Essentials *of* Investments

2024 Release

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Mc Graw Hill

To our wives and eight wonderful daughters

ESSENTIALS OF INVESTMENTS, 2024 RELEASE

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This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 LWI 29 28 27 26 25 24

ISBN 978-1-265-06200-2 (bound)
MHID 1-265-06200-5 (bound)
ISBN 978-1-264-93758-5 (loose-leaf)
MHID 1-264-93758-X (loose-leaf)

Portfolio Manager: *Sarah Hutchings*
Product Developer: *Christina Kouvelis*
Marketing Manager: *Sarah Hurley*
Content Project Managers: *Susan Trentacosti and Emily Windelborn*
Manufacturing Project Manager: *Sandy Ludovissy*
Content Licensing Specialist: *Brianna Kirschbaum*
Cover Image: *olgers/Shutterstock*
Compositor: *Straive*

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Library of Congress Cataloging-in-Publication Data

Names: Bodie, Zvi, author. | Kane, Alex, 1942- author. | Marcus, Alan J., author.
Title: Essentials of investments / Zvi Bodie, Boston University, Alex Kane, University of California, San Diego, Alan J. Marcus, Boston College.
Description: 2024 release. | New York : McGraw Hill LLC, 2024. | Includes index. | Audience: Ages 18+
Identifiers: LCCN 2023054628 | ISBN 9781265062002 (hardcover)
Subjects: LCSH: Investments.
Classification: LCC HG4521 .B563 2024 | DDC 332.6—dc23/eng/20231218
LC record available at https://lccn.loc.gov/2023054628

The Internet addresses listed in the text were accurate at the time of publication. The inclusion of a website does not indicate an endorsement by the authors or McGraw Hill LLC, and McGraw Hill LLC does not guarantee the accuracy of the information presented at these sites.

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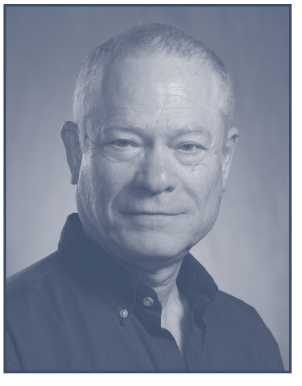

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Alan J. Marcus

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Organization of the 2024 Release

Essentials of Investments is intended as a textbook on investment analysis most applicable for a student's first course in investments. The chapters are written in a modular format to give instructors the flexibility to either omit certain chapters or rearrange their order. The highlights in the margins describe updates and important features in this release.

This part lays out the general framework for the investment process in a nontechnical manner. We discuss the major players in the financial markets and provide an overview of security types and trading mechanisms. These chapters make it possible for instructors to assign term projects analyzing securities early in the course.

Includes sections on securitization, the financial crisis, and recent developments in Fintech.

Extensive coverage of the rise of electronic markets, algorithmic and high-speed trading, and changes in market structure.

Includes coverage of innovations in exchange-traded funds.

This part contains the core of modern portfolio theory. For courses emphasizing security analysis, this part may be skipped without loss of continuity.

All data are updated and available on the web through the Connect resources. The data are used to discuss risk management and tail risk.

Introduces simple in-chapter spreadsheets that can be used to compute investment opportunity sets and the index model.

Includes single-factor as well as multifactor models.

Considers evidence both supporting and refuting efficient markets and a new section on the factor zoo.

Contains extensive treatment of behavioral finance and provides an introduction to technical analysis.

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This is the first of three parts on security valuation.

Includes material on credit default swaps.

Contains spreadsheet material on duration and convexity.

This part is presented in a "top-down" manner, starting with the broad macroeconomic environment before moving to more specific analysis.

Discusses how international political developments can have major impacts on economic prospects.

Contains free cash flow equity valuation models as well as a discussion of the pitfalls of discounted cash flow models.

Includes a top-down rationale for how ratio analysis can be organized to guide one's analysis of firm performance.

This part highlights how these markets have become crucial and integral to the financial universe and are major sources of innovation.

Offers thorough introduction to option payoffs, strategies, and securities with embedded options.

Includes an introduction to risk-neutral valuation methods and their implementation in the binomial option-pricing model.

This part unifies material on active management and is ideal for a closing-semester unit on applying theory to actual portfolio management.

Rigorous development of performance evaluation methods.

Provides evidence on political risk as well as the benefits of international diversification.

A new chapter devoted to both hedge funds as well as private equity.

Employs extensive spreadsheet analysis of the interaction of taxes and inflation on long-term financial strategies.

Modeled after the CFA Institute curriculum, also includes guidelines on "How to Become a Chartered Financial Analyst."

Changes in This Release

Based on user feedback, we have made numerous improvements and refinements in this release. We updated every chapter to reflect current market practices and conditions and have improved the end-of-chapter material. Data have been updated throughout. More substantive changes are listed below.

Chapter-by-Chapter Changes

Chapter 1: Investments: Background and Issues

This chapter greatly expands its treatment of 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: Securities Markets

New material on SPACs, order internalization, and the GameStop squeeze has been added to this chapter.

Chapter 5: Risk, Return, and the Historical Record

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

Chapter 6: Efficient Diversification

This chapter has been reorganized for clarity. In particular, the section on using historical data has been set off from the material on portfolio risk and covariance structure.

Chapter 8: 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. The chapter also introduces students to "the factor zoo" and the challenges posed by data snooping for the interpretation of empirical evidence on risk and return.

Chapter 9: 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 12: Macroeconomic and Industry Analysis

The discussion of the macroeconomy has been updated to include lessons learned during the COVID pandemic, particularly the implications of supply-side and supply-chain issues for inflation. The chapter also introduces the notion of quantitative easing.

Chapter 17: Futures Markets and Risk Management

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

Chapter 20: 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.

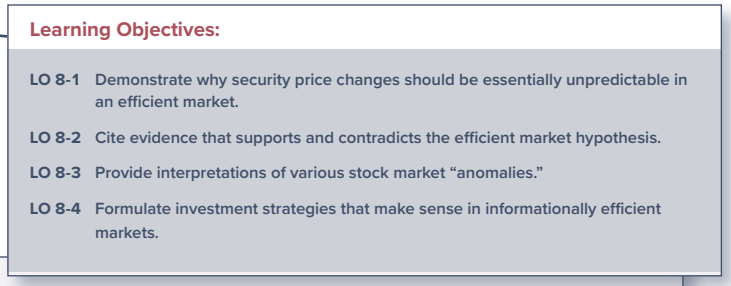
Chapter 22: Investors and the Investment Process

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

Pedagogical Features

Learning Objectives

Each chapter begins with a summary of the chapter learning objectives, providing students with an overview of the concepts they should understand after reading the chapter. The end-of-chapter problems and CFA questions are tagged with the corresponding learning objective.

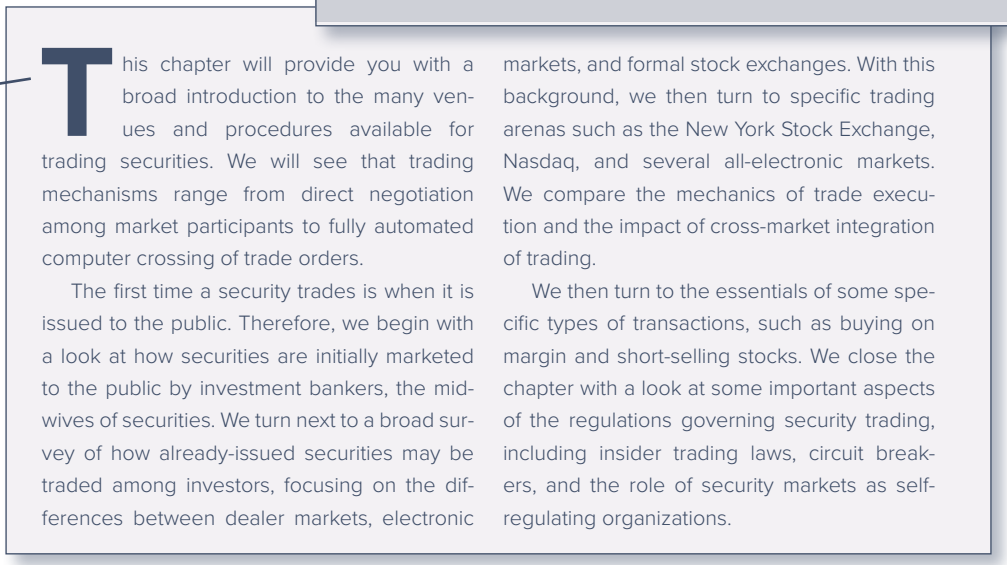


Learning Objectives:

- **LO 8-1** Demonstrate why security price changes should be essentially unpredictable in an efficient market.
- **LO 8-2** Cite evidence that supports and contradicts the efficient market hypothesis.
- **LO 8-3** Provide interpretations of various stock market "anomalies."
- **LO 8-4** Formulate investment strategies that make sense in informationally efficient markets.

Chapter Overview

Each chapter begins with a brief narrative to explain the concepts that will be covered in more depth. Relevant websites related to chapter material can be found in Connect. These sites make it easy for students to research topics further and retrieve financial data and information.



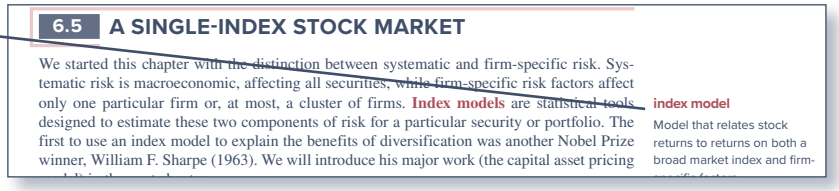
This chapter will provide you with a broad introduction to the many venues and procedures available for trading securities. We will see that trading mechanisms range from direct negotiation among market participants to fully automated computer crossing of trade orders.

The first time a security trades is when it is issued to the public. Therefore, we begin with a look at how securities are initially marketed to the public by investment bankers, the midwives of securities. We turn next to a broad survey of how already-issued securities may be traded among investors, focusing on the differences between dealer markets, electronic markets, and formal stock exchanges. With this background, we then turn to specific trading arenas such as the New York Stock Exchange, Nasdaq, and several all-electronic markets. We compare the mechanics of trade execution and the impact of cross-market integration of trading.

We then turn to the essentials of some specific types of transactions, such as buying on margin and short-selling stocks. We close the chapter with a look at some important aspects of the regulations governing security trading, including insider trading laws, circuit breakers, and the role of security markets as self-regulating organizations.

Key Terms in the Margin

Key terms are indicated in color and defined in the margin the first time the term is used. A full list of key terms is included in the end-of-chapter materials.



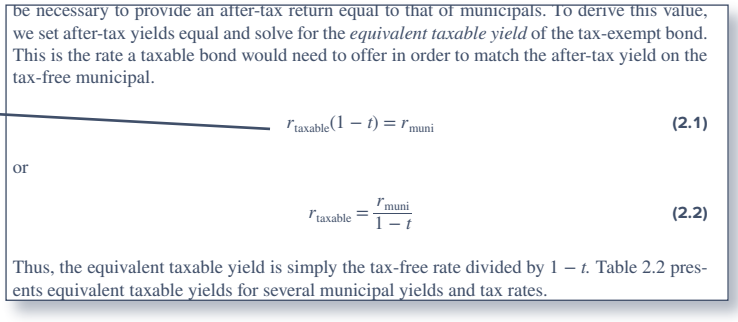
6.5 A SINGLE-INDEX STOCK MARKET

We started this chapter with the distinction between systematic and firm-specific risk. Systematic risk is macroeconomic, affecting all securities, while firm-specific risk factors affect only one particular firm or, at most, a cluster of firms. **Index models** are statistical tools designed to estimate these two components of risk for a particular security or portfolio. The first to use an index model to explain the benefits of diversification was another Nobel Prize winner, William F. Sharpe (1963). We will introduce his major work (the capital asset pricing

index model
Model that relates stock returns to returns on both a broad market index and firm-

Numbered Equations

Key equations are called out in the text and identified by equation numbers. These key formulas are listed at the end of each chapter. Equations that are frequently used are also featured on the text's end sheets for convenient reference.



be necessary to provide an after-tax return equal to that of municipals. To derive this value, we set after-tax yields equal and solve for the *equivalent taxable yield* of the tax-exempt bond. This is the rate a taxable bond would need to offer in order to match the after-tax yield on the tax-free municipal.

$$r_{\text{taxable}}(1-t) = r_{\text{muni}} \quad \textbf{(2.1)}$$

or

$$r_{\text{taxable}} = \frac{r_{\text{muni}}}{1-t} \quad \textbf{(2.2)}$$

Thus, the equivalent taxable yield is simply the tax-free rate divided by $1 - t$. Table 2.2 presents equivalent taxable yields for several municipal yields and tax rates.

On the MARKET FRONT

MONEY MARKET FUNDS AND THE FINANCIAL CRISIS OF 2008–2009

Money market funds are mutual funds that invest in the short-term debt instruments that comprise the money market. They are required to hold only short-maturity debt of the highest quality. The average maturity of their holdings must be maintained at less than three months. Because of this very conservative investment profile, money market funds typically experience extremely low price risk. Investors for their part usually acquire check-writing privileges with their funds and often use them as a close substitute for a bank account. This is feasible because the funds almost always maintain share value at $1 and pass along all investment earnings to their investors as interest.

Until 2008, only one fund had "broken the buck," that is, suffered losses large enough to force value per share below $1. But when Lehman Brothers filed for bankruptcy protection on September 15, 2008, several funds that had invested heavily in its commercial paper suffered large losses. The next day, Reserve Primary Fund, the oldest money market fund, broke the buck when its value per share fell to only $0.97.

The realization that money market funds were at risk in the credit crisis led to a wave of investor redemptions similar to a run on a bank. In response, the U.S. Treasury announced that it would make federal insurance available to money market funds willing to pay an insurance fee. This program would thus be similar to FDIC

run, it put the government on the hook for a potential liability of up to $3 trillion—the assets held in money market funds at the time.

Moreover, the turmoil in Wall Street's money market funds had already spilled over into "Main Street." Fearing further investor redemptions, money market funds became afraid to commit funds even over short periods, and their demand for commercial paper effectively dried up. Firms throughout the economy had come to depend on those markets as a major source of short-term finance for expenditures ranging from salaries to inventories. The breakdown in the money markets and the interruption in normal sources of short-term financing already had a crippling effect on the broad economy.

In the aftermath of the crisis, U.S. regulators instituted a series of reforms to reduce the risks of runs on these funds. Institutional money market funds (those servicing institutions rather than retail investors) were required to "float" the prices of their shares based on the value of their assets rather than maintain a fixed $1 value per share. This limits the incentive during a crisis for investors to compete to be the first to withdraw funds while share prices are maintained at a nonsustainable level of $1.

In 2023, the SEC adopted several changes to the rules governing money market funds. Among these are new requirements that institutional funds impose "liquidity fees" when daily net redemptions exceed 5% of fund assets. To further limit the volatility of net asset value, the SEC also increased the minimum allowed share of money market fund assets that mature within one day from 10% to 25% and increased the minimum share maturing in less than a

On the Market Front Boxes

Current articles from financial publications such as *The Wall Street Journal* are featured as boxed readings. Each box is referred to within the narrative of the text, and its real-world relevance to the chapter material is clearly defined.

Why does it make sense for shelf registration to be limited in time?

CONCEPT check 3.1

Concept Checks

These self-test questions in the body of the chapter enable students to determine whether the preceding material has been understood and then reinforce understanding before students read further. Detailed Solutions to the Concept Checks are found at the end of each chapter.

EXAMPLE 2.4

Value-Weighted Indexes

Look again at Table 2.3. The final value of all outstanding stock in our two-stock universe is $690 million. The initial value was $600 million. Therefore, if the initial level of a market value–weighted index of stocks ABC and XYZ were set equal to an arbitrarily chosen starting value such as 100, the index value at year-end would be 100 × (690/600) = 115. The increase in the index would reflect the 15% return earned on a portfolio consisting of those two stocks held in proportion to outstanding market values.

Unlike the price-weighted index, the value-weighted index gives more weight to ABC. Whereas the price-weighted index fell because it was dominated by higher-priced XYZ, the value-weighted index rose because it gave more weight to ABC, the stock with the higher total market value.

Note also from Tables 2.3 and 2.4 that market value–weighted indexes are unaffected by stock splits. The total market value of the outstanding XYZ stock increases from $100 million to $110 million regardless of the stock split, thereby rendering the split irrelevant to the performance of the index.

Numbered Examples

Numbered and titled examples are integrated in each chapter. 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.

Excel Integration

Excel Applications

Because many courses now require students to perform analyses in spreadsheet format, Excel has been integrated throughout the book. It is used in examples as well as in this chapter feature, which shows students how to create and manipulate spreadsheets to solve specific problems. This feature starts with an example presented in the chapter, briefly discusses how a spreadsheet can be valuable for investigating the topic, shows a sample spreadsheet, and asks students to apply the data to answer questions. These applications also direct the student to the web to work with an interactive version of the spreadsheet. The spreadsheet files are available for download in Connect; available spreadsheets are denoted by an icon. As extra guidance, the spreadsheets include a comment feature that documents both inputs and outputs. Solutions for these exercises are located on the password-protected instructor site only, so instructors can assign these exercises either for homework or just for practice.

Excel application spreadsheets are available for the following:

Chapter 3: Buying on Margin; Short Sales
Chapter 6: Estimating the Index Model
Chapter 11: Immunization; Convexity
Chapter 15: Options, Stock, and Lending; Straddles and Spreads
Chapter 17: Spot-Futures Parity
Chapter 18: Performance Measurement; Performance Attribution
Chapter 19: International Diversification

Spreadsheet exhibit templates are also available for the following:

Chapter 5: Spreadsheet 5.1
Chapter 6: Spreadsheets 6.1–6.7
Chapter 10: Spreadsheets 10.1 & 10.2
Chapter 11: Spreadsheets 11.1 & 11.2
Chapter 13: Spreadsheets 13.1 & 13.2
Chapter 16: Spreadsheet 16.1
Chapter 21: Spreadsheets 21.1–21.8

Buying on Margin

EXCEL APPLICATIONS

The Excel spreadsheet model below makes it easy to analyze the impacts of different margin levels and the volatility of stock prices. It also allows you to compare return on investment for a margin trade with a trade using no borrowed funds.

This spreadsheet is available in Connect

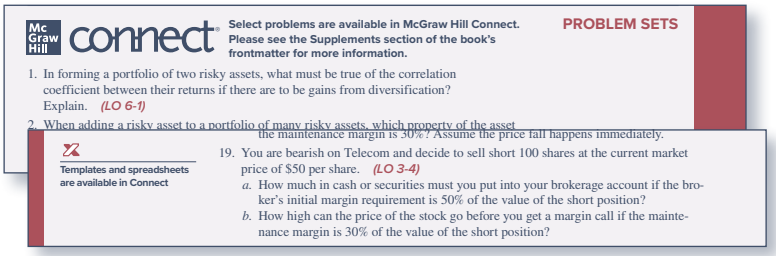
	A	B	C	D	E	F	G	H
1								
2			Action or Formula	Ending	Return on		Endin g	Return with
3			for Column B	St Price	Investment		St Price	No Margin
4	Initial Equity Investment	$10,000.00	Enter data		−42.00%			−19.00%
5	Amount Borrowed	$10,000.00	(B4/B10)−B4	$20.00	−122.00%		$20.00	−59.00%
6	Initial Stock Price	$50.00	Enter data	25.00	−102.00%		25.00	−49.00%
7	Shares Purchased	400	(B4/B10)/B6	30.00	−82.00%		30.00	−39.00%
8	Ending Stock Price	$40.00	Enter data	35.00	−62.00%		35.00	−29.00%
9	Cash Dividends During Hold Per.	$0.50	Enter data	40.00	−42.00%		40.00	−19.00%
10	Initial Margin Percentage	50.00%	Enter data	45.00	−22.00%		45.00	−9.00%
11	Maintenance Margin Percentage	30.00%	Enter data	50.00	−2.00%		50.00	1.00%
12				55.00	18.00%		55.00	11.00%
13	Rate on Margin Loan	8.00%	Enter data	60.00	38.00%		60.00	21.00%
14	Holding Period in Months	6	Enter data	65.00	58.00%		65.00	31.00%
15				70.00	78.00%		70.00	41.00%
16	**Return on Investment**			75.00	98.00%		75.00	51.00%
17	Capital Gain on Stock	−$4,000.00	B7*(B8−B6)	80.00	118.00%		80.00	61.00%
18	Dividends	$200.00	B7*B9					
19	Interest on Margin Loan	$400.00	B5*(B14/12)*B13					
20	Net Income	−$4,200.00	B17+B18−B19			LEGEND:		
21	Initial Investment	$10,000.00	B4			Enter data		
22	Return on Investment	−42.00%	B20/B21			Value calculated		

Microsoft Excel

Excel Questions

1. Suppose you buy 100 shares of stock initially selling for $50, borrowing 25% of the necessary funds from your broker; that is, the initial margin on your purchase is 25%. You pay an interest rate of 8% on margin loans.
   a. How much of your own money do you invest? How much do you borrow from your broker?
   b. What will be your rate of return for the following stock prices at the end of a one-year holding period? (i) $40; (ii) $50; (iii) $60.

End-of-Chapter Features

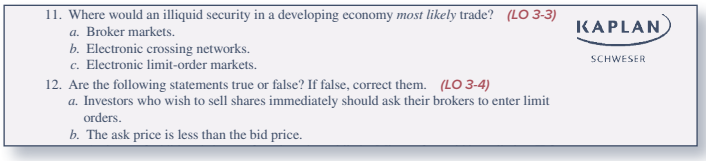


Problem Sets

We strongly believe that practice in solving problems is a critical part of learning investments, so we provide a good variety. We have arranged questions by level of difficulty.

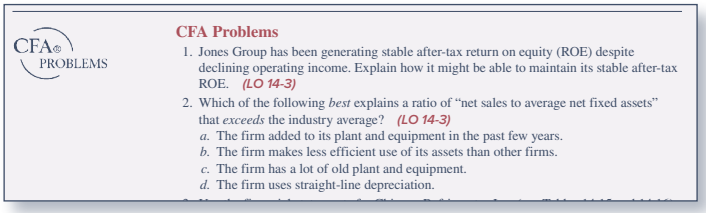
Excel Problems

Select end-of-chapter questions require the use of Excel. These problems are denoted with an icon. Templates and spreadsheets are available in Connect.



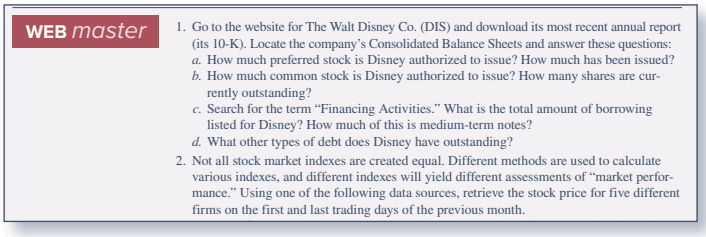
Kaplan-Schweser Problems

Each chapter contains select CFA-style questions derived from the Kaplan-Schweser CFA preparation courses. These questions are tagged with an icon for easy reference.



CFA Problems

We provide several questions from past CFA exams in applicable chapters. These questions represent the kinds of questions that professionals in the field believe are relevant to the practicing money manager. Appendix B, at the back of the book, lists each CFA question and the level and year of the CFA Exam it was included in, for easy reference when studying for the exam.



Web Master Exercises

These exercises are a great way to allow students to test their skills on the Internet. Each exercise consists of an activity related to practical problems and real-world scenarios.

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- **Instructor's Manual** Revised by Nicholas Racculia, St. Vincent College, this instructional tool provides an integrated learning approach revised for this release. Each chapter includes a Chapter Overview, Learning Objectives, and Presentation of Material that outlines and organizes the material around the PowerPoint Presentation.
- **Solutions Manual** The Solutions Manual, carefully revised by the authors with assistance from Nicholas Racculia, contains solutions to all basic, intermediate, and challenge problems found at the end of each chapter.
- **Test Bank** Prepared by Nicholas Racculia, the Test Bank contains more than 1,200 questions and includes over 220 new questions. Each question is ranked by level of difficulty (easy, medium, hard) and tagged with the learning objective, the topic, AACSB, and Bloom's Taxonomy, which allows greater flexibility in creating a test. The Test Bank is assignable within Connect.
- **Test Builder** Available within McGraw Hill Connect®, Test Builder is a cloud-based tool that enables instructors to format tests that can be printed, administered within a Learning Management System, or exported as a Word document. Test Builder offers a modern, streamlined interface for easy content configuration that matches course needs, without requiring a download.

  Test Builder allows you to

  - access all test bank content from a particular title.
  - easily pinpoint the most relevant content through robust filtering options.
  - manipulate the order of questions or scramble questions and/or answers.
  - pin questions to a specific location within a test.
  - determine your preferred treatment of algorithmic questions.

- choose the layout and spacing.
- add instructions and configure default settings.
- Test Builder provides a secure interface for better protection of content and allows for just-in-time updates to flow directly into assessments.

- **PowerPoint Presentations** These presentation slides, developed by Leslie Rush from the University of Hawaii, contain figures and tables from the text, key points, and summaries in a visually stimulating collection of slides. These slides follow the order of the chapters, but if you have PowerPoint software, you may customize the program to fit your lecture.

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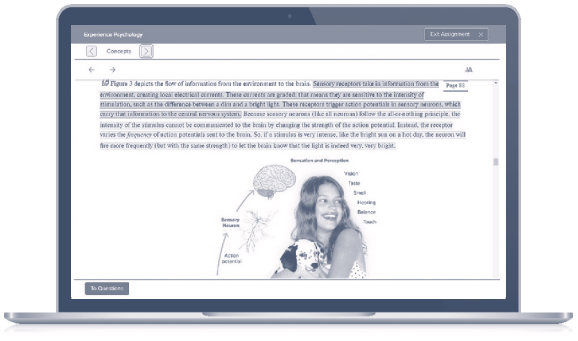

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>
> Jordan Cunningham, a student at *Eastern Washington University*

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Acknowledgments

We received help from many people as we prepared this book. An insightful group of reviewers commented on this and previous editions of this text. Their comments and suggestions improved the exposition of the material considerably. These reviewers all deserve special thanks for their contributions.

Anna Agapova *Florida Atlantic University, Boca Raton*
Sandro C. Andrade *University of Miami*
Bala Arshanapalli *Indiana University Northwest*
Rasha Ashraf *Georgia State University*
Valerie Ballesteros *Our Lady of the Lake University*
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For granting us permission to include many of their examination questions in the text, we are grateful to the CFA Institute.

A special thanks goes to the talented experts who help us develop and review the instructor materials and online content in Connect and LearnSmart, including Vincent Muscolino, Anna Kovalenko, James Forjan, Hyuna Park, John Farlin, Marc-Anthony Isaacs, Nicholas Racculia, and Dongmei Li.

Much credit is also due to the development and production team of McGraw Hill Education: Sarah Hutchings, Portfolio Manager; Christina Kouvelis, Senior Product Developer; Susan Trentacosti, Lead Core Project Manager; Emily Windelborn, Senior Assessment Project Manager; Sarah Hurley, Marketing Manager; Brianna Kirchbaum, Content Licensing Specialist; and Matt Diamond, Designer.

Finally, once again, our most important debts are to Judy, Hava, and Sheryl for their unflagging support.

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A Note from the Authors . . .

The past three decades witnessed rapid and profound change in the investment 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 was also 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 that masked the precarious condition of many big players in the system.

Of necessity, our text has evolved along with financial markets. We devote considerable attention to recent breathtaking changes in market structure and trading technology. At the same time, however, many basic *principles* of investments remain important. We continue to organize the book around one basic theme—that security markets are nearly efficient, meaning that you should expect to find few obvious bargains in these markets. Given what we know about securities, their prices usually appropriately reflect their risk and return attributes; free lunches are few and far apart in markets as competitive as these. This starting point remains a powerful approach to security valuation and is remarkably profound in its implications for the design of investment strategies. While the degree of market efficiency is and will always 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.

This text also 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 when building an investment portfolio. 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 other risky asset classes, such as stocks, bonds, or real estate. This is an asset allocation decision. Second, the asset allocation choice 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.

Our book also focuses on investment analysis, which allows us to present the practical applications of investment theory and to convey insights of practical value. We provide a systematic collection of Excel spreadsheets that give you tools to explore concepts more deeply. These spreadsheets are available as part of the Connect resources for this text and provide a taste of the sophisticated analytic tools available to professional investors.

In our efforts to link theory to practice, we also have attempted to make our approach consistent with that of the CFA Institute. The Institute administers an education and certification program to candidates seeking designation as a Chartered Financial Analyst (CFA). The CFA Institute curriculum represents the consensus of a committee of distinguished scholars and practitioners regarding the core of knowledge required by the investment professional. We continue to include questions from previous CFA exams in our end-of-chapter problems as well as CFA-style questions derived from the Kaplan-Schweser CFA preparation courses.

This text will introduce you to the major issues of concern to all investors. It can give you the skills to conduct a sophisticated assessment of 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.

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