture presentation tool, prepared by Sonya Britt of Kansas State 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.

Excel Spreadsheets

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

Acknowledgments

We gratefully acknowledge the assistance, support, and encouragement of those individuals who have contributed to *Foundations of Finance*. Specifically, we wish to recognize the very helpful insights provided by many of our colleagues. For this edition, we are especially grateful to Mary Schranz, formerly of the University of Wisconsin, Madison, who performed an incredibly detailed accuracy review. We are also indebted to many other professionals for their careful reviews and helpful comments:

Haseeb Ahmed, Johnson C. Smith University

Joan Anderssen, Arapahoe Community College

Chris Armstrong, Draughons Junior College

Curtis Bacon, Southern Oregon University

Deb Bauer, University of Oregon

Pat Bernson, County College of Morris

Ed Boyer, Temple University

Joe Brocato, Tarleton State University

Joseph Brum, Fayetteville Technical Community College

Lawrence Byerly, Thomas More College

Juan R. Castro, LeTourneau University

Janice Caudill, Auburn University

Ting-Heng Chu, East Tennessee State University

David Daglio, Newbury College

Julie Dahlquist, University of Texas at San Antonio

David Darst, Central Ohio Technical College

Maria de Boyrie, New Mexico State University

Kate Demarest, Carroll Community College

Khaled Elkhal, University of Southern Indiana

Cheri Etling, University of Tampa

Robert W. Everett, Lock Haven University

Cheryl Fetterman, Cape Fear Community College

David R. Fewings, Western Washington University

Dr. Charles Gahala, Benedictine University

Harry Gallatin, Indiana State University

Deborah Giarusso, University of Northern Iowa

Gregory Goussak, University of Nevada, Las Vegas

Lori Grady, Bucks County Community College

Ed Graham, University of North Carolina, Wilmington

Barry Greenberg, Webster University

Gary Greer, University of Houston Downtown

Indra Guertler, Simmons College

Bruce Hadburg, University of Tampa

Thomas Hiebert, University of North Carolina, Charlotte

Marlin Jensen, Auburn University

John Kachurick, Misericordia University

Okan Kavuncu, University of California at Santa Cruz

Gary Kayakachoian, The University of Rhode Island

David F. Kern, Arkansas State University

Brian Kluger, University of Cincinnati

Lynn Phillips Kugele, University of Mississippi

Mary LaPann, Adirondack Community College

Carlos Liard-Muriente, Central Connecticut State University

Christopher Liberty, College of Saint Rose, Empire State College

Lynda Livingston, University of Puget Sound

Y. Lal Mahajan, Monmouth University
Edmund Mantell, Pace University
Peter Marks, Rhode Island College
Mario Mastrandrea, Cleveland State University
Anna McAleer, Arcadia University
Robert Meyer, Parkland College
Ronald Moy, St. John's University
Elisa Muresan, Long Island University
Michael Nugent, Stony Brook University
Tony Plath, University of North Carolina at Charlotte
Anthony Pondillo, Siena College
Walter Purvis, Coastal Carolina Community College
Emil Radosevich, Central New Mexico Community College
Deana Ray, Forsyth Technical Community College
Clarence Rose, Radford University
Ahmad Salam, Widener University
Mary Schranz, University of Wisconsin, Madison (retired)
Jeffrey Schultz, Christian Brothers University
Thomas W. Secrest, Coastal Carolina University
Ken Shakoori, California State University, Bakersfield
Michael Slates, Bowling Green State University
Suresh Srivastava, University of Alaska, Anchorage
Maurry Tamarkin, Clark University
Fang Wang, West Virginia University
Paul Warrick, Westwood College
Jill Wetmore, Saginaw Valley State University
Kevin Yost, Auburn University
Jingxue Yuan, Texas Tech University
Mengxin Zhao, Bentley College

We also thank our friends at Pearson. They are a great group of folks. We offer our personal expression of appreciation to Vice President of Business Publishing Donna Battista, who provided the leadership and direction to this project. She is the best, and she settles for nothing less than perfection—thanks, Donna. We would also like to thank Kate Fernandes, our finance editor. Kate is full of energy and drive with amazing insights and intuition about what makes a great book. Additionally, Kathryn Dinovo, our program manager, helped us develop new technology—videos and animations—for this edition. We would also like to thank Meredith Gertz, our project manager, who guided us through the writing and production processes. Meredith kept us on schedule while maintaining extremely high quality. Our thanks also go to Heidi Allgair of Cenveo Publisher Services, who served as the project manager and did a superb job. Even more, she was fun to work with, always keeping us on task. Miguel Leonarte, who worked on MyFinanceLab, also deserves a word of thanks for making MyFinanceLab flow so seamlessly with the book. He has continued to refine and improve MyFinanceLab, and as a result of his efforts, it has become a learning tool without equal. We also thank Melissa Honig, our media producer, who did a great job of making sure we are on the cutting edge in terms of Web applications and offerings.

As a final word, we express our sincere thanks to those who are using *Foundations of Finance* in the classroom. We thank you for making us a part of your teaching–learning team. Please feel free to contact any member of the author team should you have questions or needs.

—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

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, 18 years later, in 2015, the price of Apple's common stock climbed by 225-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 your products, and you keep developing and introducing new products that consumers want—the iPhone. With this in mind, in October 2014, Apple unveiled its iPhone 6 and 6 Plus, selling over 10 million phones in the first week. In effect, Apple seems to have a never-ending supply of new, exciting products that we all want. Then in April 2015, Apple introduced the Apple Watch, and it is now considering introducing an Apple Car by 2020.

How did Apple make the 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. 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

LO1 Identify 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. 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; 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?

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, 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 certainly was—in fact, it was the 27th 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 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 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. With a Broadway version under development and the possibility of a sequel under way, Disney is going to be 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

PRINCIPLE 2

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.

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

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 3: Risk Requires a Reward

PRINCIPLE 3

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 The Risk–Return Trade-off

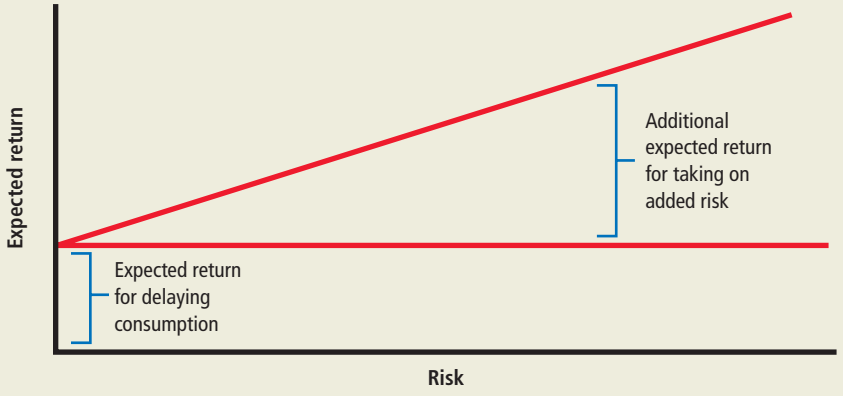


Figure 1-1 depicts the basic notion that an investor's rate of return should equal a rate of return for delaying consumption plus an additional return for assuming risk. For example, if you have $5,000 to invest and are considering either buying stock in Apple (AAPL) or investing in a new biotech startup 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 Vascular Biogenics (VBLT), an Israeli-based clinical-stage biopharmaceutical company, on February 19, 2015. Why? Because on that day the company reported that Phase 2 trials of one of its drugs aimed at psoriasis and ulcerative colitis failed to meet its primary endpoints. The result was that, within minutes of the announcement, the company's stock price dropped by a whopping 65 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

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 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 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, and *Frozen*. In spite of all this success, in 2014, the hopes for *Guardians of the Galaxy*, based on a relatively unknown Marvel comic book series starring a tree and a talking raccoon among other characters, weren't very high. However, the movie's opening weekend receipts were amazing: While it was projected to gross less than $70 million worldwide, it actually grossed over $160 million and became the top grossing movie of 2014. How did the stock market respond to the unexpected box office reaction during the movie's opening weekend? On the Monday following the opening weekend, Disney stock opened over 2 percent higher. 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 on February 25, 2015, when it was learned that *60 Minutes* would air a potentially damaging story on Lumber Liquidators later that week. As a result, Lumber Liquidators' stock price dropped by 25 percent even before anyone knew what the story was going to be about—in effect, it dropped before the news. After the *60 Minutes* report that outlined health and safety concerns with its laminated flooring actually aired on Sunday evening, Lumber Liquidators opened another 25 percent down.

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. 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 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 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.

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

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.

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

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.

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.

The 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, many Americans still feel the lingering effects of the financial crisis from lost wages resulting from high unemployment, along with a dramatic rise in our country's debt. Europe also faced a financial crisis of its own. Many members of the European Union (EU) experienced severe budget problems, including Greece, Italy, Ireland, Portugal, and Spain. These nations have all had problems balancing their budgets and repaying their government loans.

Although 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.

Okay, 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