

HERBERT B. MAYO

INVESTMENTS

AN INTRODUCTION



13e

HERBERT B. MAYO

INVESTMENTS

AN INTRODUCTION



Australia • Brazil • Mexico • Singapore • United Kingdom • United States

Copyright 2021 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. WCN 02-200-203

Copyright 2021 Cengage Learning. All Rights Reserved. May not be copied, scanned, or duplicated, in whole or in part. Due to electronic rights, some third party content may be suppressed from the eBook and/or eChapter(s). Editorial review has deemed that any suppressed content does not materially affect the overall learning experience. Cengage Learning reserves the right to remove additional content at any time if subsequent rights restrictions require it.

This is an electronic version of the print textbook. Due to electronic rights restrictions, some third party content may be suppressed. Editorial review has deemed that any suppressed content does not materially affect the overall learning experience. The publisher reserves the right to remove content from this title at any time if subsequent rights restrictions require it. For valuable information on pricing, previous editions, changes to current editions, and alternate formats, please visit www.cengage.com/highered to search by ISBN#, author, title, or keyword for materials in your areas of interest.

Important Notice: Media content referenced within the product description or the product text may not be available in the eBook version.

**Investments: An Introduction,
Thirteenth Edition**
Herbert B. Mayo

Senior Vice President, Higher Education
Product, Content, and Market
Development: Erin Joyner

Vice President, Product Management:
Mike Schenk

Product Director: Jason Fremder

Sr. Product Manager: Aaron Arnsparger

Content Manager: Christopher
Valentine

Marketing Manager: Christopher Walz

Marketing Coordinator: Sean Messer

Product Assistant: Margaret Russo

Digital Delivery Lead: Timothy Ross

Art and Cover Direction, Production
Management, and Composition:
Lumina Datamatics, Inc.

Intellectual Property

Analyst: Ashley Maynard

Project Manager: Carly Belcher

Cover Designer: Chris Doughman

Cover Image: iStockPhoto.com/
Nomadsoul1; iStock.com/Barcin

Interior image credit: ©malerapaso/
Getty Images

© 2021, 2017 Cengage Learning

Unless otherwise noted, all content is © Cengage.

ALL RIGHTS RESERVED. No part of this work covered by the copyright herein may be reproduced, transmitted, stored, or used in any form or by any means graphic, electronic, or mechanical, including but not limited to photocopying, recording, scanning, digitizing, taping, Web distribution, information networks, or information storage and retrieval systems, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without the prior written permission of the publisher.

For product information and technology assistance, contact us at
Cengage Learning Customer & Sales Support, 1-800-354-9706

For permission to use material from this text or product,
submit all requests online at www.cengage.com/permissions

Further permissions questions can be emailed to
permissionrequest@cengage.com

Library of Congress Control Number: 2019910667

Student Edition ISBN: 978-0-357-12795-7

Loose-leaf Edition ISBN: 978-0-357-12798-8

Cengage

200 Pier 4 Boulevard
Boston, MA 02210
USA

Cengage Learning is a leading provider of customized learning solutions with employees residing in nearly 40 different countries and sales in more than 125 countries around the world. Find your local representative at www.cengage.com.

Cengage Learning products are represented in Canada by
Nelson Education, Ltd.

To learn more about Cengage Learning Solutions,
visit www.cengage.com.

Purchase any of our products at your local college store or at
our preferred online store www.cengage.com.

Dedication

For Dylan and Holly
who bring joy to my life

For Margaret Trejo
whose valuable help over many
editions is so appreciated

Brief Contents

PART 1	The Investment Process and Financial Concepts	1
CHAPTER 1	An Introduction to Investments	3
CHAPTER 2	Securities Markets	17
CHAPTER 3	The Time Value of Money	58
CHAPTER 4	Financial Planning, Taxation, and the Efficiency of Financial Markets	98
CHAPTER 5	Risk and Portfolio Management	132
PART 2	Investment Companies	199
CHAPTER 6	Investment Companies: Mutual Funds	201
CHAPTER 7	Closed-End Investment Companies, Real Estate Investment Trusts (REITs), and Exchange-Traded Funds (ETFs)	242
PART 3	Investing in Common Stock	269
CHAPTER 8	Stock	271
CHAPTER 9	The Valuation of Common Stock	324
CHAPTER 10	Investment Returns and Aggregate Measures of Stock Markets	365
CHAPTER 11	The Macroeconomic Environment for Investment Decisions	404
CHAPTER 12	Behavioral Finance and Technical Analysis	423
PART 4	Investing in Fixed-Income Securities	447
CHAPTER 13	The Bond Market	449
CHAPTER 14	The Valuation of Fixed-Income Securities	485
CHAPTER 15	Government Securities	539
CHAPTER 16	Convertible Bonds and Convertible Preferred Stock	585
PART 5	Derivatives	623
CHAPTER 17	An Introduction to Options	625
CHAPTER 18	Option Valuation and Strategies	670
CHAPTER 19	Commodity and Financial Futures	717
PART 6	An Overview	761
CHAPTER 20	Financial Planning and Investing in an Efficient Market Context	763

Contents

Preface xiii

PART 1 The Investment Process and Financial Concepts 1

CHAPTER 1	An Introduction to Investments	3
	Portfolio Construction and Planning	4
	Preliminary Definitions	6
	Diversification and Asset Allocation	8
	Efficient and Competitive Markets	9
	Portfolio Assessment	10
	“Trading” versus “Investing”	11
	Assumptions	11
	Professional Designations and Certifications	12
	The Internet	12
	The Plan and Purpose of This Text	13
CHAPTER 2	Securities Markets	17
	Secondary Markets and the Role of Market Makers	18
	The Mechanics of Investing in Securities	22
	The Short Sale	32
	Foreign Securities	36
	Regulation	37
	Securities Investor Protection Corporation	42
	Initial Public Offerings	42
CHAPTER 3	The Time Value of Money	58
	The Future Value of \$1	59
	The Present Value of \$1	62
	The Future Sum of an Annuity	64
	The Present Value of an Annuity	68
	Illustrations of Compounding and Discounting	72
	Equations for the Interest Factors	76
	Nonannual Compounding	78
	Uneven Cash Flows	79
	Appendix 3: Using Excel to Solve Time Value Problems	92

CHAPTER 4	Financial Planning, Taxation, and the Efficiency of Financial Markets	98
	The Process of Financial Planning	99
	Asset Allocation	103
	Taxation	104
	Pension Plans	107
	The Efficient Market Hypothesis	111
	Appendix 4: The Deductible versus the Nondeductible IRA	128
CHAPTER 5	Risk and Portfolio Management	132
	Return	133
	Sources of Risk	136
	Total (Portfolio) Risk	140
	The Measurement of Risk	143
	Risk Reduction Through Diversification: An Illustration	152
	Portfolio Theory	155
	The Capital Asset Pricing Model	160
	Beta Coefficients	163
	Arbitrage Pricing Theory	171
	Appendix 5: Statistical Tools	185
	The Standard Deviation	185

PART 2 Investment Companies

199

CHAPTER 6	Investment Companies: Mutual Funds	201
	Investment Companies: Origins and Terminology	202
	Mutual Funds	203
	The Portfolios of Mutual Funds	205
	Money Market Mutual Funds	208
	Selecting Mutual Funds	211
	Taxation	217
	Redeeming Mutual Fund Shares	223
	Measures of Risk-Adjusted Performance	225
CHAPTER 7	Closed-End Investment Companies, Real Estate Investment Trusts (REITs), and Exchange-Traded Funds (ETFs)	242
	Closed-End Investment Companies	243
	Real Estate Investment Trusts (REITs)	248

Exchange-Traded Funds (ETFs)	252
Hedge Funds and Private Equity Firms	256
Investment Companies and Foreign Investments	259

PART 3 Investing in Common Stock

269

CHAPTER 8 Stock 271

The Corporate Form of Business and the Rights of Common Stockholders	272
Cash Dividends	275
Stock Dividends	280
The Stock Split	282
Stock Repurchases and Liquidations	284
Preferred Stock	286
Analysis of Financial Statements	288
Liquidity Ratios	290
Activity Ratios	293
Profitability Ratios	296
Leverage (Capitalization) Ratios	299
Coverage Ratios	301
Analysis of Financial Statements, Securities Selection, and the Internet	303
Analysis of Cash Flow	304

CHAPTER 9 The Valuation of Common Stock 324

The Logical Process of Securities Valuation	325
The Investor's Expected Return	326
Stock Valuation: The Present Value of Dividends	328
Risk-Adjusted Required Return and Stock Valuation	333
Stock Valuation: Discounted Earnings or Cash Flow	336
Stock Valuation: Analysis of Financial Statements and Price Multiples	338
Valuation and the Efficient Market Hypothesis	346
Appendix 9: Testing the Efficient Market Hypothesis: The Event Study	360

CHAPTER 10 Investment Returns and Aggregate Measures of Stock Markets 365

Measures of Stock Performance: Averages and Indexes	366
The Dow Jones Industrial Average	369
Other Indexes of Aggregate Stock Prices	375
Rates of Return on Investments in Common Stock	381

Studies of Investment Returns 386
 Reducing the Impact of Price Fluctuations: Averaging 391

CHAPTER 11 The Macroeconomic Environment for Investment Decisions 404

The Economic Environment 405
 Measures of Economic Activity 406
 The Consumer Price Index 409
 The FED 411
 Fiscal Policy 416
 The 2008–2012 Economic Environment 418

CHAPTER 12 Behavioral Finance and Technical Analysis 423

Behavioral Finance 424
 Technical Analysis 429
 Market Indicators 431
 Specific Stock Indicators 433
 Technical Analysis in an Efficient Market Context 440
 The Dogs of the Dow 443

PART 4 Investing in Fixed-Income Securities 447

CHAPTER 13 The Bond Market 449

General Features of Bonds 450
 Risk 456
 The Mechanics of Purchasing Bonds 460
 Variety of Corporate Bonds 462
 High-Yield Securities 467
 Accrued Interest, Zero Coupon Bonds, Original-Issue
 Discount Bonds, and Income Taxation 471
 Retiring Debt 472
 Obtaining Information on Bonds 478
 Appendix 13: The Term Structure of Interest Rates 483

CHAPTER 14 The Valuation of Fixed-Income Securities 485

Perpetual Securities 486
 Bonds with Maturity Dates 488
 Fluctuations in Bond Prices 492
 The Valuation of Preferred Stock 495
 Yields 496
 Risk and Fluctuations in Yields 501
 Realized Returns and the Reinvestment Assumption 503

Duration	506
Bond Price Convexity and Duration	512
Management of Bond Portfolios	514
Appendix 14A: Bond Discounts/Premiums and Duration Compared	533
Appendix 14B: Using the Structure of Yields to Price a Bond	537

CHAPTER 15 Government Securities 539

The Variety of Federal Government Debt	540
STRIPS	547
Inflation-Indexed Treasury Securities	548
Federal Agencies' Debt	549
State and Local Government Debt	557
Authority Bonds	565
Foreign Government Debt Securities	565
Government Securities and Investment Companies	566
Appendix 15: Using Yield Curves	578
Yield Curves and Active Bond Strategies	578
Riding the Yield Curve to Enhance Short-Term Yields	582

CHAPTER 16 Convertible Bonds and Convertible Preferred Stock 585

Features of Convertible Bonds	586
The Valuation of Convertible Bonds	587
Premiums Paid for Convertible Debt	593
Convertible Preferred Stock	597
Selecting Convertibles	600
The History of Selected Convertible Bonds	602
Calling Convertibles	604
Contingent Convertible Bonds	605
Put Bonds	605
Bonds with Put and Call Features Compared	607
Investment Companies and Convertible Securities	608

PART 5 Derivatives

623

CHAPTER 17 An Introduction to Options 625

Call Options	626
Leverage	630
Writing Calls	635
Puts	639

LEAPS	648
Price Performance of Puts and Calls	648
The Chicago Board Options Exchange	651
Stock Index Options	652
Currency and Interest Rate Options	654
Warrants	655

CHAPTER 18 Option Valuation and Strategies 670

Black-Scholes Option Valuation	671
Expensing Employee Stock Options and Option Valuation	679
Put–Call Parity	680
The Hedge Ratio	683
Additional Option Strategies	687
Buying the Call and a Treasury Bill versus Buying the Stock— An Alternative to the Protective Put	699
Appendix 18: Binomial Option Pricing	713

CHAPTER 19 Commodity and Financial Futures 717

Investing in Commodity Futures	718
Leverage	723
Hedging	727
The Selection of Commodity Futures Contracts	729
The Pricing of Futures	732
Financial Futures and Currency Futures	734
Futures for Debt Instruments	742
Currency Futures	742
Swaps	745

PART 6 An Overview

761

CHAPTER 20 Financial Planning and Investing in an Efficient Market Context 763

Portfolio Planning, Construction, and Risk Management	763
Choice and Its Impact on Security Selection and Risk	765
The Importance of Market Efficiency	766
Appendix A	773
Appendix B	779
Glossary	789
Index	799

Preface

Many individuals find investments to be fascinating because they can actively participate in the decision-making process and see the results of their choices. Of course, not all investments will be profitable because you will not always make correct investment decisions. In addition, there is the thrill from a major success, along with the agony associated with the stock that dramatically rose after you sold or did not buy. Both the big fish you catch and the big fish that got away can make wonderful stories.

Investing, of course, is not a game but a serious subject that can have a major impact on your future well-being. Virtually everyone makes investments. Even if the individual does not select specific assets such as the stock of AT&T or federal government bonds, investments are still made through participation in pension plans and employee savings programs or through the purchase of whole-life insurance or a home. Each of these investments has common characteristics, such as the potential return and the risk you must bear. The future is uncertain, and you must determine how much risk you are willing to bear, since a higher return is associated with accepting more risk.

You may find investing daunting because of specialized jargon or having to work with sophisticated professionals. A primary aim of this textbook is to make investing less difficult by explaining the terms, by elucidating the possible alternatives, and by discussing many of the techniques professionals use to value assets and to construct portfolios. Although this textbook cannot show you a shortcut to financial wealth, it can reduce your chances of making uninformed investment decisions.

This textbook uses a substantial number of examples and illustrations employing data that are generally available to the investing public. This information is believed to be accurate; however, you should not assume that mention of a specific firm and its securities is a recommendation to buy or sell those securities. The examples have been chosen to illustrate specific points, not to pass judgment on individual investments.

Many textbooks on investments are written for students with considerable background in accounting, finance, and economics. Not every student who takes a course in investments has such a background. These students cannot cope with (or be expected to cope with) the material in advanced textbooks on investments. *Investments: An Introduction* is directed at these students and covers investments from descriptive material to the theory of portfolio construction and efficient markets. Some of the concepts (e.g., portfolio theory) and some of the investment alternatives (e.g., derivatives) are difficult to understand. There is no shortcut to learning this material, but this text does assume that you have a desire to tackle a fascinating subject and to devote real energy to the learning process.

THE STRUCTURE OF *INVESTMENTS: AN INTRODUCTION*

The initial concept for *Investments: An Introduction* was a text with many short chapters. However, over time many instructors requested coverage of more topics, and I concluded that some of the explanations needed to be expanded. The result was that the text grew in size, but the basic approach never changed.

Part 1, Chapters 1 through 5, is devoted to the investment process and fundamental financial concepts such as the time value of money and the measurement of risk. Part 2, Chapters 6 and 7, covers investment companies. References to investment companies such as exchange-traded funds occur throughout the text. Part 3, Chapters 8 through 12, is devoted to investing in stock, while Part 4, Chapters 13 through 16, is devoted to fixed-income securities. Chapters 17 through 19 (Part 5) cover those fascinating speculative and financial assets referred to as derivatives. The text ends with one chapter (Part 6) that serves as a summing up of the process of financial planning, the management of risk, and the role of the individual's belief in the efficiency of financial markets.

CHANGES FROM THE PREVIOUS EDITION

This edition essentially continues the educational process used in prior editions. The changes emphasize clarification and updates such as a refinement of the discussion of risk reduction through diversification in Chapter 5 and an updated discussion of the aftermath of the Great Recession of 2007–2009 in Chapter 10. Emphasis is placed on illustrations when updating is appropriate, such as changes in the tax code stemming from the Tax Cuts and Jobs Act (TCJA). In other cases, however, illustrations are not changed when they emphasize a specific point that is independent of time. Most footnotes have been integrated into the text because students told me that they do *not* read the footnotes.

PEDAGOGICAL FEATURES

In addition to the “Relationships” and “Fundamental Worked Problems,” this textbook has a variety of features designed to assist the individual in the learning process. Chapters begin with a set of learning objectives that emphasize topics to be covered as the chapter develops. Terms to remember are defined in the marginal glossary entry that appears as each term is introduced. Chapters also include questions and, where appropriate, problems. The questions and problems are straightforward and designed to review and apply the material in the chapter. Answers to selected problems are provided in Appendix B.

Most of the chapters have short cases. These are not cases in the general usage of the term, in which a situation is presented and the student is required to determine the appropriate questions and formulate an answer or strategy. Instead, the cases are essentially problems that are cast in real-world situations. Their primary

purpose is to illustrate how the material may apply in the context of real investment decisions.

Many instructors have students construct a paper portfolio. A project, referred to as “Investment Assignment,” is included. It is essentially a buy-and-hold strategy, and as the semester proceeds more parts are added to the assignment.

POSSIBLE ORGANIZATIONS OF INVESTMENT COURSES

This textbook has 20 chapters, but few instructors are able to complete the entire book in a semester course. Many of the chapters are self-contained units, so individual chapters may be omitted (or transposed) without loss of continuity. There are, however, exceptions. For example, the pricing of bonds uses the material on the time value of money. The valuation of common stock employs statistical concepts covered in the chapter on risk.

Individual course coverage also depends on the background of the students or how much they have retained from prior courses. Time value of money (Chapter 3), measurement of risk (Chapter 5), and the analysis of financial statements in Chapter 8 may have been covered in other finance or accounting courses. These chapters may be quickly reviewed or omitted. Other chapters are not easily omitted. Securities markets (Chapter 2), the analysis, valuation, and selection of common stock (Part 3), and fixed-income securities (Chapters 13 and 14) are the backbone of investments and need to be covered. Since investment companies (Part 2) have become such a large part of savings programs such as retirement plans, they should also be included in an introduction to investments.

The remaining chapters offer individual instructors considerable choice. My preference is to include an introduction to options (Chapter 17), which many students find both difficult and exciting. I also have a personal bias toward the material on financial planning and taxation, since I believe they play an important role in portfolio construction and asset selection.

SUPPLEMENTARY MATERIALS

A number of supplements are included in the Investments package and are available to instructors and students using the textbook.

Instructor’s Manual and Test Bank (found on the Instructor’s companion website)

The Instructor’s Manual includes points to consider when answering the questions as well as complete solutions to the problems. In addition, suggestions are given for using the Investment Assignment feature in the classroom and teaching notes are provided for the cases. The Test Bank section of the manual includes approximately 1,000 true/false and multiple-choice questions. It is available on the text website in Word and several LMS formats. The Test Bank can also be found in Cognero.

Cognero™ Testing Software

Cengage Learning Testing Powered by Cognero™ is a flexible, online system that allows you to author, edit, and manage test bank content from multiple Cengage Learning solutions; create multiple test versions in an instant; deliver tests from your LMS, your classroom, or wherever you want.

PowerPoint™ Slides

These are available on the website for use by instructors for enhancing their lectures. These slides bring out the most important points in the chapter. They also include important charts and graphs from the text, which will aid students in the comprehension of significant concepts.

Website

The support website for *Investments: An Introduction*, Thirteenth Edition (www.cengage.com) includes the following features:

- About the Product
- Instructor's Manual
- Test Bank
- PowerPoint Slides

ACKNOWLEDGMENTS

A textbook requires the input and assistance of many individuals. Over the years, my publisher has provided a variety of reviews from individuals who sincerely offered suggestions. Unfortunately, suggestions from different reviewers are sometimes contradictory. Since I cannot please all the reviewers at the same time, I trust that individuals whose advice was not or could not be taken will not be offended.

At this point, it is traditional for the author to thank members of the editorial and production staff for their help in bringing the book to fruition. I wish to thank Aaron Arnsparger, Christopher Valentine, and Troy Adair.

These individuals deserve warm thanks for their efforts toward facilitating the completion of this text.

The Investment Process and Financial Concepts



PART 1

Investing is a process by which individuals construct a portfolio of assets designed to meet specified financial goals. Specific objectives range from financing retirement or paying for a child's education to starting a business and having funds to meet financial emergencies. The specification of financial goals is important, for they help determine the appropriateness of the assets acquired for the portfolio.

Part 1 of this text covers the mechanics of buying and selling financial assets, the legal and tax environment in which investment decisions are made, and crucial financial concepts that apply to asset allocation and portfolio management. Chapter 1 introduces important definitions and concepts that appear throughout the text. Chapter 2 is devoted to the mechanics of investing. These include the process by which securities are issued and subsequently bought and sold. Next follows one of the most important concepts in finance, the time value of money (Chapter 3). All investments are made in the present but returns occur in the future. Linking the future and the present is the essence of the time value of money.

Chapter 4 combines several disparate topics. It begins with financial planning and the importance of asset allocation. However, you execute your financial plan in a world of taxation and efficient financial markets. Tax

rates differ on long-term and short-term capital gains; some investments defer tax obligations and others avoid taxation. These differences in taxation affect the amount of your return that you *get to keep*. In addition, some facet of the tax law changes each year, complicating investment decision making and affecting investment strategy.

Since the future is not known, all investments involve risk. Chapter 5 is devoted to sources of risk, how risk may be measured, and how it may be managed. The allocation of your assets and the construction of a diversified portfolio may be the most important financial concept you must face. Failure to diversify subjects the investor to additional risk without generating additional return. Your objective should be to construct a portfolio that maximizes your return for a given level of risk. Of course, this requires that you determine how much risk you are willing to bear. Individuals with different financial resources and disparate financial goals may be willing to accept different levels of risk, but in each case the goal is to maximize the return for the amount of risk the investor bears.

One final caveat before you start Part 1. Chapter 4 introduces the concept that investments are made in exceedingly competitive markets. Rapid dissemination of information and stiff competition among investors

produce efficient markets. Efficient markets imply that you cannot expect to earn abnormally high returns over an extended period of time. Although you may outperform the market, such performance on a consistent basis is rare. Perhaps you will do exceptionally well, but then there is also the chance of doing

exceptionally poorly. The emphasis in this text will be not how to outperform but how to use financial assets to meet financial goals. That is, you should emphasize constructing a diversified portfolio that meets your financial objectives and earns a return that compensates you for the risk you take.

An Introduction to Investments



CHAPTER 1

LEARNING OBJECTIVES

After completing this chapter you should be able to:

1. Explain why individuals should specify investment goals.
2. Distinguish between primary and secondary markets, risk and speculation, liquidity, and marketability.
3. Identify the sources of risk and the sources of return.
4. Differentiate between efficient and inefficient markets.

In 1986, Microsoft first sold its stock to the general public. Within 10 years, the stock's value had increased by over 5,000 percent. A \$10,000 investment was worth over \$500,000. In the same year, Worlds of Wonder also sold its stock to the public. Ten years later, the company was defunct. A \$10,000 investment was worth nothing. These are two examples of emerging firms that could do well or could fail. Would investing in large, well-established companies generate more consistent returns? The answer depends, of course, on which stocks were purchased and when. In 1972, Xerox stock reached a high of \$171.87 a share. The price subsequently declined and currently languishes way below that historic high.

Today the investment environment is even more dynamic. World events can rapidly alter the values of specific assets. There are so many assets from which to choose. The amount of information available to investors is staggering and grows continually. The accessibility of personal computers and the dissemination of information on the Internet increase an individual's ability to track investments and to perform investment analysis. Furthermore, the recessions of 1990–1991 and 2008–2009, the large decline in stock prices during 2007–2009, the historic decline in interest rates during 2001–2003 and 2008–2009, the market boom from 2009 through 2018, and the frequent changes in

the tax laws have increased investor awareness of the importance of financial planning, asset selection and allocation, and portfolio construction.

This text will describe and explain many investment alternatives and strategies. But a textbook cannot make investment decisions for you; it can only provide information about your choices. This text explains techniques for analyzing and valuing financial assets, their sources of risk, and how these risks may be managed, if not eliminated. It is your obligation to learn the material, determine which parts are most relevant, and then apply them to your financial situation.

PORTFOLIO CONSTRUCTION AND PLANNING

portfolio

An accumulation of assets owned by the investor and designed to transfer purchasing power to the future.

Investment decisions are about making choices: Will income be spent or saved? If you choose to save, you face a second decision: What should be done with the savings? Each saver must decide where to invest this command over resources (goods and services) that is currently not being used. This is an important decision because these assets are the means by which investors transfer today's purchasing power to the future. In effect, you must decide on a **portfolio** of assets to own. (Terms will be in boldface and defined in the margin.) A portfolio is a combination of assets designed to serve as a store of value. Poor management of these assets may destroy the portfolio's value, and you will then not achieve your financial goals.

There are many assets (e.g., stocks, bonds, and derivatives) that you may include in the portfolio. This textbook will discuss many of them, but the stress will be on long-term financial assets. While you may hold a portion of the portfolio in short-term assets, such as savings accounts, these assets do not present the problem of valuation and choice that accompanies the decision to purchase a stock or a bond. Understanding how long-term securities are bought and sold, how they are valued, and how they may be used in portfolio construction is the primary focus of this text.

Several factors affect the construction of a portfolio. These include the goals of the investor, the risks involved, the taxes that will be imposed on any gain, and a knowledge of investment alternatives. This text describes these alternative investments, their use in a portfolio, the risks associated with owning them, and their valuation.

The investor's goals should largely determine the construction and management of the portfolio. Investing must have a purpose, for without a goal a portfolio is like a boat without a rudder. Some objective must guide the composition of the portfolio.

There are many reasons for saving and accumulating assets. Individuals may postpone current consumption to accumulate funds to make the down payment on a house, finance a child's education, start a business, meet financial emergencies, finance retirement, leave a sizable estate, or even accumulate for the sake of accumulating. For any or all of these reasons, people construct portfolios rather than spend all their current income.

The motives for saving should dictate, or at least affect, the composition of the portfolio. Not all assets are appropriate to meet specific financial objectives. For example, savings that are held to meet emergencies, such as an extended illness or unemployment, should not be invested in assets whose return and safety of principal are uncertain. Instead, emphasis should be placed on safety of principal and assets that

may be readily converted into cash, such as savings accounts or shares in money market mutual funds. The emphasis should not be on growth and high returns. However, the funds should not sit idle but should be invested in safe assets that offer a modest return.

Other objectives, such as financing retirement or a child's education, have a longer and more certain time horizon. The investor knows approximately when the funds will be needed and so can construct a portfolio with a long-term horizon. Bonds that mature when the funds will be needed or common stocks that offer the potential for growth would be more appropriate than savings accounts or certificates of deposit with a bank. The longer time period suggests the individual can acquire long-term assets that may offer a higher yield.

Most investors have several financial objectives that must be met simultaneously. Thus, it is not surprising to learn that their portfolios contain a variety of assets. Of course, priorities and needs differ. The individual who is employed in a cyclical industry and may be laid off during a recession may place more stress on funds to cover unemployment than would the tenured professor. An individual with a poor medical history may seek to have more short-term investments than the person with good health. Medical coverage or disability insurance will also affect the individual's need for funds to cover a short-term emergency. If the investor has this coverage, more of the portfolio may be directed toward other financial objectives.

In addition to the individual's goals, willingness to bear risk plays an important role in constructing the portfolio. Some individuals are more able to bear (i.e., assume) risk. For example, if the saver wants to build a retirement fund, he or she can choose from a variety of possible investments. However, not all investments are equal with regard to risk and potential return. Those investors who are more willing to accept risk may construct portfolios with assets involving greater risk that may earn higher returns.

Taxes also affect the composition of an individual's portfolio. Income such as interest and realized capital gains are taxed. When a person dies, the federal government taxes the value of the estate, and many states levy a tax on an individual's inheritance. Such taxes and the desire to reduce them affect the composition of each investor's portfolio.

Portfolio decisions are obviously important. They set a general framework for the asset allocation of the portfolio among various types of investments. Individuals, however, rarely construct a portfolio all at once but acquire assets one at a time. The decision revolves around which specific asset to purchase: Which mutual fund? Which bond? Or which stock? Security analysis considers the merits of the individual asset. Portfolio management determines the impact that the specific asset has on the portfolio.

A large portion of this text is devoted to descriptions and analysis of individual securities, because it is impossible to know an asset's effect on the portfolio without first knowing its characteristics. Stocks and bonds differ with regard to risk, potential return, and valuation. Even within a type of asset such as bonds there can be considerable variation. For example, a corporate bond is different from a municipal bond, and a convertible bond differs from a straight bond that lacks the conversion feature. You need to know and to understand these differences as well as the relative merits and risks associated with each of the assets. After understanding how individual assets are valued, you may then construct a portfolio that will aid in the realization of your financial objectives.

PRELIMINARY DEFINITIONS

I went to the doctor and he said, “You have a contusion.” I asked, “What is a contusion?” and he said, “A bruise.” I thought: “A bruise by another name is still a bruise” and immediately wanted to ask (but did not), “Why not call it a bruise?”

Every discipline or profession has its own terminology. The field of investments is no different. Some of the jargon is colorful (e.g., *bull* and *bear*); some is descriptive (e.g., *primary* and *secondary markets*); and some, like *contusion*, seems to confuse or muddy the waters (e.g., *purchasing power risk*, which is the risk associated with loss from inflation). In order to proceed, it is desirable to know some initial definitions concerning investments, and the best time to learn them and to start using them is now.

The term **investment** can have more than one meaning. In economics, it refers to the purchase of a physical asset, such as a firm’s acquisition of a plant, equipment, or inventory or an individual’s purchase of a new home. To the layperson the word denotes buying stocks or bonds (or maybe even a house), but it probably does not mean purchasing a plant, equipment, or inventory.

In either case, the firm or the individual wants a productive asset. The difference in definition rests upon the aggregate change in productive assets that results from the investment. When firms invest in plant and equipment, there is a net increase in productive assets. This increase generally does not occur when individuals purchase stocks and bonds. Instead, for every investment by the buyer there is an equal *disinvestment* by the seller. These buyers and sellers are trading one asset for another: The seller trades the security for cash, and the buyer trades cash for the security. These transactions occur in secondhand markets, and for that reason, securities markets are often referred to as **secondary markets**. Only when the securities are initially issued and sold in the **primary market** is there an investment in an economic sense. Then and only then does the firm receive the money that it, in turn, may use to purchase a plant, equipment, or inventory.

In this text, the word *investment* is used in the layperson’s sense. Purchase of an asset for the purpose of storing value (and, it is hoped, increasing that value over time) will be called an investment, even if in the aggregate there is only a transfer of ownership from a seller to a buyer. The purchases of stocks, bonds, options, commodity contracts, and even antiques, stamps, and real estate are all considered to be investments if the individual’s intent is to transfer purchasing power to the future. If these assets are acting as stores of value, they are investments for that individual.

Assets have **value** because of the future benefits they offer. The process of determining what an asset is worth today is called **valuation**. An investor appraises the asset and assigns a current value to it based on the belief that the asset will generate cash flows (e.g., interest) or will appreciate in price. After computing this value, the individual compares it with the current market price to determine if the asset is currently overpriced or underpriced.

In some cases, this valuation is relatively easy. For example, the bonds of the federal government pay a fixed amount of interest each year and mature at a specified date. Thus, the future cash flows are known. However, the future cash flows of other assets are not so readily identified. For example, although you may anticipate future dividends, neither their payment nor their amount can be known with certainty. Forecasting future benefits is difficult but crucial to the *process of valuation*. Without

investment (in economics)

The purchase of plant, equipment, or inventory.

investment (in lay terms)

Acquisition of an asset such as a stock or a bond.

secondary market

A market for buying and selling previously issued securities.

primary market

The initial sale of securities.

value

What something is worth; the present value of future benefits.

valuation

The process of determining the current worth of an asset.

forecasts and an evaluation of the asset, you cannot know if the asset should be purchased or sold.

Because the valuation of some assets is complicated and the future is uncertain, people may have different estimates of the future cash flows. It is therefore easy to understand why two individuals may have completely divergent views on the worth of a particular asset. One person may believe that an asset is overvalued and hence seek to sell it, while another may seek to buy it in the belief that it is undervalued. Valuation may be subjective, which leads to one person's buying while the other is selling. That does not mean that one person is necessarily irrational or incompetent. People's perceptions or estimates of an asset's potential may change, affecting their valuation of the specific asset.

return

The sum of income plus capital gains earned on an investment in an asset.

income

The flow of money or its equivalent produced by an asset; dividends and interest.

capital gain

An increase in the value of a capital asset, such as a stock.

rate of return

The annual percentage return realized on an investment.

risk

The possibility of loss; the uncertainty of future returns.

speculation

An investment that offers a potentially large return but is also very risky; a reasonable probability that the investment will produce a loss.

An investment is made because the investor anticipates a **return**. The total return on an investment is what the investor earns. This may be in the form of **income**, such as dividends and interest, or in the form of **capital gains**, or appreciation if the asset's price rises. Not all assets offer both income and capital appreciation. Some stocks pay no current dividends but may appreciate in value. Other assets, including savings accounts, do not appreciate in value. The return is solely the interest income.

Return is frequently expressed in percentages, such as the **rate of return**, which is the annualized return that is earned by the investment relative to its cost. Before purchasing an asset, the investor anticipates that the return will be greater than that of other assets of similar risk. Without this anticipation, the purchase would not be made. The *realized* return may, of course, be quite different from the *anticipated* rate of return. That is the element of risk.

Risk is the uncertainty that the anticipated return will be achieved. As Chapter 5 discusses, there are many sources of risk. The investor must be willing to bear these risks to achieve the expected return. Even relatively safe investments involve some risk; there is no completely safe investment. For example, savings accounts that are insured still involve some element of risk of loss. If the rate of inflation exceeds the rate of interest that is earned on these insured accounts, the investor suffers a loss of purchasing power.

While the term *risk* has a negative connotation, uncertainty works both ways. For example, events may occur that cause the value of an asset to rise more than anticipated. Certainly, the stockholders of Rubbermaid reaped larger-than-anticipated returns when it was announced the firm would merge with Newell. The price paid for the stock was considerably higher than the price the security commanded before the announcement of the merger.

A term that is frequently used in conjunction with risk is **speculation**. Many years ago, virtually all investments were called *speculations*. Today the word implies a high degree of risk. However, risk is not synonymous with speculation. Speculation has the connotation of gambling, in which the odds are against the player. Many securities are risky, but over a period of years the investor should earn a positive return. The odds are not really against the investor, and such investments are not speculations.

The term *speculation* is rarely used in this text, and when it is employed, the implication is that the individual runs a good chance of losing the funds invested in the speculative asset. Although a particular speculation may pay off handsomely, the investor should not expect that many such gambles will reap large returns. After the investor

adjusts for the larger amount of risk that must be borne to own such speculative investments, the anticipated return may not justify the risk involved.

Besides involving risk and offering an expected return, stores of value have marketability or liquidity. These terms are sometimes used interchangeably, but they may also have different definitions. **Marketability** implies that the asset can be bought and sold. Many financial assets, such as the stock of AT&T, are readily marketable.

marketability

The ease with which an asset may be bought and sold.

liquidity

Moneyness; the ease with which assets can be converted into cash.

The ease with which an asset may be converted into money is its **liquidity**. Unfortunately, the word *liquidity* is ambiguous. In academic writings on investments, liquidity usually means ease of converting an asset into cash *without loss*. A savings account with a commercial bank is liquid, but shares of IBM would not be liquid, since you could sustain a loss. In professional writings, liquidity usually means ability to sell an asset without affecting its price. In that context, liquidity refers to the *depth* of the market for the asset. You may be able to buy or sell 1,000 shares of IBM stock without affecting its price, in which case the stock is liquid. The context in which the word is used often indicates the specific meaning.

All assets that serve as stores of value possess some combination of marketability, liquidity, and the potential to generate future cash flow or appreciate in price. These features, along with the risk associated with each asset, should be considered when including the asset in an individual's portfolio. Since assets differ with regard to their features, you need to know the characteristics of each asset. Much of the balance of this text describes each asset's features as well as its sources of risk and return and how it may be used in a well-diversified portfolio.

DIVERSIFICATION AND ASSET ALLOCATION

Chapter 5 indicates that the impact of asset-specific risk may be diversified away. As that chapter explains in detail, to achieve diversification the returns on your investments must not be highly correlated. Factors that negatively affect one security must have a positive impact on others. For example, higher oil prices may be good for ExxonMobil but bad for Delta Air Lines. By combining a variety of disparate assets, you achieve diversification and reduce risk.

Asset allocation refers to acquiring a wide spectrum of assets. Individuals use their finite resources to acquire various types of assets that include stocks, bonds, precious metals, collectibles, and real estate. Even within a class such as stocks, the portfolio is allocated to different sectors or geographic regions. For example, you may own domestic stocks and stocks of companies in emerging nations. It would appear that “asset allocation” and “diversification” are synonymous, and to some extent they are. By allocating your assets over different types of assets, you contribute to the diversification of the portfolio. But asset allocation and diversification are often used in different contexts. For example, you may tilt your allocation toward energy stocks and away from airlines if you anticipate high gas prices. Your allocation between stocks, bonds, and other assets remains the same, but the allocation between two sectors is altered.

The words *diversification* and *asset allocation* are often used in this text. Diversification is important because it reduces your risk exposure. Asset allocation is important because it has a major impact on the return your portfolio earns. Whenever you make

an investment decision, you need to consider its impact on the diversification of your portfolio and the allocation of your assets. Both are crucial components of portfolio management.

EFFICIENT AND COMPETITIVE MARKETS

Have you ever been fishing? (If not, substitute playing golf or some similar activity.) Did you catch any fish? Which fish did you talk about? The answer to that question is probably the “big one” or the “big one that got away.” What is more important, of course, is the size of the average fish (or average golf score). If you go fishing several times, you will not catch a “big one” every time or even frequently. The average size of the fish you catch becomes the norm. And other individuals who fish in the same waters will have comparable results. Unless they have special skills or knowledge, most individuals’ catch should be similar to and approach the average size of fish that is caught.

In many ways, the fishing analogy applies to investing in stock. Individuals tend to talk about the big return (“I bought X and it doubled within a week”) or the lost opportunity (“I bought Plain and Fancy Doughnuts of America. It rose 80 percent within an hour and I did not sell”). But what matters is the return you earn after making many investments over an extended period of time. Unless you have special skills or knowledge, that return should tend to be comparable to the return earned by other investors in comparable investments.

Why is this so? The answer lies in the reality that investors participate in efficient and competitive financial markets. Economics teaches that markets with many participants (i.e., buyers and sellers) who may enter and exit freely will be competitive. That certainly describes financial markets. Investors may participate freely in the purchase and sale of stocks and bonds. Virtually anyone, from a child to a grandmother, may own a financial asset, even if it is just a savings account. Many firms, including banks, insurance companies, and mutual funds, compete for the funds of investors. The financial markets are among the most (and perhaps *the* most) competitive of all markets.

Financial markets tend to be efficient. As is explained throughout this text, securities prices depend on future cash flows, such as interest or dividend payments. If new information suggests that these flows will be altered, the market rapidly adjusts the asset’s price. Thus, an efficient financial market implies that a security’s current price embodies all the known information concerning the potential return and risk associated with the particular asset. If an asset, such as a stock, were undervalued and offered an excessive return, investors would seek to buy it, which would drive the price up and reduce the return that subsequent investors would earn. Conversely, if the asset were overvalued and offered an inferior return, investors would seek to sell it, which would drive down its price and increase the return to subsequent investors. The fact that there are sufficient informed investors means that a security’s price will reflect the investment community’s consensus regarding the asset’s true value and also that the expected return will be consistent with the amount of risk the investor must bear to earn the return.

The concept of an efficient financial market has an important and sobering corollary. Efficient markets imply that investors (or at least the vast majority of investors) cannot expect on average to beat the market *consistently*. Of course, that does not mean