高等学校经济类双语教学推荐教材

**PEARSON** 



# Fundamentals of Investments

(Third Edition)

戈登·J·亚历山大 (Gordon J. Alexander)

威廉·F·夏普 (William F. Sharpe)

杰弗里·V·贝利(Jeffery V. Bailey)

赵锡军 改编

**一**中国人民大学出版社

PEARSON

高等学校经济类双语教学





经济学经典教材 · 金 融 系 列

Fundamentals of Investments

(第三版)

(Third Edition)

· J·亚历山大 (Gordon J. Alexander) · 夏普 (William F. Sharpe) V · 贝利 (Jeffery V. Bailey)

> 中国人民大学出版社 • 北京 •

### 图书在版编目 (CIP) 数据

投资学基础:第3版:英文/亚历山大,夏普,贝利著;赵锡军改编.一北京:中国人民大学出版社,2012.6 经济学经典教材·金融系列 ISBN 978-7-300-15790-0

I. ①投··· Ⅱ. ①亚···②夏···③贝···④赵··· Ⅲ. ①投资经济学-双语教学-高等学校-教材-英文 Ⅳ. ①F830. 59

中国版本图书馆 CIP 数据核字(2012)第 101085 号 agarona notisamolai vas vol no gaibnesar agaividosoticha gaibulani alsa

inglish language adaptation edition published by PEARSON EDUCATION ASIA LTD. and CHINA RENMIN UNIVERSITY RESS. Copyright © 2012.

SNGLISH language adaptation edition is manufactured in the People's Republic of China, and is authorized for sale only in

本书英文改编版由婚生教育出版公司技权中国人民大学出版社合作出版。未经出版者书面许可。不得以任何形式夏制改建设

本书封面贴有 Pearson Education(给牛蒡育出版集团)恋光防伤标签。无标签者不得销售。

区限于中华人民共和国境内(不包括中国香港、澳门特别行政区和中国合传地区)销售发行。

高等学校经济类双语教学推荐教材 经济学经典教材·金融系列 投资学基础 (第三版) 戈登·J·亚历山大

威廉・F・夏普 杰弗里・V・贝利

赵锡军 改编

Touzixue Jichu

出版发行 中国人民大学出版社

社 址 北京中关村大街 31 号 邮政编码 100080

电 话 010-62511242 (总编室) 010-62511398 (质管部)

010-82501766 (邮购部) 010-62514148 (门市部)

010-62515195 (发行公司) 010-62515275 (盗版举报)

网 址 http://www.crup.com.cn

http://www.ttrnet.com (人大教研网)

经 销 新华书店

印 刷 三河市汇鑫印务有限公司

规 格 215 mm×275 mm 16 开本 版 次 2012 年 6 月第 1 版

印 张 29.75 插页 1 印 次 2012 年 6 月第 1 次印刷

字 数 725 000 定 价 55.00 元

### 出版说明

随着金融全球化进程的不断加快,金融人才的竞争日益激烈,用国际通用的英语来思考、工作、交流的能力也越来越重要。如何顺应这一潮流,培养和造就专业知识和语言水平都具有竞争力的金融人才,一直是各大高等院校和一些主要教材出版单位思考的重要问题,开展双语教学是教育界的共识。双语教学在我国主要指采用汉语和国际通用的英语教学,目的是培养全面的适合国际交流的高素质人才。由于我国长期以来缺乏英语交流的环境,开展双语教学面临着特殊的困难,我们认为双语教学从一开始就应该使用原版的优秀教材,保证语言的原汁原味。

顺应这一潮流,中国人民大学出版社携手国际著名的出版公司,推出了适合经济金融专业的双语系列教材。本套教材具有如下几个特色:

第一,精选教材。本套教材遴选了一批国外优秀的教材,涉及金融学、投资学、公司理财、金融市场与机构、国际货币与金融、国际投资、跨国公司财务管理、金融工程、银行管理、保险学等多门课程,涵盖了金融专业开设的主要必修科目。

第二,保持原教材的特色。本套双语教材广泛听取了一线任课教师的意见和建议,考虑到课时要求,部分图书采用了删减影印的形式,主要是删减了一些相互重复的以及不适应我国国情的内容,但在体系结构和内容特色方面都保持了原教材的风貌。

第三,内容紧扣学科前沿。本套教材基本上都选择国外最流行教材的最新版本,有利于老师和学生掌握国外教学研究的最新发展趋势。

第四,提供强大的教学支持。依托国外大出版公司的力量,本套教材为教师提供了配套的网上教辅资料,如教师手册、PPT课堂演示文稿、试题库等,从而使教学更为便利。

本套教材主要适用于高等院校经济金融专业的本科教学,同时也适用于金融行业从业人员以及对金融专业感兴趣的人士。

本套教材是对双语教学的积极探索,错误遗漏之处在所难免,恳请广大读者指正。

中国人民大学出版社

# **Preface**

revised tables, arapha.

Writing a textbook is never easy. For a subject as diverse as investments, the task is particularly difficult. The undisciplined writer could fill volumes and never finish. How does an author best go about organizing the many topics that constitute the field of investments? We chose to start by establishing a basic set of principles to guide our development of *Fundamentals of Investments*.

We sincerely believe that the serious student of investments should acquire a balanced knowledge of both investment theory and practice. Granted, someone desiring only an introductory exposure to investment practice could get by with a minimal discussion of theory and focus almost exclusively on institutional details and personal finance applications. That approach, however, would leave the student unable to appreciate the many subtle and important issues faced daily by the investment professional.

We have structured *Fundamentals* to present students taking their first course in investments with the basic building blocks of modern investment thought. Although the text is meant to present a thorough discussion of investments, we have constantly tried to remain faithful to three principles:

- 1. Keep the material practical and relevant.
  - **2.** Make the text easy to comprehend.

试读结束: 需要全本请在线购买: www.ertongbook.com

3. Design the text for modular use by instructors.

First, we have written *Fundamentals* to give students a working knowledge of the financial instruments available to investors and the ways in which markets for these instruments operate. We have avoided tangential discussions of issues not germane to the primary subject at hand. Second, we want the text to be accessible to students unfamiliar with investments. Therefore, we have tried to write in a clear, concise style, keeping mathematical notation to a minimum, and including numerous examples to explain the concepts presented. Finally, we want instructors to be able to use the text in a modular fashion. Although we have organized the text in what we believe to be a logical order, some instructors may wish to change that order or skip certain sections or chapters entirely. The organization of the text accommodates such preferences.

This is the third edition of *Fundamentals*. As any textbook author will attest, a previous work can always be improved. Each time after the first and second editions were published, we received many helpful suggestions from instructors, readers, and reviewers regarding ways in which we could make *Fundamentals* better. In response, we have made a number of changes that we believe substantially enhance *Fundamentals* in

terms of our goals of practicality, ease of comprehension, and flexibility. Specifically, the third edition contains the following differences from the second:

- *Updated material.* Where appropriate, we have updated the text to keep students abreast of the latest developments in investments. We have revised tables, graphs, and illustrations to incorporate current information. Furthermore, we have added discussions of recent important academic research.
- Revised Money Matters. In each chapter we have updated and in some cases replaced the Money Matters features, which are topical discussions designed to show students how some of the concepts described in the text are applied in the "real world."
- *Improved the book's focus*. We have concentrated on the most important concepts by eliminating those that have become less important over time.
- Added statistical concepts review section. In order to understand investments it is important for students to have a solid grounding in basic statistics. We have introduced this review section at the end of Chapter 4 to help refresh the reader's memory.
- Expanded and improved coverage of efficient markets. This concept plays a central role in modern thinking about investing regardless of ones beliefs. We have approached the subject differently than other texts. Instead of treating the subject in one lengthy section of the book, Chapter 3 provides a concise summary of efficient markets concepts. A review of the literature is then placed in chapters where that discussion is most relevant.
- Added international content. The globalization of investments is occurring at a rapid pace. It is imperative that students become familiar with an increasingly broad array of international investing concepts. Moreover, throughout the text we have considerably expanded the discussions of research and data on international securities and securities markets. There are also new discussions of currency management and interest-rate parity.

Many people ask us how *Fundamentals* differs from our other book, *Investments*. After all, *Investments*, now in its sixth edition, has been one of the most successful finance textbooks published. Why another version of such a popular text?

Both *Fundamentals* and *Investments* are comprehensive, covering all of the major aspects and theories of investing, while avoiding excess detail. Furthermore, both books contain similar features, such as a glossary of terms introduced in the text, and both books offer an instructor's manual and investment software.

Investments, however, is written primarily for students who have stronger backgrounds in economics, statistics, and accounting. We felt that most students in their first investments course could benefit from a textbook designed to provide a less theoretical and technical approach to investments. Therefore, although we have not ignored the quantitative nature of modern investment theory and practice, we have considerably reduced the mathematical content from that contained in *Investments*. Moreover, we have organized *Fundamentals* in a different manner. Specifically, *Fundamentals* is organized in a modular fashion, as mentioned earlier, whereas *Investments* has a presentation style that is more integrated.

Fundamentals contains several teaching aids that we believe instructors will find valuable. The terms highlighted within the text and noted marginally in each chapter emphasize important concepts. The glossary allows students to quickly reference terms discussed earlier in the text, thereby creating a continuity of concepts across chapters. The point-by-point chapter summaries permit students to easily identify essential

thoughts developed in each chapter.

We are particularly proud of the Money Matters articles presented in each chapter. Specifically written for *Fundamentals*, these articles are designed to give students a sense of how various investment issues are approached by practitioners as well as a glimpse of the techniques that are used. For example, the Money Matters box in Chapter 2 compares the various types of brokers, ranging from full-service to discount to online brokers; Chapter 11 discusses assessing manager skill. Furthermore, Ann Sherman, a recent faculty member of the Hong Kong University of Science and Technology for six years, wrote the Money Matters feature in Chapter 9 about raising capital in the world's largest emerging economy—The People's Republic of China. We believe the Money Matters articles provide both interesting reading for students and a stimulating source of classroom discussion material.

An extended supplements package accompanies the third edition of *Fundamentals*. Included in this package are

- *Instructor's Manual*. Prepared by the authors, the Instructor's Manual contains detailed solutions to all end-of-chapter questions and problems in the text. A set of course outlines designed to accommodate a variety of teaching approaches is also presented.
- Test Bank. Completely revised and rewritten by Joseph F. Greco of California State University, Fullerton, the test bank contains approximately 1,400 multiple-choice and true/false questions. The third edition Test Bank contains more even coverage of topics and provides three levels of difficulty: knowledge, comprehension, and application/analysis.
- Prentice Hall Test Manager. The Test Bank is designed for use with the Prentce Hall
  Test Manager, a computerized package that allows instructors to custom design,
  save, and generate classroom tests. The test program permits instructors to edit,
  and, or delete questions from the test bank; organize exams; analyze test results;
  and create a database of student results.
- PowerPoint Lecture Presentation. Created by Joseph J. Greco, the PowerPoints provide detailed lecture outlines and summaries that can be tailored for individual use. The PowerPoints can be downloaded from the Fundamentals web site at www.prenhall.com/financecenter.
- Financial Engines Investment Advisor<sup>sm</sup> Service. With every new purchase of Fundamentals of Investments, third edition, students can enjoy a 25 percent discount on a subscription to the Financial Engines Investment Advisor Service. With this service students will receive the following: the ability to forecast their investments and see what their results may yield, professional investment advice, and the ability to monitor their investments to stay on track as the markets change. To subscribe or to receive additional information, please go to www.prenhall.com/alexander or www.prenhall.com/financecenter.

GJA WFS JVB

# 录

序言 …		·· i
第一部分		
第1章	导论	1
第二部分		
第2章	有价证券的买卖 ······	17
第3章	有效市场、投资价值与市场价格 ·····	35
第三部分	现代投资理论	
第 4 章	资产组合选择问题	
第5章	投资组合分析	83
第6章	无风险借贷	105
第7章	资本资产定价模型 ·····	126
第8章	套利定价理论 ·····	144
第四部分	普通股	
第9章	普通股的特征 ·····	157
第 10 章	股利贴现模型 ·····	189
第 11 章	资产组合的业绩评价	218
第五部分		
第 12 章	债券估价基本原理	255
第 13 章	债券分析	279
第 14 章	债券资产组合管理	302
Palla h han al		
	其他投资	
	<b>其他投资</b> 期权	337
第15章	期权	373
第15章	期权	373
第 15 章 第 16 章 术语表	期权	<ul><li>373</li><li>405</li></ul>

# Contents

PART I

**PART II** 

Pref	ace i			
INTRODUCTION	1			
CHA	APTER 1 I	ntroduction	unining Performs  LEfficiency Tes	
	1.1 The Inves	stment Enviro	onment 2	
	1.1.1 Securi	ties 2		
	1.1.2 Risk, 1	Return, and Di	versification	3.43 507
	1.1.3 Securi	ty Markets	numary 51 8	
	1.1.4 Finance	cial Intermedia	ries 9	
	1.2 The Inves	stment Proces	ss 11	
	1.2.1 Investi	ment Policy	11 and 4 51	
		ty Analysis	11	
	1.2.3 Portfo	lio Constructio	n 12 12	
			12 Marsta C. T.	
	1.2.5 Portfo	lio Performano	ce Evaluation	13
	1.3 Globaliza	tion 13		
THE INVESTMENT	ENVIRONME	NT 17		
CHA	APTER 2 B	Buying and S	elling Securit	ies 17
	2.1 Order Siz	e 18		
	2.2 Time Lim	it 00 18 20V		
	2.3 Types of 0	Orders 18	alculating Exp	
			for Portfolios e	
			1 Expected Retu	

2.3.4 Stop Limit Orders

2.4.1 Margin Purchases 22
2.4.2 Short Sales 26

2.4 Margin Accounts

CHAPTERS Portf 02

## CHAPTER 3 Efficient Markets, Investment Value, and Market Price 35

3.1.1 Demand-to-Buy Schedule 36 3.1.2 Supply-to-Sell Schedule 37 3.1.3 Interaction of Schedules 37 3.1.4 Elasticity of the Demand-to-Buy Schedule 38 3.1.5 Shifts in the Demand-to-Buy and Supply-to-Sell Schedules 39 3.1.6 Summary 40 3.2 Market Efficiency 40 3.2.1 The Efficient Markets Model 41 3.2.2 Security Price Changes Are Random 42 3.2.3 Observations about Perfectly Efficient Markets 43 3.2.4 Observations about Perfectly Efficient Markets with Transaction Costs 44 3.3.1 Event Studies 46 3.3.2 Looking for Patterns 47 3.3.3 Examining Performance 49 3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55 4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation 37 4.2.1 Nonsatiation 57 4.2.1 Rossatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67 CHAPTER 5 Portfolio Analysis 83	3.1 Demand and Supply Schedules 35	
3.1.2 Supply-to-Sell Schedule 37 3.1.3 Interaction of Schedules 37 3.1.4 Elasticity of the Demand-to-Buy Schedule 38 3.1.5 Shifts in the Demand-to-Buy and Supply-to-Sell Schedules 39 3.1.6 Summary 40 3.2 Market Efficiency 40 3.2.1 The Efficient Markets Model 41 3.2.2 Security Price Changes Are Random 42 3.2.3 Observations about Perfectly Efficient Markets 43 3.2.4 Observations about Perfectly Efficient Markets with Transaction Costs 44 3.3.1 Event Studies 46 3.3.2 Looking for Patterns 47 3.3.3 Examining Performance 49 3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67 CHAPTER 5 Portfolio Analysis 83		
3.1.3 Interaction of Schedules 37 3.1.4 Elasticity of the Demand-to-Buy Schedule 38 3.1.5 Shifts in the Demand-to-Buy and Supply-to-Sell Schedules 39 3.1.6 Summary 40 3.2 Market Efficiency 40 3.2.1 The Efficient Markets Model 41 3.2.2 Security Price Changes Are Random 42 3.2.3 Observations about Perfectly Efficient Markets 43 3.2.4 Observations about Perfectly Efficient Markets with Transaction Costs 44 3.3 Testing for Market Efficiency 44 3.3.1 Event Studies 46 3.3.2 Looking for Patterns 47 3.3.3 Examining Performance 49 3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESIMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55 4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67 CHAPTER 5 Portfolio Analysis 83		
3.1.4 Elasticity of the Demand-to-Buy Schedule 38 3.1.5 Shifts in the Demand-to-Buy and Supply-to-Sell Schedules 39 3.1.6 Summary 40 3.2 Market Efficiency 40 3.2.1 The Efficient Markets Model 41 3.2.2 Security Price Changes Are Random 42 3.2.3 Observations about Perfectly Efficient Markets 43 3.2.4 Observations about Perfectly Efficient Markets with Transaction Costs 44 3.3.1 Event Studies 46 3.3.2 Looking for Patterns 47 3.3.3 Examining Performance 49 3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55 CHAPTER 4 The Portfolio Selection Problem 55 4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67 CHAPTER 5 Portfolio Analysis 83		
3.1.5 Shifts in the Demand-to-Buy and Supply-to-Sell Schedules 3.1.6 Summary 40 3.2 Market Efficiency 40 3.2.1 The Efficient Markets Model 41 3.2.2 Security Price Changes Are Random 42 3.2.3 Observations about Perfectly Efficient Markets 3.2.4 Observations about Perfectly Efficient Markets with Transaction Costs 44 3.3.1 Event Studies 46 3.3.2 Looking for Patterns 47 3.3.3 Examining Performance 49 3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55 4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67 CHAPTER 5 Portfolio Analysis 83		
3.2 Market Efficiency 40 3.2.1 The Efficient Markets Model 41 3.2.2 Security Price Changes Are Random 42 3.2.3 Observations about Perfectly Efficient Markets 43 3.2.4 Observations about Perfectly Efficient Markets with Transaction Costs 3.3 Testing for Market Efficiency 44 3.3.1 Event Studies 46 3.3.2 Looking for Patterns 47 3.3.3 Examining Performance 49 3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55 4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation 37 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67 CHAPTER 5 Portfolio Analysis 83		
3.2.1 The Efficient Markets Model 41 3.2.2 Security Price Changes Are Random 42 3.2.3 Observations about Perfectly Efficient Markets 43 3.2.4 Observations about Perfectly Efficient Markets with Transaction Costs  3.3 Testing for Market Efficiency 44 3.3.1 Event Studies 46 3.3.2 Looking for Patterns 47 3.3.3 Examining Performance 49 3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67 CHAPTER 5 Portfolio Analysis 83	3.1.6 Summary 40	
3.2.2 Security Price Changes Are Random 42 3.2.3 Observations about Perfectly Efficient Markets 43 3.2.4 Observations about Perfectly Efficient Markets with Transaction Costs  3.3 Testing for Market Efficiency 44 3.3.1 Event Studies 46 3.3.2 Looking for Patterns 47 3.3.3 Examining Performance 49 3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67 CHAPTER 5 Portfolio Analysis 83	3.2 Market Efficiency 40	
3.2.3 Observations about Perfectly Efficient Markets 43 3.2.4 Observations about Perfectly Efficient Markets with Transaction Costs  3.3 Testing for Market Efficiency 44 3.3.1 Event Studies 46 3.3.2 Looking for Patterns 47 3.3.3 Examining Performance 49 3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3.1 Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67 CHAPTER 5 Portfolio Analysis 83	3.2.1 The Efficient Markets Model 41	
3.2.4 Observations about Perfectly Efficient Markets with Transaction Costs  3.3 Testing for Market Efficiency 44  3.3.1 Event Studies 46  3.3.2 Looking for Patterns 47  3.3.3 Examining Performance 49  3.4 Market Efficiency Test Results 50  3.4.1 Weak-Form Tests 50  3.4.2 Semistrong-Form Tests 50  3.4.3 Strong-Form Tests 50  3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56  4.1.1 Determining the Rate of Return on a Portfolio 56  4.1.2 An Example 56  4.2 Nonsatiation and Risk Aversion 57  4.2.1 Nonsatiation 57  4.2.1 Risk Aversion 58  4.3 Utility 58  4.3.1 Marginal Utility 58  4.3.2 Certainty Equivalents and Risk Premiums 60  4.4 Indifference Curves 60  4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64  4.5.1 Expected Returns 64  4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	3.2.2 Security Price Changes Are Random 42	
3.3 Testing for Market Efficiency 44  3.3.1 Event Studies 46 3.3.2 Looking for Patterns 47 3.3.3 Examining Performance 49  3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	3.2.3 Observations about Perfectly Efficient Markets 43	
3.3.1 Event Studies 46 3.3.2 Looking for Patterns 47 3.3.3 Examining Performance 49 3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	3.2.4 Observations about Perfectly Efficient Markets with Transaction Costs	44
3.3.2 Looking for Patterns 3.3.3 Examining Performance 49 3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESIMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55 4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 67  CHAPTER 5 Portfolio Analysis 83	3.3 Testing for Market Efficiency 44	
3.3.3 Examining Performance 49 3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	3.3.1 Event Studies 46	
3.4 Market Efficiency Test Results 50 3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESIMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	3.3.2 Looking for Patterns 47	
3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56  4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	3.3.3 Examining Performance 49	
3.4.1 Weak-Form Tests 50 3.4.2 Semistrong-Form Tests 50 3.4.3 Strong-Form Tests 50 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56  4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	3.4 Market Efficiency Test Results 50	
3.4.3 Strong-Form Tests 30 3.4.4 Summary 51  PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58  4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	3.4.1 Weak-Form Tests no 50 nd them test no 10 lat	
PART III MODERN INVESTMENT THEORY 55  CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	3.4.2 Semistrong-Form Tests 50 250 250 250 250 250 250 250 250 250	
CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	3.4.3 Strong-Form Tests 50	
CHAPTER 4 The Portfolio Selection Problem 55  4.1 Initial and Terminal Wealth 56 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	3.4.4 Summary 51 8 23934314 VIII 2393 E.I.A.	
4.1 Initial and Terminal Wealth 4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83		
4.1.1 Determining the Rate of Return on a Portfolio 56 4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83		
4.1.2 An Example 56 4.2 Nonsatiation and Risk Aversion 57 4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58 4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83		
4.2.1 Nonsatiation 57 4.2.2 Risk Aversion 58  4.3 Utility 58 4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60  4.4 Indifference Curves 60  4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83		
4.2.2 Risk Aversion 58  4.3 Utility 58  4.3.1 Marginal Utility 58  4.3.2 Certainty Equivalents and Risk Premiums 60  4.4 Indifference Curves 60  4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64  4.5.1 Expected Returns 64  4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	4.2 Nonsatiation and Risk Aversion 57	
4.3 Utility 58  4.3.1 Marginal Utility 58  4.3.2 Certainty Equivalents and Risk Premiums 60  4.4 Indifference Curves 60  4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64  4.5.1 Expected Returns 64  4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	4.2.1 Nonsatiation 57	
4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	4.2.2 Risk Aversion \ \ \ 58 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
4.3.1 Marginal Utility 58 4.3.2 Certainty Equivalents and Risk Premiums 60 4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	4.3 Utility 58	
4.4 Indifference Curves 60 4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	4.3.1 Marginal Utility 58	
4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	4.3.2 Certainty Equivalents and Risk Premiums 60	
4.5 Calculating Expected Returns and Standard Deviations for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83	4.4 Indifference Curves 81 60 mm. I smit 9 c	
for Portfolios 64 4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83		
4.5.1 Expected Returns 64 4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83		
4.5.2 Standard Deviations 67  CHAPTER 5 Portfolio Analysis 83		
CHAPTER 5 Portfolio Analysis 83		
	2.3.4 Stop Limit Orders 20	
	CHAPTER 5 Portfolio Analysis 83	
5.1 The Efficient Set Theorem 83	5.1 The Efficient Set Theorem 83	
5.1.1 The Feasible Set 84		

5.1.2 The Efficient Set Theorem Applied to the Feasible Set

	5.2 Concavity of the Efficient Set 88
	5.2.1 Bounds on the Location of Portfolios 88
	5.2.2 Actual Locations of Portfolios 92
	5.3 The Market Model 93
	5.3.1 Random Error Terms 93
	5.3.2 Graphical Representation of the Market Model 94
	5.3.3 Beta 94 nomanana mananana A 1.5.8
	5.3.4 Actual Returns 96
	5.4 Diversification 96 book roton and adult M. E. 81
	5.4.1 Portfolio Total Risk 10 97 and amendment 4.8
	5.4.2 Portfolio Market Risk 98
	5.4.2 D. (C.1), II D. I
	5.4.4 An Example 100
	5.4.5 Random versus Efficient Diversification 101
	5.4.5 Random versus Efficient Diversification 101 12 120
CII	9.1 The Composate Form 157
CH	APTER 6 Riskfree Lending and Borrowing 105
	6.1 Defining the Riskfree Asset 105
	6.2 Allowing for Riskfree Lending 106
	6.2.1 Investing in Both a Riskfree Asset and a Risky Asset 106
	6.2.2 Investing in Both the Riskfree Asset and a Risky Portfolio 109
	6.2.3 The Effect of Riskfree Lending on the Efficient Set 110
	6.2.4 The Effect of Riskfree Lending on Portfolio Selection 112
	6.3 Allowing for Riskfree Borrowing 112
	at the shall in the shall have shall shall shall be shall be shall be shall so the shall be s
	6.3.1 Borrowing and Investing in a Risky Security 112
	6.3.2 Borrowing and Investing in a Risky Portfolio 116
	6.4 Allowing for Both Riskfree Borrowing and Lending 116
	6.4.1 The Effect of Riskfree Borrowing and Lending on the Efficient Set 116
	6.4.2 The Effect of Riskfree Borrowing and Lending on Portfolio Selection 119
	9.6 Common Stock Betas 168
CH	APTER 7 The Capital Asset Pricing Model 126
	9.7.1 Book-Value-to-Marker-Value Rano 173
	7.1 Assumptions 126
	7.2 The Capital Market Line 127
	7.2.1 The Separation Theorem 127 Assessed 4.7.9
	7.2.2 The Market Portfolio 128
	7.2.5 The Efficient Set 151
	7.3 The Security Market Line 10 132 Market Line
	7.3.1 Implications for Individual Risky Assets 132
	7.3.2 An Example 135 98 30 210 8 10 110 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	7.4 The Market Model on 137 or no month of A E. LOI
	7.4.1 Market Indices 191138 diword-oreX off C.01
	7.4.2 Market and Unique Risk 138
	7.4.3 An Example 139 M 100 M 1
	7.4.4 Motivation for the Partitioning of Risk 140
	10.3 The Constant-Growth Model 193

5.1.3 Selection of the Optimal Portfolio 85

	CHAPTER 8 Arbitrage Pricing Theory 144
	8.1 Factor Models 144  8.1.1 Principle of Arbitrage 145  8.1.2 Arbitrage Portfolios 145  8.1.3 The Investor's Position 147  8.2 Pricing Effects 147  8.2.1 A Graphical Illustration 148  8.2.2 Interpreting the APT Pricing Equation 149  8.3 Multiple-Factor Models 150  8.4 Identifying the Factors 152
PART IV	COMMON STOCKS 157 80 Akid supfied offoliology E.A.R.
	CHAPTER 9 Characteristics of Common Stocks 157
119	9.1 The Corporate Form 157 9.1.1 Stock Certificates 157 9.1.2 Voting 158 9.1.3 Proxy Fight 158 9.1.4 Takeovers 159 9.1.5 Ownership versus Control 160 9.1.6 Corporate Governance 160 9.1.7 Stockholders' Equity 161 9.2 Cash Dividends 164 9.3 Stock Dividends and Stock Splits 165 9.3.1 Ex Distribution Dates 165 9.3.2 Reasons for Stock Dividends and Splits 166 9.4 Preemptive Rights 167 9.5 Ex Ante and Ex Post Values 168 9.6 Common Stock Betas 168 9.7 Growth versus Value 173 9.7.1 Book-Value-to-Market-Value Ratio 173 9.7.2 Earnings-to-Price Ratio 174 9.7.3 Size 175 9.7.4 Interrelationships 175
	CHAPTER 10 Dividend Discount Models 189
	10.1 Capitalization of Income Method of Valuation  10.1.1 Net Present Value 190 10.1.2 Internal Rate of Return 190 10.1.3 Application to Common Stocks 191 10.2 The Zero-Growth Model 192 10.2.1 Net Present Value 192 10.2.2 Internal Rate of Return 193 10.2.3 Application 193 10.3 The Constant-Growth Model 193

	10.3.2 Internal Rate of Return 2195 23ITIRUO3E 3MOOM	
	10.3.3 Relationship to the Zero-Growth Model 195	
	10.4 The Multiple-Growth Model 195	
	10.4.1 Net Present Value 196 mis M-oj-bloiy 1.21	
	10.4.2 Internal Rate of Return 197	
	10.4.3 Relationship to the Constant-Growth Model 198	
	10.4.4 Two-Stage and Three-Stage Models 198	
	10.5 Valuation Based on a Finite Holding Period 199	
	10.6 Models Based on Price-Earnings Ratios 200	
	10.6.1 The Zero-Growth Model 202 ogmood d.S.I.	
	10.6.2 The Constant-Growth Model   203	
	10.6.3 The Multiple-Growth Model 204	
	10.7 Sources of Earnings Growth 205	
	10.8 Alpha and the Security Market Line 209	
	10.8.1 Required Returns and Alphas 210	
	10.8.2 The Implied Return on the Stock Market 210	
	10.9 Dividend Discount Models and Expected Returns 21	1
	12.9.5 Empirical Evidence on the Theories 272	ĵ,
CH	APTER 11 Portfolio Performance Evaluation 218	
	11.1 Measures of Return 218	
	11.1.1 Dollar-Weighted Returns 220	
	11.1.2 Time-Weighted Returns 220	
	11.1.3 Comparing Dollar-Weighted and Time-Weighted Returns	22
	11.1.4 Annualizing Returns 221	
	11.2 Making Relevant Comparisons 221	
	11.3 Market Indices 223	
	11.3.1 Price Weighting 223	
	11.3.2 Value Weighting 226	
	11.3.3 Equal Weighting 227	
	11.3.4 Geometric Mean 227	
	11.4 Risk-Adjusted Measures of Performance 228	
	11.4.1 Ex Post Characteristic Lines 230	
	11.4.2 The Reward-to-Volatility Ratio 236	
	11.4.3 The Sharpe Ratio 237	
	11.4.4 M <sup>2</sup> 239 Enouthought monusoral E.E.E.	
	11.4.5 Comparing the Risk-Adjusted Measures of Performance	240
	11.5 Market Timing 241	
	11.5.1 Quadratic Regression 11.243 ARM Brook LAI	
	11.5.2 Dummy Variable Regression 243	
		245
	11.6.1 Use of a Market Index 245	- 13
	11.6.2 Distinguishing Skill from Luck 245	
	11.6.3 Measuring the Riskfree Rate 247	
	11.6.4 Validity of the CAPM 248 Manual Co. A. A.	

### PART V FIXED-INCOME SECURITIES 255 March 10 and 10

CHAPTER 12 Fundamentals of Bond Valuation 255	
12.1 Yield-to-Maturity 255 mayor 1 and 1 and 1	
12.2 Spot Rates 259 357 to \$157 to \$15	
10.4 Fermand Detect 261	
12.4 Forward Rates 261  12.5 Forward Rates and Discount Factors 263	
12.6 Compounding 263	
12.7 The Bank Discount Method 264	
12.8 Yield Curves 265	
12.9 Term Structure Theories 266	
12.9.1 The Unbiased Expectations Theory 266	
12.9.2 The Liquidity Preference Theory 269 12.9.3 The Market Segmentation Theory 271	
12.9.4 The Preferred Habitat Theory 272	
12.9.5 Empirical Evidence on the Theories 272	
CHAPTER 13 Bond Analysis 279	
13.1 Applying the Capitalization of Income Method to Bonds 279	
13.1.1 Promised Yield-to-Maturity 279	
13.1.2 Intrinsic Value 280	
13.2 Bond Attributes 281	
13.2.1 Coupon Rate and Length of Time until Maturity 281	
13.2.2 Call Provisions 282	
13.2.3 Tax Status 284 13.2.4 Marketability 284	
13.2.5 Likelihood of Default 285	
13.3 The Risk Structure of Interest Rates 293	
13.4 Determinants of Yield Spreads 295	
13.5 Financial Ratios as Predictors of Default 296	
13.5.1 Univariate Methods 296	
13.5.2 Multivariate Methods 296	
13.5.3 Investment Implications 297	
CHAPTER 14 Bond Portfolio Management 302	
14.1 Bond Market Efficiency 302	
14.1.1 Price Behavior of Treasury Bills 302	
14.1.2 Expert Predictions of Interest Rates 303	
14.1.3 Price Reaction to Bond Rating Changes 304 14.1.4 Money Supply Announcements 304	
14.1.5 Performance of Bond Portfolio Managers 304	
14.1.6 Summary 305 Manager and Managers 304	
14.2 Bond Pricing Theorems 305	
14.3 Convexity 308	

	14.4 Duration 309 anong the 150 none and well
	14.4.1 The Formula 309 208 within I had and I had a strong the Daniel I had a strong the strong that the strong the stron
	14.4.2 Relationship to Bond Price Changes 310
	14.4.3 Relationship between Convexity and Duration 311
	14.4.4 Changes in the Term Structure 312 00 x shall 8.21
	14.5 Immunization 313 Vol. Manual 162 Man 1.8.21
	14.5.1 How Immunization is Accomplished 313
	14.5.2 Problems with Immunization 315
	14.6 Active Management 318
	14.6.2 Bond Swaps 320 14.6.3 Contingent Immunization 321
	1161 Riding the Viold Curve 377
	14.7 Passive Management 323
	14.8 Bond Portfolio Performance Evaluation 323
	14.8.1 Bond Indices 325
	14.8.2 Time-Series and Cross-Sectional Comparisons 327
	14.9 Bonds versus Stocks 328 328 328 328 328 328 328 328 328 328
PART VI	OTHER INVESTMENTS 337
	CHAPTER 15 Options 337
	15.1 Types of option contracts 55,
	15.1.1 Call Options 337
	15.1.2 Put Options 340
	15.2 Option Trading 340 semiled no ambies 2.01
	15.2.1 Trading Activity 10.341 x 1 ban eson 1 countries and 1
	15.2.2 Most Active Options 342
	15.2.3 Trading on Exchanges 343
	15.2.4 Commissions 343 343 550 base 20019 20010 7.01
	15.3 Margin 345 28 misldors and should 18.61
	15.4 Valuation of Options 346 346 346 346 346 346
	15.4.1 Valuation at Expiration 346
	15.4.2 Profits and Losses on Calls and Puts 347
	15.4.3 Profits and Losses from Some Option Strategies 349
	15.5 The Binomial Option Pricing Model 350
	15.5.1 Call Options 350
	15.5.2 Put Options 355 28 WIND XAMA & 8.61
	15.5.3 Put-Call Parity 2 356 mong O zugray zomon 1 2.31
	15.6 The Black–Scholes Model for Call Options 357
	15 ( 1 TL F 1 257
	The country of the co
	15.6.3 Static Analysis 360 15.6.4 Estimating a Stock's Volatility from Historical Prices 360
	15.6.5 The Market Consensus of a Stock's Volatility 361
	15.6.6 More on Hedge Ratios 362
	15.6.7 Limitations on the Use of the Black–Scholes Model 363
	15.6.8 Adjustments for Dividends 364
	2000 220 provincino joi 201 vitacinos 501

15.7 The Valuation of Put Options 201364 mollecular Additional Add
15.7.1 Put-Call Parity 365 QUE Administration of Self-Lands
15.7.2 Static Analysis 366 March of glazarolinlos CA-NI
15.7.3 Early Exercise and Dividends 366
15.8 Index Options 367 We must shi all assembly AAAA
15.8.1 Cash Settlement 367 ETE godfasinumin 7.4-1
15.8.2 The Contract 367
CHAPTER 16 Futures 373
16.1 Hedgers and Speculators 373 A sustroll Local
16.1.1 An Example of Hedging 373
16.1.2 An Example of Speculating 374
16.2 The Futures Contract 374
16.2 Futures Markets 275
16.3.1 The Clearinghouse 377
16 3 2 Initial Margin 378
16.3.3 Marking to Market 379
16.3.4 Maintenance Margin 379 old audisv abnoth R.A.L.
16.3.5 Reversing Trades 380
16.3.6 Futures Positions 381
16.3.7 Open Interest 381
10.5.6 Price Limits 302
16.4 Basis 383 TEE Propried Contracts 121
16.4.1 Speculating on the Basis 383
16.4.2 Spreads 383 ONE STRONG MY S. I. Z.
16.5 Returns on Futures 384 gailbart good 5.21
16.6 Futures Prices and Expected Spot Prices 386
16.6.1 Certainty 386 42 2000 0 3000 A 120 M S.S.B.
16.6.2 Uncertainty 386 approduct to graph 16.6.2
16.7 Futures Prices and Current Spot Prices 388
16.7.1 Introducing the Problem 388 18 migral/ 6.6.1
16.7.2 No Costs or Benefits of Ownership 10, 388 1118 4 21
16.7.1 Gents of Ownership 389
16.7.4 Costs of Ownership 389  16.8 Financial Futures 390
16.8.1 Foreign Currency Futures 390
16.8.2 Interest Rate Futures 392 16.8.3 Market Index Futures 393
16.9 Futures versus Options 398 398 398 398 398 398 398 398 398 398
15.6 The Black-Scholes Model for Call Options 357
Glossary 405
Selected Solutions to End-of-Chapter Questions and Problems 427

References

431

PART I: INTRODUCTION

# CHAPTER

# Introduction

investment environment investment process

investment

real investments

financial investments

primary market secondary market

This book is about investing in marketable securities. Accordingly, it focuses on the investment environment and process. The **investment environment** includes the kinds of marketable securities that exist and where and how they are bought and sold. The **investment process** is concerned with how an investor should make decisions about what marketable securities to invest in, how extensive the investments should be, and when the investments should be made. Before discussing the investment environment and process in detail, the term **investment** is described.

Investment, in its broadest sense, means the sacrifice of current dollars for future dollars. Two different attributes are generally involved: *time* and *risk*. The sacrifice takes place in the present and is certain. The reward comes later, if at all, and the amount of the reward is generally uncertain. In some cases the element of time predominates (for example, with government bonds). In other cases risk is the dominant factor (for example, with call options on common stocks). In yet others both time and risk are important (for example, with shares of common stock).

A distinction is often made between real and financial investments. Real investments generally involve a tangible (physical) asset, such as land, machinery, or factories. Financial investments involve contracts written on paper, such as common stocks and bonds. The financing of an apartment building provides a good example. Apartments are sufficiently tangible ("bricks and mortar") to be considered real investments. But where do the resources come from to pay for the land and the construction of the apartments? Some may come from direct investment. For example, a wealthy doctor who wants to construct an apartment building may use some of his or her own money to finance the project. The rest of the resources may be provided by a mortgage loan. In essence, someone loans money to the doctor, with repayment promised in fixed amounts on a specified schedule over some period of time. In the typical case the "someone" is not a person, but an institution acting as a financial intermediary. Thus the doctor makes a real investment in the apartment building, and the institution makes a financial investment in the doctor.

As a second example, consider what happens when General Motors (GM) needs money to pay for plant construction. This real investment may be financed by the sale of new common stock in the **primary market** (the market in which securities are sold at the time of their initial issuance). The common stock itself represents a financial investment to the purchasers, who may later trade these shares in the **secondary market** (the market in which previously issued securities are traded). Although transactions in the secondary market do not generate money for GM, the fact that such a market exists makes the common stock more attractive and thus facilitates real investment. Investors would pay less for new shares of common stock if there were no way to sell them quickly and inexpensively at a later date.