Investments

THIRTEENTH EDITION

ZVI BODIE
Boston University

ALEX KANE
University of California, San Diego

ALAN J. MARCUS
Boston College

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About the Authors

ZVI BODIE

Boston University

Zvi Bodie is Professor Emeritus at Boston University. He holds a PhD from the Massachusetts Institute of Technology and has served on the finance faculty at the Harvard Business School and MIT's Sloan School of Management. He has published widely in scholarly and professional journals on pension investment strategy and life-cycle asset-liability matching. In 2007 the Retirement Income Industry Association gave him its Lifetime Achievement Award for applied research.

ALEX KANE

University of California, San Diego

Alex Kane holds a PhD from the Stern School of Business of New York University and has been Visiting Professor at the Faculty of Economics, University of Tokyo; Graduate School of Business, Harvard; Kennedy School of Government, Harvard; and Research Associate, National Bureau of Economic Research. An author of many articles in finance and management journals, Professor Kane's research is mainly in corporate finance, portfolio management, and capital markets.

ALAN J. MARCUS

Boston College

Alan Marcus is the Mario J. Gabelli Professor of Finance in the Carroll School of Management at Boston College. He received his PhD in economics from MIT. Professor Marcus has been a visiting professor at the Athens Laboratory of Business Administration and at MIT's Sloan School of Management and has served as a research associate at the National Bureau of Economic Research. Professor Marcus has published widely in the fields of capital markets and portfolio management. He also spent two years at the Federal Home Loan Mortgage Corporation (Freddie Mac), where he developed models of mortgage pricing and credit risk. He currently serves on the Research Foundation Advisory Board of the CFA Institute.

Special Contributor

Nicholas Racculia, Saint Vincent College

Nicholas Racculia holds a PhD from Princeton University and serves as Professor of Finance at St. Vincent College. Professor Racculia teaches a wide range of classes in Corporate Finance and Investments. He has significantly participated in the expansion of Chapter 26 on Alternative Assets. His contributions also play a key role in the development of online content for the text.

Brief Contents

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Preface

The past three decades witnessed rapid and profound change in the investments industry as well as a financial crisis of historic magnitude. The vast expansion of financial markets during this period was due in part to innovations in securitization and credit enhancement that gave birth to new trading strategies. These strategies were in turn made feasible by developments in communication and information technology, as well as by advances in the theory of investments.

Yet the financial crisis of 2008–2009 also was rooted in the cracks of these developments. Many of the innovations in security design facilitated high leverage and an exaggerated notion of the efficacy of risk transfer strategies. This engendered complacency about risk that was coupled with relaxation of regulation as well as reduced transparency, masking the precarious condition of many big players in the system. Of necessity, our text has evolved along with financial markets and their influence on world events.

Investments, Thirteenth Edition, is intended primarily as a textbook for courses in investment analysis. Our guiding principle has been to present the material in a framework that is organized by a central core of consistent fundamental principles. We attempt to strip away unnecessary mathematical and technical detail, and we have concentrated on providing the intuition that may guide students and practitioners as they confront new ideas and challenges in their professional lives.

This text will introduce you to major issues currently of concern to all investors. It can give you the skills to assess watershed current issues and debates covered by both the popular media and more-specialized finance journals. Whether you plan to become an investment professional, or simply a sophisticated individual investor, you will find these skills essential, especially in today's rapidly evolving environment.

Our primary goal is to present material of practical value, but all three of us have spent our careers as researchers in financial economics and find virtually all of the material in this book to be of great intellectual interest. The capital asset pricing model, the arbitrage pricing model, the efficient markets hypothesis, the option-pricing model, and the other centerpieces of modern financial theory are as much intellectually engaging subjects as they are of immense practical importance for the sophisticated investor.

In our effort to link theory to practice, we also have attempted to make our approach consistent with that of the CFA Institute. In addition to fostering research in finance, the CFA Institute administers an education and certification program to candidates seeking designation as a Chartered Financial Analyst (CFA). The CFA curriculum represents the consensus of a committee of distinguished scholars and practitioners regarding the core of knowledge required by the investment professional.

Many features of this text make it consistent with and relevant to the CFA curriculum. Questions adapted from past CFA exams appear at the end of nearly every chapter, and references are listed at the end of the book. Chapter 3 includes excerpts from the "Code of Ethics and Standards of Professional Conduct" of the CFA Institute. Chapter 28, which discusses investors and the investment process, presents the CFA Institute's framework for systematically relating investor objectives and constraints to ultimate investment policy. End-of-chapter problems also include questions from test-prep leader Kaplan Schweser.

In the Thirteenth Edition, we have continued our systematic presentation of Excel spreadsheets that will allow you to explore concepts more deeply. These spreadsheets, available in Connect and on the student resources site (**www.mhhe.com/Bodie13e**), provide a taste of the sophisticated analytic tools available to professional investors.

UNDERLYING PHILOSOPHY

While the financial environment is constantly evolving, many basic *principles* remain important. We believe that

fundamental principles should organize and motivate all study and that attention to these few central ideas can simplify the study of otherwise difficult material. These principles are crucial to understanding the securities traded in financial markets and in understanding new securities that will be introduced in the future, as well as their effects on global markets. For this reason, we have made this book thematic, meaning we never offer rules of thumb without reference to the central tenets of the modern approach to finance.

The common theme unifying this book is that *security markets are nearly efficient,* meaning most securities are usually priced appropriately given their risk and return attributes. Free lunches are rarely found in markets as competitive as the financial market. This simple observation is, nevertheless, remarkably powerful in its implications for the design of investment strategies; as a result, our discussions of strategy are always guided by the implications of the efficient markets hypothesis. While the degree of market efficiency is, and always will be, a matter of debate (in fact we devote a full chapter to the behavioral challenge to the efficient market hypothesis), we hope our discussions throughout the book convey a good dose of healthy skepticism concerning much conventional wisdom.

Distinctive Themes

Investments is organized around several important themes:

1. The central theme is the **near-informational-efficiency of well-developed security markets,** such as those in the United States, and the general awareness that competitive markets do not offer "free lunches" to participants.

   A second theme is the **risk–return trade-off.** This too is a no-free-lunch notion, holding that in competitive security markets, higher expected returns come only at a price: the need to bear greater investment risk. However, this notion leaves several questions unanswered. How should one measure the risk of an asset? What should be the quantitative trade-off between risk (properly measured) and expected return? The approach we present to these issues is known as *modern portfolio theory,* which is another organizing principle of this book. Modern portfolio theory focuses on the techniques and implications of *efficient diversification,* and we devote considerable attention to the effect of diversification on portfolio risk as well as the implications of efficient diversification for the proper measurement of risk and the risk–return relationship.
2. This text places great emphasis on **asset allocation.** We prefer this emphasis for two important reasons. First, it corresponds to the procedure that most individuals actually follow. Typically, you start with all of your money in a bank account, only then considering how much to invest in something riskier that might offer a higher expected return. The logical step at this point is to consider risky asset classes, such as stocks, bonds, or real estate. This is an asset allocation decision. Second, asset allocation is the primary determinant of the risk–return profile of the investment portfolio, and so it deserves primary attention in a study of investment policy.
3. This text offers a **broad and deep treatment of futures, options, and other derivative security markets.** These markets are both crucial and integral to the financial universe. Your only choice is to become conversant in these markets—whether you are to be a finance professional or simply a sophisticated individual investor.

NEW IN THE THIRTEENTH EDITION

The following is a guide to changes in the Thirteenth Edition. This is not an exhaustive road map, but instead is meant to provide an overview of substantial additions and changes to coverage from the last edition of the text.

Chapter 1 The Investment Environment

The chapter addresses recent controversies about stakeholder capitalism and ESG investing. It also further expands its treatment of Fintech, cryptocurrencies, and other digital assets.

Chapter 2 Asset Classes and Financial Instruments

The chapter addresses changes in markets, most notably the replacement of LIBOR with new rates such as SOFR.

Chapter 3 How Securities Are Traded

New sections on SPACs, order internalization, and the GameStop squeeze have been added to the chapter.

Chapter 5 Risk, Return, and the Historical Record

In addition to thorough updating, this chapter has been extensively reorganized to improve flow and understanding.

Chapter 10 Arbitrage Pricing Theory and Multifactor Models of Risk and Return

The discussion of multifactor models has been updated and expanded, with a focus on the adoption of new variants such as the Fama-French five-factor model.

Chapter 11 The Efficient Market Hypothesis

The debate on efficient markets has been further developed. The chapter now includes a discussion of Shiller's fads hypothesis, as well as new material on extra-market risk factors, and a discussion of the challenges posed by

data snooping for the interpretation of empirical evidence on risk and return.

Chapter 12 Behavioral Finance and Technical Analysis

The material on behavioral finance now includes confirmation bias. The section on technical analysis includes a new discussion of machine learning.

Chapter 13 Empirical Evidence on Security Returns

This chapter has been extensively rewritten. Older material has been replaced with treatments of issues such as the so-called factor zoo, appropriate criteria for accepting a new risk factor, and the implications of disaster risk for the equity risk premium.

Chapter 15 The Term Structure of Interest Rates

Market segmentation is now included as another potential explanation of the term structure.

Chapter 17 Macroeconomic and Industry Analysis

The discussion of the macroeconomy has been updated to include lessons learned during the COVID-19 pandemic, particularly the implications of supply side and supply chain issues for inflation.

Chapter 23 Futures, Swaps, and Risk Management

The treatment of interest rate swaps has been updated to account for the transition away from the LIBOR rate.

Chapter 26 Alternative Assets

This chapter, originally entitled *Hedge Funds* now has a wider focus on *Alternative Assets.* It includes substantial coverage of private equity, including angel investing, venture capital, and leveraged buyouts.

Chapter 28 Investment Policy and the Framework of the CFA Institute

This chapter has been substantially reorganized, in particular, its treatment of tax sheltering and top-down asset allocation.

ORGANIZATION AND CONTENT

The text is composed of seven sections that are fairly independent and may be studied in a variety of sequences. Because there is enough material in the book for a two-semester course, clearly a one-semester course will require the instructor to decide which parts to include.

Part One is introductory and contains important institutional material focusing on the financial environment. We discuss the major players in the financial markets, provide an overview of the types of securities traded in those markets, and explain how and where securities are traded. We also discuss in depth mutual funds and other investment companies, which have become an increasingly important means of investing for individual investors. Perhaps most important, we address how financial markets can influence all aspects of the global economy, as in 2008.

The material presented in Part One should make it possible for instructors to assign term projects early in the course. These projects might require the student to analyze in detail a particular group of securities. Many instructors like to involve their students in some sort of investment game, and the material in these chapters will facilitate this process.

Parts Two and Three contain the core of modern portfolio theory. Chapter 5 is a general discussion of risk and return, making the general point that historical returns on broad asset classes are consistent with a risk–return trade-off and examining the distribution of stock returns. We focus more closely in Chapter 6 on how to describe investors' risk preferences and how they bear on asset allocation. In the next two chapters, we turn to portfolio optimization (Chapter 7) and its implementation using index models (Chapter 8).

After our treatment of modern portfolio theory in Part Two, we investigate in Part Three the implications of that theory for the equilibrium structure of expected rates of return on risky assets. Chapter 9 treats the capital asset pricing model and Chapter 10 covers multifactor descriptions of risk and the arbitrage pricing theory. Chapter 11 covers the efficient market hypothesis, including its rationale as well as evidence that supports the hypothesis and challenges it. Chapter 12 is devoted to the behavioral critique of market rationality. Finally, we conclude Part Three with Chapter 13 on empirical evidence on security pricing. This chapter contains evidence concerning the risk–return relationship, as well as liquidity effects on asset pricing.

Part Four is the first of three parts on security valuation. This part treats fixed-income securities—bond pricing (Chapter 14), term structure relationships (Chapter 15), and interest-rate risk management (Chapter 16). **Parts Five and Six** deal with equity securities and derivative securities. For a course emphasizing security analysis and excluding portfolio theory, one may proceed directly from Part One to Part Four with no loss in continuity.

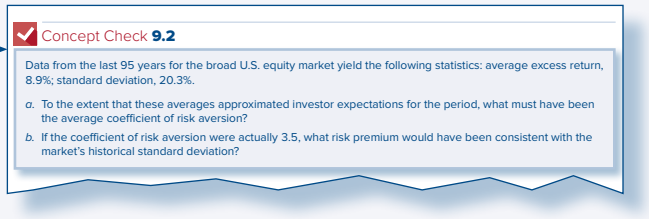
Finally, **Part Seven** considers several topics important for portfolio managers, including performance evaluation, international diversification, active management, and practical issues in the process of portfolio management. This part also contains a chapter on alternative assets, with an emphasis on hedge funds and private equity.

Distinctive Features

This book contains several features designed to make it easy for students to understand, absorb, and apply the concepts and techniques presented.

CONCEPT CHECKS

A unique feature of this book! These self-test questions and problems found in the body of the text enable the students to determine whether they've understood the preceding material. Detailed solutions are provided at the end of each chapter.



Concept Check **9.2**

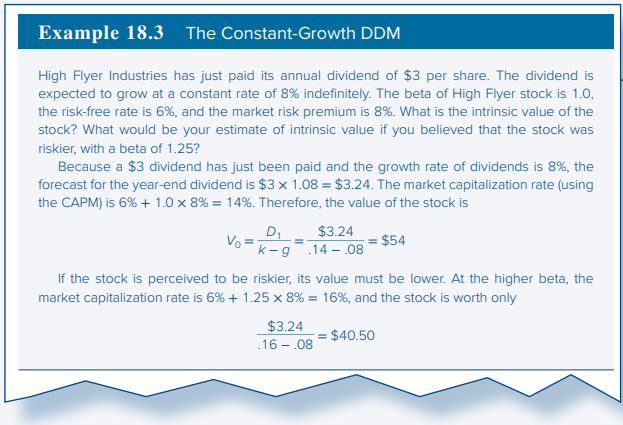
Data from the last 95 years for the broad U.S. equity market yield the following statistics: average excess return, 8.9%; standard deviation, 20.3%.

a. To the extent that these averages approximated investor expectations for the period, what must have been the average coefficient of risk aversion?

b. If the coefficient of risk aversion were actually 3.5, what risk premium would have been consistent with the market's historical standard deviation?

NUMBERED EXAMPLES

are integrated throughout chapters. Using the worked-out solutions to these examples as models, students can learn how to solve specific problems step-by-step as well as gain insight into general principles by seeing how they are applied to answer concrete questions.



Example 18.3 The Constant-Growth DDM

High Flyer Industries has just paid its annual dividend of $3 per share. The dividend is expected to grow at a constant rate of 8% indefinitely. The beta of High Flyer stock is 1.0, the risk-free rate is 6%, and the market risk premium is 8%. What is the intrinsic value of the stock? What would be your estimate of intrinsic value if you believed that the stock was riskier, with a beta of 1.25?

Because a $3 dividend has just been paid and the growth rate of dividends is 8%, the forecast for the year-end dividend is $3 × 1.08 = $3.24. The market capitalization rate (using the CAPM) is 6% + 1.0 × 8% = 14%. Therefore, the value of the stock is

$$V_0 = \frac{D_1}{k - g} = \frac{\$3.24}{.14 - .08} = \$54$$

If the stock is perceived to be riskier, its value must be lower. At the higher beta, the market capitalization rate is 6% + 1.25 × 8% = 16%, and the stock is worth only

$$\frac{\$3.24}{.16 - .08} = \$40.50$$

WORDS FROM THE STREET BOXES

Short articles and financial coverage adapted from business periodicals, such as *The Wall Street Journal,* are included in boxes throughout the text. The articles are chosen for real-world relevance and clarity of presentation.

WORDS FROM THE STREET

What Level of Risk Is Right for You?

No risk, no reward. Most people intuitively understand that they have to bear some risk to achieve an acceptable return on their investment portfolios.

But how much risk is right for you? If your investments turn sour, you may put at jeopardy your ability to retire, to pay for your kid's college education, or to weather an unexpected need for cash. These worst-case scenarios focus our attention on how to manage our exposure to uncertainty.

Assessing—and quantifying—risk aversion is, to put it mildly, difficult. It requires confronting at least these two big questions.

First, how much investment risk can you afford to take? If you have a steady high-paying job, for example, you have greater ability to withstand investment losses. Conversely, if you are close to retirement, you have less ability to adjust your lifestyle in response to bad investment outcomes.

Second, you need to think about your personality and decide how much risk you can tolerate. At what point will you be unable to sleep at night?

To help clients quantify their risk aversion, many financial firms have designed quizzes to help people determine whether they are conservative, moderate, or aggressive investors. These quizzes try to get at clients' attitudes toward risk and their capacity to absorb investment losses.

Here is a sample of the sort of questions that can shed light on an investor's risk tolerance.

MEASURING YOUR RISK TOLERANCE

Circle the letter that corresponds to your answer.

1. The stock market fell by more than 30% in 2008. If you had been holding a substantial stock investment in that year, which of the following would you have done?
   a. Sold off the remainder of your investment before it had the chance to fall further.
   b. Stayed the course with neither redemptions nor purchases.
   c. Bought more stock, reasoning that the market is now cheaper and therefore offers better deals.
2. The value of one of the funds in your 401(k) plan (your primary source of retirement savings) increased 30% last year. What will you do?
4. At the end of the month, you find yourself:
   a. Short of cash and impatiently waiting for your next paycheck.
   b. Not overspending your salary, but not saving very much.
   c. With a comfortable surplus of funds to put into your savings account.
5. You are 30 years old and enrolling in your company's retirement plan, and you need to allocate your contributions across 3 funds: a money market account, a bond fund, and a stock fund. Which of these allocations sounds best to you?
   a. Invest everything in a safe money-market fund.
   b. Split your money evenly between the bond fund and stock fund.
   c. Put everything into the stock fund, reasoning that by the time you retire, the year-to-year fluctuations in stock, returns will have evened out.
6. You are a contestant on *Let's Make a Deal,* and have just won $1,000. But you can exchange the winnings for two random payoffs. One is a coin flip with a payoff of $2,500 if the coin comes up heads. The other is a flip of two coins with a payoff of $6,000 if both coins come up heads. What will you do?
   a. Keep the $1,000 in cash.
   b. Choose the single coin toss.
   c. Choose the double coin toss.
7. Suppose you have the opportunity to invest in a start-up firm. If the firm is successful, you will multiply your investment by a factor of ten. But if it fails, you will lose everything. You think the odds of success are around 20%. How much would you be willing to invest in the start-up?
   a. Nothing
   b. 2 months' salary
   c. 6 months' salary
8. Now imagine that to buy into the start-up you will need to borrow money. Would you be willing to take out a $10,000 loan to make the investment?

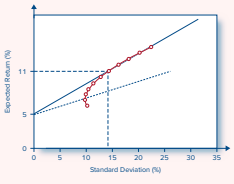
eXcel APPLICATIONS: Two–Security Model

The accompanying spreadsheet can be used to analyze the return and risk of a portfolio of two risky assets. The model calculates expected return and volatility for varying weights of each security as well as the optimal risky and minimum-variance portfolios. Graphs are automatically generated for various model inputs. The model allows you to specify a target rate of return and solves for optimal complete portfolios composed of the risk-free asset and the optimal risky portfolio. The spreadsheet is constructed using the two-security return data (expressed as decimals, not percentages) from Table 7.1. This spreadsheet is available in Connect or through your course instructor.

Excel Question

1. Suppose your target expected rate of return is 11%.
   a. What is the lowest-volatility portfolio that provides that expected return?
   b. What is the standard deviation of that portfolio?
   c. What is the composition of that portfolio?

	A	B	C	D	E	F
1	Asset Allocation Analysis: Risk and Return					
2		Expected	Standard	Correlation		
3		Return	Deviation	Coefficient	Covariance	
4	Security 1	0.08	0.12	0.3	0.0072	
5	Security 2	0.13	0.2			
6	T-Bill	0.05	0			
7						
8	Weight	Weight		Expected	Standard	Reward to
9	Security 1	Security 2		Return	Deviation	Volatility
10	1	0		0.08000	0.12000	0.25000
11	0.9	0.1		0.08500	0.11559	0.30281
12	0.8	0.2		0.09000	0.11454	0.34922
13	0.7	0.3		0.09500	0.11696	0.38474
14	0.6	0.4		0.10000	0.12264	0.40771



EXCEL APPLICATIONS

The Thirteenth Edition features Excel Spreadsheet Applications with Excel questions. A sample spreadsheet is presented in the text with an interactive version available in Connect and on the student resources site at **www.mhhe.com/Bodie13e.**

EXCEL EXHIBITS

Selected exhibits are set as Excel spreadsheets, and the accompanying files are available in Connect and on the student resources site at **www.mhhe.com/Bodie13e.**

	A	B	C	D	E	F	G
1			Time until		PV of CF		Column (C)
2			Payment		(Discount rate =		times
3		Period	(Years)	Cash Flow	5% per period)	Weight*	Column (F)
4	**A.** 8% coupon bond	1	0.5	40	38.095	0.0395	0.0197
5		2	1.0	40	36.281	0.0376	0.0376
6		3	1.5	40	34.554	0.0358	0.0537
7		4	2.0	1040	855.611	0.8871	1.7741
8	Sum:				964.540	1.0000	1.8852
9							
10	**B.** Zero-coupon	1	0.5	0	0.000	0.0000	0.0000
11		2	1.0	0	0.000	0.0000	0.0000
12		3	1.5	0	0.000	0.0000	0.0000
13		4	2.0	1000	822.702	1.0000	2.0000
14	Sum:				822.702	1.0000	2.0000
15							
16	Semiannual int rate:	0.05					
17							
18	*Weight = Present value of each payment (column E) divided by the bond price.						

Spreadsheet 16.1

Calculating the duration of two bonds

Column sums subject to rounding error.

PROBLEM SETS

PROBLEM SETS

1. The Fisher equation tells us that the real interest rate approximately equals the nominal rate minus the inflation rate. Suppose the inflation rate increases from 3% to 5%. Does the Fisher equation imply that this increase will result in a fall in the real rate of interest? Explain.
2. You've just stumbled on a new dataset that enables you to compute historical rates of return on U.S. stocks all the way back to 1880. What are the advantages and disadvantages in using these data to help estimate the expected rate of return on U.S. stocks over the coming year?
3. The Narnian stock market had a rate of return of 45% last year, but the inflation rate was 30%. What was the real rate of return to Narnian investors?
4. You have $5,000 to invest for the next year and are considering three alternatives:

We strongly believe that practice in solving problems is critical to understanding investments, so each chapter provides a good variety of problems. Select problems and algorithmic versions are assignable within Connect.

EXAM PREP QUESTIONS

Practice questions for the CFA® exams provided by Kaplan Schweser, A Global Leader in CFA® Education, are available in selected chapters for additional test practice. Look for the Kaplan Schweser logo. Learn more at **www.schweser.com.**

KAPLAN SCHWESER

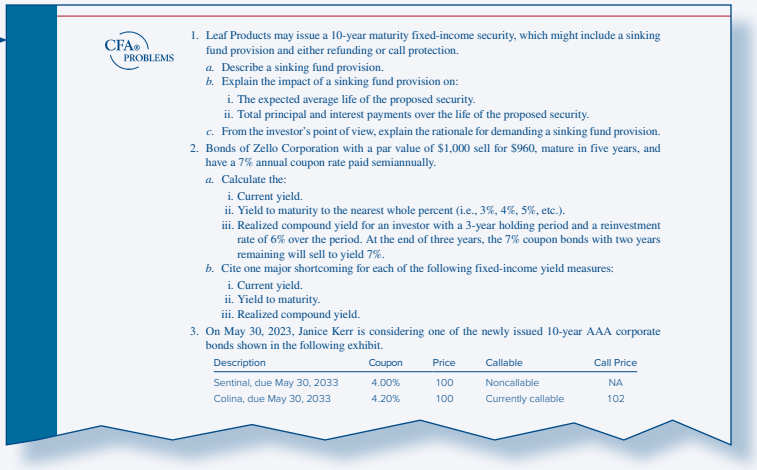
KAPLAN SCHWESER

KAPLAN SCHWESER

5. Characterize each company in the previous problem as underpriced, overpriced, or properly priced.
6. What is the expected rate of return for a stock that has a beta of 1.0 if the expected return on the market is 15%?
   a. 15%.
   b. More than 15%.
   c. Cannot be determined without the risk-free rate.
7. Kaskin, Inc., stock has a beta of 1.2 and Quinn, Inc., stock has a beta of .6. Which of the following statements is *most* accurate?
   a. The expected rate of return will be higher for the stock of Kaskin, Inc., than that of Quinn, Inc.
   b. The stock of Kaskin, Inc., has more total risk than the stock of Quinn, Inc.
   c. The stock of Quinn, Inc., has more systematic risk than that of Kaskin, Inc.

CFA PROBLEMS

We provide several questions adapted for this text from past CFA examinations in applicable chapters. These questions represent the kinds of questions that professionals in the field believe are relevant to the "real world." Located at the back of the book is a listing of each CFA question and the level and year of the CFA exam it was included in for easy reference.



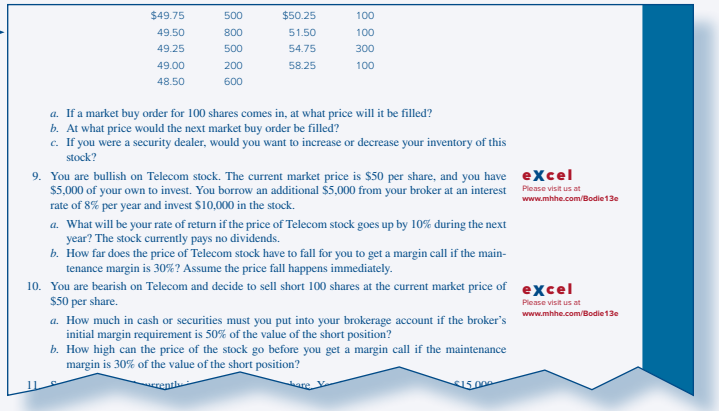
CFA® PROBLEMS

1. Leaf Products may issue a 10-year maturity fixed-income security, which might include a sinking fund provision and either refunding or call protection.
   a. Describe a sinking fund provision.
   b. Explain the impact of a sinking fund provision on:
      i. The expected average life of the proposed security.
      ii. Total principal and interest payments over the life of the proposed security.
   c. From the investor's point of view, explain the rationale for demanding a sinking fund provision.
2. Bonds of Zello Corporation with a par value of $1,000 sell for $960, mature in five years, and have a 7% annual coupon rate paid semiannually.
   a. Calculate the:
      i. Current yield.
      ii. Yield to maturity to the nearest whole percent (i.e., 3%, 4%, 5%, etc.).
      iii. Realized compound yield for an investor with a 3-year holding period and a reinvestment rate of 6% over the period. At the end of three years, the 7% coupon bonds with two years remaining will sell to yield 7%.
   b. Cite one major shortcoming for each of the following fixed-income yield measures:
      i. Current yield.
      ii. Yield to maturity.
      iii. Realized compound yield.
3. On May 30, 2023, Janice Kerr is considering one of the newly issued 10-year AAA corporate bonds shown in the following exhibit.

Description	Coupon	Price	Callable	Call Price
Sentinal, due May 30, 2033	4.00%	100	Noncallable	NA
Colina, due May 30, 2033	4.20%	100	Currently callable	102

EXCEL PROBLEMS

Selected chapters contain problems, denoted by an icon, specifically linked to Excel templates that are available in Connect and on the student resource site at **www.mhhe.com/Bodie13e.**



$49.75	500	$50.25	100
49.50	800	51.50	100
49.25	500	54.75	300
49.00	200	58.25	100
48.50	600		

a. If a market buy order for 100 shares comes in, at what price will it be filled?
b. At what price would the next market buy order be filled?
c. If you were a security dealer, would you want to increase or decrease your inventory of this stock?

9. You are bullish on Telecom stock. The current market price is $50 per share, and you have $5,000 of your own to invest. You borrow an additional $5,000 from your broker at an interest rate of 8% per year and invest $10,000 in the stock.
   a. What will be your rate of return if the price of Telecom stock goes up by 10% during the next year? The stock currently pays no dividends.
   b. How far does the price of Telecom stock have to fall for you to get a margin call if the maintenance margin is 30%? Assume the price fall happens immediately.

excel Please visit us at www.mhhe.com/Bodie13e

10. You are bearish on Telecom and decide to sell short 100 shares at the current market price of $50 per share.
    a. How much in cash or securities must you put into your brokerage account if the broker's initial margin requirement is 50% of the value of the short position?
    b. How high can the price of the stock go before you get a margin call if the maintenance margin is 30% of the value of the short position?

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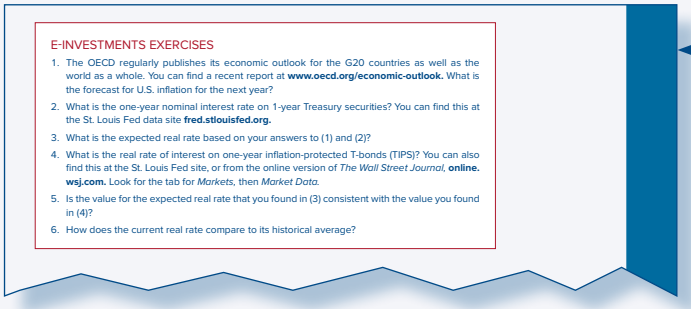
E-INVESTMENTS BOXES

These exercises provide students with simple activities to enhance their experience using the Internet. Easy-to-follow instructions and questions are presented so students can utilize what they have learned in class and apply it to today's data-driven world.



E-INVESTMENTS EXERCISES

1. The OECD regularly publishes its economic outlook for the G20 countries as well as the world as a whole. You can find a recent report at **www.oecd.org/economic-outlook.** What is the forecast for U.S. inflation for the next year?
2. What is the one-year nominal interest rate on 1-year Treasury securities? You can find this at the St. Louis Fed data site **fred.stlouisfed.org.**
3. What is the expected real rate based on your answers to (1) and (2)?
4. What is the real rate of interest on one-year inflation-protected T-bonds (TIPS)? You can also find this at the St. Louis Fed site, or from the online version of *The Wall Street Journal*, **online.wsj.com.** Look for the tab for *Markets*, then *Market Data.*
5. Is the value for the expected real rate that you found in (3) consistent with the value you found in (4)?
6. How does the current real rate compare to its historical average?

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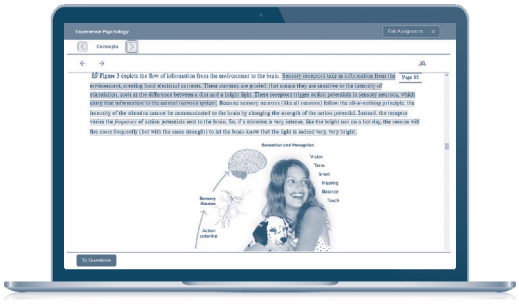

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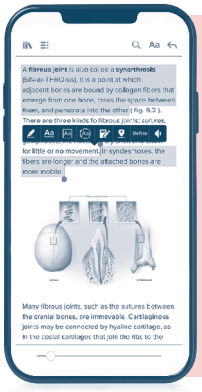

iPhone: Getty Images

"I really liked this app—it made it easy to study when you don't have your text-book in front of you."

- Jordan Cunningham,
Eastern Washington University

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INSTRUCTOR LIBRARY

The Connect Instructor Library is your repository for additional resources to improve student engagement in and out of class. You can select and use any asset that enhances your lecture. The Connect Instructor Library includes all of the instructor supplements for this text.

- **Solutions Manual** Updated by Nicholas Racculia, Saint Vincent College, in close collaboration with the authors, this Manual provides detailed solutions to the end-of-chapter problem sets.
- **Test Bank** The Test Bank has been revised to improve the quality of questions. Each question is ranked by level of difficulty, which allows greater flexibility in creating a test and also provides a rationale for the solution.
- **Test Builder** Available within Connect, Test Builder is a cloud-based tool that enables instructors to format tests that can be printed or administered within an LMS. Test Builder offers a modern, streamlined interface for easy content configuration that matches course needs, without requiring a download.
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  - Test Builder provides a secure interface for better protection of content and allows for just-in-time updates to flow directly into assessments.
- **Instructor's Manual** The Manual has been revised and improved for this edition. Each chapter includes a Chapter Overview, Learning Objectives, and Presentation of Material.
- **PowerPoint Presentation** These presentation slides contain figures and tables from the text, key points, and summaries in a visually stimulating collection of slides that you can customize to fit your lecture.

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Louisiana State University

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John Settle
Portland State University

Edward C. Sims
Western Illinois University

Robert Skena
Carnegie Mellon University

Steve L. Slezak
University of North Carolina at Chapel Hill

Keith V. Smith
Purdue University

Patricia B. Smith
University of New Hampshire

Ahmad Sohrabian
California State Polytechnic University–Pomona

Eileen St. Pierre
University of Northern Colorado

Laura T. Starks
University of Texas

Mick Swartz
University of Southern California

Manuel Tarrazo
University of San Francisco

Steve Thorley
Brigham Young University

Ashish Tiwari
University of Iowa

Jack Treynor
Treynor Capital Management

Charles A. Trzincka
SUNY Buffalo

Yiuman Tse
Binghamton SUNY

Joe Ueng
University of St. Thomas

Gopala Vasuderan
Suffolk University

Joseph Vu
DePaul University

Qinghai Wang
Georgia Institute of Technology

Richard Warr
North Carolina State University

Simon Wheatley
University of Chicago

Marilyn K. Wiley
Florida Atlantic University

James Williams
California State University at Northridge

Michael Williams
University of Denver

Tony R. Wingler
University of North Carolina at Greensboro

Guojun Wu
University of Michigan

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