

Brief Contents

Preface xvi

PART I

Introduction 1

1

The Investment Environment 1

2

Asset Classes and Financial Instruments 27

3

How Securities Are Traded 57

4

Mutual Funds and Other Investment
Companies 91

PART II

Portfolio Theory and Practice 117

5

Risk, Return, and the Historical Record 117

6

Capital Allocation to Risky Assets 157

7

Optimal Risky Portfolios 193

8

Index Models 245

PART III

Equilibrium in Capital Markets 277

9

The Capital Asset Pricing Model 277

10

Arbitrage Pricing Theory and Multifactor
Models of Risk and Return 309

11

The Efficient Market Hypothesis 333

12

Behavioral Finance and Technical
Analysis 373

13

Empirical Evidence on Security Returns 397

PART IV

Fixed-Income Securities 425

14

Bond Prices and Yields 425

15

The Term Structure of Interest Rates 467

16

Managing Bond Portfolios 495

PART V

Security Analysis 537

17
 Macroeconomic and Industry Analysis 537
 18
 Equity Valuation Models 569
 19
 Financial Statement Analysis 613

PART VI

**Options, Futures, and Other
 Derivatives 657**

20
 Options Markets: Introduction 657
 21
 Option Valuation 699
 22
 Futures Markets 747
 23
 Futures, Swaps, and Risk Management 775

PART VII

**Applied Portfolio
 Management 811**

24
 Portfolio Performance Evaluation 811
 25
 International Diversification 853
 26
 Hedge Funds 881
 27
 The Theory of Active Portfolio
 Management 907
 28
 Investment Policy and the Framework of the
 CFA Institute 931

REFERENCES TO CFA PROBLEMS 967

GLOSSARY G-1

NAME INDEX I-1

SUBJECT INDEX I-4

FORMULAS F-1

Contents

Preface xvi

PART I

Introduction 1

Chapter 1

The Investment Environment 1

- 1.1 Real Assets versus Financial Assets 2
 - 1.2 Financial Assets 3
 - 1.3 Financial Markets and the Economy 5
 - The Informational Role of Financial Markets / Consumption Timing / Allocation of Risk / Separation of Ownership and Management / Corporate Governance and Corporate Ethics*
 - 1.4 The Investment Process 8
 - 1.5 Markets Are Competitive 9
 - The Risk–Return Trade-Off / Efficient Markets*
 - 1.6 The Players 11
 - Financial Intermediaries / Investment Bankers / Venture Capital and Private Equity*
 - 1.7 The Financial Crisis of 2008 15
 - Antecedents of the Crisis / Changes in Housing Finance / Mortgage Derivatives / Credit Default Swaps / The Rise of Systemic Risk / The Shoe Drops / The Dodd-Frank Reform Act*
 - 1.8 Outline of the Text 23
- End of Chapter Material 23–26

Chapter 2

Asset Classes and Financial Instruments 27

- 2.1 The Money Market 27
 - Treasury Bills / Certificates of Deposit / Commercial Paper / Bankers' Acceptances / Eurodollars / Repos*

and Reverses / Federal Funds / Brokers' Calls / The LIBOR Market / Yields on Money Market Instruments

2.2 The Bond Market 33

Treasury Notes and Bonds / Inflation-Protected Treasury Bonds / Federal Agency Debt / International Bonds / Municipal Bonds / Corporate Bonds / Mortgages and Mortgage-Backed Securities

2.3 Equity Securities 40

Common Stock as Ownership Shares / Characteristics of Common Stock / Stock Market Listings / Preferred Stock / Depositary Receipts

2.4 Stock and Bond Market Indexes 43

Stock Market Indexes / Dow Jones Industrial Average / The Standard & Poor's 500 Index / Other U.S. Market-Value Indexes / Equally Weighted Indexes / Foreign and International Stock Market Indexes / Bond Market Indicators

2.5 Derivative Markets 50

Options / Futures Contracts

End of Chapter Material 52–56

Chapter 3

How Securities Are Traded 57

3.1 How Firms Issue Securities 57

Privately Held Firms / Publicly Traded Companies / Shelf Registration / Initial Public Offerings

3.2 How Securities Are Traded 62

Types of Markets

Direct Search Markets / Brokered Markets / Dealer Markets / Auction Markets

Types of Orders

Market Orders / Price-Contingent Orders

*Trading Mechanisms**Dealer Markets / Electronic Communication Networks (ECNs) / Specialist Markets***3.3 The Rise of Electronic Trading 66****3.4 U.S. Markets 68***NASDAQ / The New York Stock Exchange / ECNs***3.5 New Trading Strategies 70***Algorithmic Trading / High-Frequency Trading / Dark Pools / Bond Trading***3.6 Globalization of Stock Markets 73****3.7 Trading Costs 74****3.8 Buying on Margin 75****3.9 Short Sales 78****3.10 Regulation of Securities Markets 82***Self-Regulation / The Sarbanes-Oxley Act / Insider Trading***End of Chapter Material 86–90**

Chapter 4**Mutual Funds and Other Investment Companies 91****4.1 Investment Companies 91****4.2 Types of Investment Companies 92***Unit Investment Trusts / Managed Investment Companies / Other Investment Organizations**Commingled Funds / Real Estate Investment Trusts (REITs) / Hedge Funds***4.3 Mutual Funds 95***Investment Policies**Money Market Funds / Equity Funds / Sector Funds / Bond Funds / International Funds / Balanced Funds / Asset Allocation and Flexible Funds / Index Funds**How Funds Are Sold***4.4 Costs of Investing in Mutual Funds 98***Fee Structure**Operating Expenses / Front-End Load / Back-End Load / 12b-1 Charges**Fees and Mutual Fund Returns***4.5 Taxation of Mutual Fund Income 102****4.6 Exchange-Traded Funds 103****4.7 Mutual Fund Investment Performance: A First Look 106****4.8 Information on Mutual Funds 109****End of Chapter Material 112–116****PART II****Portfolio Theory and Practice 117****Chapter 5****Risk, Return, and the Historical Record 117****5.1 Determinants of the Level of Interest Rates 118***Real and Nominal Rates of Interest / The Equilibrium Real Rate of Interest / The Equilibrium Nominal Rate of Interest / Taxes and the Real Rate of Interest***5.2 Comparing Rates of Return for Different Holding Periods 121***Annual Percentage Rates / Continuous Compounding***5.3 Bills and Inflation, 1926–2015 124****5.4 Risk and Risk Premiums 126***Holding-Period Returns / Expected Return and Standard Deviation / Excess Returns and Risk Premiums***5.5 Time Series Analysis of Past Rates of Return 129***Time Series versus Scenario Analysis / Expected Returns and the Arithmetic Average / The Geometric (Time-Weighted) Average Return / Variance and Standard Deviation / Mean and Standard Deviation Estimates from Higher-Frequency Observations / The Reward-to-Volatility (Sharpe) Ratio***5.6 The Normal Distribution 134****5.7 Deviations from Normality and Alternative Risk Measures 136***Value at Risk / Expected Shortfall / Lower Partial Standard Deviation and the Sortino Ratio / Relative Frequency of Large, Negative 3-Sigma Returns***5.8 Historic Returns on Risky Portfolios 140***A Global View of the Historical Record***5.9 Normality and Long-Term Investments 147***Short-Run versus Long-Run Risk / Forecasts for the Long Haul***End of Chapter Material 151–156**

Chapter 6**Capital Allocation to Risky Assets 157****6.1 Risk and Risk Aversion 158***Risk, Speculation, and Gambling / Risk Aversion and Utility Values / Estimating Risk Aversion***6.2 Capital Allocation across Risky and Risk-Free Portfolios 164****6.3 The Risk-Free Asset 166**

- 6.4 **Portfolios of One Risky Asset and a Risk-Free Asset** 167
- 6.5 **Risk Tolerance and Asset Allocation** 170
Non-Normal Returns
- 6.6 **Passive Strategies: The Capital Market Line** 176
End of Chapter Material 178–187
Appendix A: Risk Aversion, Expected Utility, and the St. Petersburg Paradox 187
Appendix B: Utility Functions and Risk Premiums 191

Chapter 7

Optimal Risky Portfolios 193

- 7.1 **Diversification and Portfolio Risk** 194
- 7.2 **Portfolios of Two Risky Assets** 195
- 7.3 **Asset Allocation with Stocks, Bonds, and Bills** 203
Asset Allocation with Two Risky Asset Classes
- 7.4 **The Markowitz Portfolio Optimization Model** 208
Security Selection / Capital Allocation and the Separation Property / The Power of Diversification / Asset Allocation and Security Selection / Optimal Portfolios and Non-Normal Returns
- 7.5 **Risk Pooling, Risk Sharing, and the Risk of Long-Term Investments** 217
Risk Pooling and the Insurance Principle / Risk Sharing / Diversification and the Sharpe Ratio / Time Diversification and the Investment Horizon
End of Chapter Material 222–232
Appendix A: A Spreadsheet Model for Efficient Diversification 232
Appendix B: Review of Portfolio Statistics 237

Chapter 8

Index Models 245

- 8.1 **A Single-Factor Security Market** 246
The Input List of the Markowitz Model / Systematic versus Firm-Specific Risk
- 8.2 **The Single-Index Model** 248
The Regression Equation of the Single-Index Model / The Expected Return–Beta Relationship / Risk and Covariance in the Single-Index Model / The Set of Estimates Needed for the Single-Index Model / The Index Model and Diversification
- 8.3 **Estimating the Single-Index Model** 255
The Security Characteristic Line for Ford / The Explanatory Power of Ford’s SCL / The Estimate of Alpha / The Estimate of Beta / Firm-Specific Risk
Typical Results from Index Model Regressions

- 8.4 **The Industry Version of the Index Model** 259
Predicting Betas
- 8.5 **Portfolio Construction Using the Single-Index Model** 262
Alpha and Security Analysis / The Index Portfolio as an Investment Asset / The Single-Index Model Input List / The Optimal Risky Portfolio in the Single-Index Model / The Information Ratio / Summary of Optimization Procedure / An Example / Correlation and Covariance Matrix
Risk Premium Forecasts / The Optimal Risky Portfolio / Is the Index Model Inferior to the Full-Covariance Model?
End of Chapter Material 271–276

PART III

Equilibrium in Capital Markets 277

Chapter 9

The Capital Asset Pricing Model 277

- 9.1 **The Capital Asset Pricing Model** 277
Why Do All Investors Hold the Market Portfolio? / The Passive Strategy Is Efficient / The Risk Premium of the Market Portfolio / Expected Returns on Individual Securities / The Security Market Line / The CAPM and the Single-Index Market
- 9.2 **Assumptions and Extensions of the CAPM** 288
Identical Input Lists / Risk-Free Borrowing and the Zero-Beta Model / Labor Income and Nontraded Assets / A Multiperiod Model and Hedge Portfolios / A Consumption-Based CAPM / Liquidity and the CAPM
- 9.3 **The CAPM and the Academic World** 298
- 9.4 **The CAPM and the Investment Industry** 299
End of Chapter Material 300–308

Chapter 10

Arbitrage Pricing Theory and Multifactor Models of Risk and Return 309

- 10.1 **Multifactor Models: A Preview** 310
Factor Models of Security Returns
- 10.2 **Arbitrage Pricing Theory** 312
Arbitrage, Risk Arbitrage, and Equilibrium / Well-Diversified Portfolios / The Security Market Line of the APT
Individual Assets and the APT
Well-Diversified Portfolios in Practice
- 10.3 **The APT, the CAPM, and the Index Model** 319
The APT and the CAPM / The APT and Portfolio Optimization in a Single-Index Market

- 10.4 A Multifactor APT 321
- 10.5 The Fama-French (FF) Three-Factor Model 324
- End of Chapter Material 326–332

Chapter 11

The Efficient Market Hypothesis 333

- 11.1 Random Walks and the Efficient Market Hypothesis 334
Competition as the Source of Efficiency / Versions of the Efficient Market Hypothesis
- 11.2 Implications of the EMH 339
Technical Analysis / Fundamental Analysis / Active versus Passive Portfolio Management / The Role of Portfolio Management in an Efficient Market / Resource Allocation
- 11.3 Event Studies 343
- 11.4 Are Markets Efficient? 347
The Issues
The Magnitude Issue / The Selection Bias Issue / The Lucky Event Issue
Weak-Form Tests: Patterns in Stock Returns
Returns over Short Horizons / Returns over Long Horizons
Predictors of Broad Market Returns / Semistrong Tests: Market Anomalies
The Small-Firm Effect / The Neglected-Firm Effect and Liquidity Effects / Book-to-Market Ratios / Post-Earnings-Announcement Price Drift
Strong-Form Tests: Inside Information / Interpreting the Anomalies
Risk Premiums or Inefficiencies? / Anomalies or Data Mining? / Anomalies over Time
Bubbles and Market Efficiency
- 11.5 Mutual Fund and Analyst Performance 359
Stock Market Analysts / Mutual Fund Managers / So, Are Markets Efficient?
- End of Chapter Material 365–372

Chapter 12

Behavioral Finance and Technical Analysis 373

- 12.1 The Behavioral Critique 374
Information Processing
Forecasting Errors / Overconfidence / Conservatism / Sample Size Neglect and Representativeness
Behavioral Biases
Framing / Mental Accounting / Regret Avoidance / Affect / Prospect Theory
Limits to Arbitrage
Fundamental Risk / Implementation Costs / Model Risk

- Limits to Arbitrage and the Law of One Price*
“Siamese Twin” Companies / Equity Carve-Outs / Closed-End Funds
Bubbles and Behavioral Economics / Evaluating the Behavioral Critique

12.2 Technical Analysis and Behavioral Finance 384

- Trends and Corrections*
Momentum and Moving Averages / Relative Strength / Breadth
Sentiment Indicators
Trin Statistic / Confidence Index / Put/Call Ratio
A Warning
- End of Chapter Material 391–396

Chapter 13

Empirical Evidence on Security Returns 397

- 13.1 The Index Model and the Single-Factor SML 398
The Expected Return–Beta Relationship
Setting Up the Sample Data / Estimating the SCL / Estimating the SML
Tests of the CAPM / The Market Index / Measurement Error in Beta
- 13.2 Tests of the Multifactor Models 403
Labor Income / Private (Nontraded) Business / Early Tests of the Multifactor CAPM and APT / A Macro Factor Model
- 13.3 Fama-French-Type Factor Models 407
Size and B/M as Risk Factors / Behavioral Explanations / Momentum: A Fourth Factor
- 13.4 Liquidity and Asset Pricing 414
- 13.5 Consumption-Based Asset Pricing and the Equity Premium Puzzle 416
Expected versus Realized Returns / Survivorship Bias / Extensions to the CAPM May Resolve the Equity Premium Puzzle / Liquidity and the Equity Premium Puzzle / Behavioral Explanations of the Equity Premium Puzzle
- End of Chapter Material 422–424

PART IV

Fixed-Income Securities 425

Chapter 14

Bond Prices and Yields 425

- 14.1 Bond Characteristics 426
Treasury Bonds and Notes
Accrued Interest and Quoted Bond Prices

Corporate Bonds

Call Provisions on Corporate Bonds / Convertible Bonds / Puttable Bonds / Floating-Rate Bonds

Preferred Stock / Other Domestic Issuers / International Bonds / Innovation in the Bond Market

Inverse Floaters / Asset-Backed Bonds / Catastrophe Bonds / Indexed Bonds

14.2 Bond Pricing 432

Bond Pricing between Coupon Dates

14.3 Bond Yields 438

Yield to Maturity / Yield to Call / Realized Compound Return versus Yield to Maturity

14.4 Bond Prices over Time 444

Yield to Maturity versus Holding-Period Return / Zero-Coupon Bonds and Treasury Strips / After-Tax Returns

14.5 Default Risk and Bond Pricing 449

Junk Bonds / Determinants of Bond Safety / Bond Indentures

Sinking Funds / Subordination of Further Debt / Dividend Restrictions / Collateral

Yield to Maturity and Default Risk / Credit Default Swaps / Credit Risk and Collateralized Debt Obligations

End of Chapter Material 460–466

Chapter 15

The Term Structure of Interest Rates 467

15.1 The Yield Curve 467

Bond Pricing

15.2 The Yield Curve and Future Interest Rates 470

The Yield Curve under Certainty / Holding-Period Returns / Forward Rates

15.3 Interest Rate Uncertainty and Forward Rates 475

15.4 Theories of the Term Structure 477

The Expectations Hypothesis / Liquidity Preference Theory

15.5 Interpreting the Term Structure 480

15.6 Forward Rates as Forward Contracts 484

End of Chapter Material 486–494

Chapter 16

Managing Bond Portfolios 495

16.1 Interest Rate Risk 496

Interest Rate Sensitivity / Duration / What Determines Duration?

Rule 1 for Duration / Rule 2 for Duration / Rule 3 for Duration / Rule 4 for Duration / Rule 5 for Duration

16.2 Convexity 505

Why Do Investors Like Convexity? / Duration and Convexity of Callable Bonds / Duration and Convexity of Mortgage-Backed Securities

16.3 Passive Bond Management 513

Bond-Index Funds / Immunization / Cash Flow Matching and Dedication / Other Problems with Conventional Immunization

16.4 Active Bond Management 522

Sources of Potential Profit / Horizon Analysis

End of Chapter Material 525–536

PART V

Security Analysis 537

Chapter 17

Macroeconomic and Industry Analysis 537

17.1 The Global Economy 537

17.2 The Domestic Macroeconomy 540

Key Economic Indicators

Gross Domestic Product / Employment / Inflation / Interest Rates / Budget Deficit / Sentiment

17.3 Demand and Supply Shocks 542

17.4 Federal Government Policy 542

Fiscal Policy / Monetary Policy / Supply-Side Policies

17.5 Business Cycles 545

The Business Cycle / Economic Indicators / Other Indicators

17.6 Industry Analysis 550

Defining an Industry / Sensitivity to the Business Cycle / Sector Rotation / Industry Life Cycles

Start-Up Stage / Consolidation Stage / Maturity Stage / Relative Decline

Industry Structure and Performance

Threat of Entry / Rivalry between Existing Competitors / Pressure from Substitute Products / Bargaining Power of Buyers / Bargaining Power of Suppliers

End of Chapter Material 560–568

Chapter 18

Equity Valuation Models 569

18.1 Valuation by Comparables 569

Limitations of Book Value

18.2 Intrinsic Value versus Market Price 571

18.3 Dividend Discount Models 573

The Constant-Growth DDM / Convergence of Price to Intrinsic Value / Stock Prices and Investment

Opportunities / Life Cycles and Multistage Growth Models / Multistage Growth Models

- 18.4 The Price–Earnings Ratio 587**
The Price–Earnings Ratio and Growth Opportunities / P/E Ratios and Stock Risk / Pitfalls in P/E Analysis / Combining P/E Analysis and the DDM / Other Comparative Valuation Ratios
Price-to-Book Ratio / Price-to-Cash-Flow Ratio / Price-to-Sales Ratio
- 18.5 Free Cash Flow Valuation Approaches 595**
Comparing the Valuation Models / The Problem with DCF Models
- 18.6 The Aggregate Stock Market 599**
End of Chapter Material 601–612

Chapter 19

Financial Statement Analysis 613

- 19.1 The Major Financial Statements 613**
The Income Statement / The Balance Sheet / The Statement of Cash Flows
- 19.2 Measuring Firm Performance 618**
- 19.3 Profitability Measures 619**
Return on Assets, ROA / Return on Capital, ROC / Return on Equity, ROE / Financial Leverage and ROE / Economic Value Added
- 19.4 Ratio Analysis 623**
Decomposition of ROE / Turnover and Other Asset Utilization Ratios / Liquidity Ratios / Market Price Ratios: Growth versus Value / Choosing a Benchmark
- 19.5 An Illustration of Financial Statement Analysis 633**
- 19.6 Comparability Problems 636**
Inventory Valuation / Depreciation / Inflation and Interest Expense / Fair Value Accounting / Quality of Earnings and Accounting Practices / International Accounting Conventions
- 19.7 Value Investing: The Graham Technique 642**
End of Chapter Material 643–656

PART VI

Options, Futures, and Other Derivatives 657

Chapter 20

Options Markets: Introduction 657

- 20.1 The Option Contract 657**
Options Trading / American and European Options / Adjustments in Option Contract Terms / The Options Clearing Corporation / Other Listed Options

Index Options / Futures Options / Foreign Currency Options / Interest Rate Options

- 20.2 Values of Options at Expiration 663**
Call Options / Put Options / Option versus Stock Investments
- 20.3 Option Strategies 667**
Protective Put / Covered Calls / Straddle / Spreads / Collars
- 20.4 The Put-Call Parity Relationship 675**
- 20.5 Option-Like Securities 678**
Callable Bonds / Convertible Securities / Warrants / Collateralized Loans / Levered Equity and Risky Debt
- 20.6 Financial Engineering 684**
- 20.7 Exotic Options 686**
Asian Options / Barrier Options / Lookback Options / Currency-Translated Options / Digital Options
End of Chapter Material 687–698

Chapter 21

Option Valuation 699

- 21.1 Option Valuation: Introduction 699**
Intrinsic and Time Values / Determinants of Option Values
- 21.2 Restrictions on Option Values 703**
Restrictions on the Value of a Call Option / Early Exercise and Dividends / Early Exercise of American Puts
- 21.3 Binomial Option Pricing 706**
Two-State Option Pricing / Generalizing the Two-State Approach / Making the Valuation Model Practical
- 21.4 Black-Scholes Option Valuation 714**
The Black-Scholes Formula / Dividends and Call Option Valuation / Put Option Valuation / Dividends and Put Option Valuation
- 21.5 Using the Black-Scholes Formula 722**
Hedge Ratios and the Black-Scholes Formula / Portfolio Insurance / Option Pricing and the Crisis of 2008–2009 / Option Pricing and Portfolio Theory / Hedging Bets on Mispiced Options
- 21.6 Empirical Evidence on Option Pricing 734**
End of Chapter Material 735–746

Chapter 22

Futures Markets 747

- 22.1 The Futures Contract 747**
The Basics of Futures Contracts / Existing Contracts
- 22.2 Trading Mechanics 753**
The Clearinghouse and Open Interest / The Margin Account and Marking to Market / Cash versus Actual Delivery / Regulations / Taxation

- 22.3 Futures Markets Strategies 757**
Hedging and Speculation / Basis Risk and Hedging
 - 22.4 Futures Prices 761**
The Spot-Futures Parity Theorem / Spreads / Forward versus Futures Pricing
 - 22.5 Futures Prices versus Expected Spot Prices 768**
Expectations Hypothesis / Normal Backwardation / Contango / Modern Portfolio Theory
- End of Chapter Material 770–774**

Chapter 23

Futures, Swaps, and Risk Management 775

- 23.1 Foreign Exchange Futures 775**
The Markets / Interest Rate Parity / Direct versus Indirect Quotes / Using Futures to Manage Exchange Rate Risk
 - 23.2 Stock-Index Futures 783**
The Contracts / Creating Synthetic Stock Positions: An Asset Allocation Tool / Index Arbitrage / Using Index Futures to Hedge Market Risk
 - 23.3 Interest Rate Futures 788**
Hedging Interest Rate Risk
 - 23.4 Swaps 790**
Swaps and Balance Sheet Restructuring / The Swap Dealer / Other Interest Rate Contracts / Swap Pricing / Credit Risk in the Swap Market / Credit Default Swaps
 - 23.5 Commodity Futures Pricing 797**
Pricing with Storage Costs / Discounted Cash Flow Analysis for Commodity Futures
- End of Chapter Material 801–810**

PART VII

Applied Portfolio Management 811

Chapter 24

Portfolio Performance Evaluation 811

- 24.1 The Conventional Theory of Performance Evaluation 811**
Average Rates of Return / Time-Weighted Returns versus Dollar-Weighted Returns / Adjusting Returns for Risk / The Sharpe Ratio for Overall Portfolios
The M² Measure and the Sharpe Ratio
The Treynor Ratio
The Information Ratio
The Role of Alpha in Performance Measures / Implementing Performance Measurement: An Example / Realized Returns versus Expected Returns

- 24.2 Style Analysis 823**
 - 24.3 Performance Measurement with Changing Portfolio Composition 826**
Performance Manipulation and the Morningstar Risk-Adjusted Rating
 - 24.4 Market Timing**
The Potential Value of Market Timing / Valuing Market Timing as a Call Option / The Value of Imperfect Forecasting
 - 24.5 Performance Attribution Procedures 835**
Asset Allocation Decisions / Sector and Security Selection Decisions / Summing Up Component Contributions
- End of Chapter Material 841–852**

Chapter 25

International Diversification 853

- 25.1 Global Markets for Equities 853**
Developed Countries / Emerging Markets / Market Capitalization and GDP / Home-Country Bias
 - 25.2 Exchange Rate Risk and International Diversification 857**
Exchange Rate Risk / Investment Risk in International Markets / International Diversification / Are Benefits from International Diversification Preserved in Bear Markets?
 - 25.3 Political Risk 868**
 - 25.4 International Investing and Performance Attribution 871**
Constructing a Benchmark Portfolio of Foreign Assets / Performance Attribution
- End of Chapter Material 875–880**

Chapter 26

Hedge Funds 881

- 26.1 Hedge Funds versus Mutual Funds 882**
Transparency / Investors / Investment Strategies / Liquidity / Compensation Structure
- 26.2 Hedge Fund Strategies 883**
Directional and Nondirectional Strategies / Statistical Arbitrage
- 26.3 Portable Alpha 886**
An Example of a Pure Play
- 26.4 Style Analysis for Hedge Funds 889**
- 26.5 Performance Measurement for Hedge Funds 891**
Liquidity and Hedge Fund Performance / Hedge Fund Performance and Survivorship Bias / Hedge Fund Performance and Changing Factor Loadings / Tail Events and Hedge Fund Performance
- 26.6 Fee Structure in Hedge Funds 899**
End of Chapter Material 902–906

Chapter 27

The Theory of Active Portfolio Management 907

- 27.1 Optimal Portfolios and Alpha Values 907**
Forecasts of Alpha Values and Extreme Portfolio Weights / Restriction of Benchmark Risk
- 27.2 The Treynor-Black Model and Forecast Precision 914**
Adjusting Forecasts for the Precision of Alpha / Distribution of Alpha Values / Organizational Structure and Performance
- 27.3 The Black-Litterman Model 918**
Black-Litterman Asset Allocation Decision / Step 1: The Covariance Matrix from Historical Data / Step 2: Determination of a Baseline Forecast / Step 3: Integrating the Manager's Private Views / Step 4: Revised (Posterior) Expectations / Step 5: Portfolio Optimization
- 27.4 Treynor-Black versus Black-Litterman: Complements, Not Substitutes 923**
The BL Model as Icing on the TB Cake / Why Not Replace the Entire TB Cake with the BL Icing?
- 27.5 The Value of Active Management 925**
A Model for the Estimation of Potential Fees / Results from the Distribution of Actual Information Ratios / Results from Distribution of Actual Forecasts
- 27.6 Concluding Remarks on Active Management 927**
End of Chapter Material 927–928
Appendix A: Forecasts and Realizations of Alpha 928
Appendix B: The General Black-Litterman Model 929

Chapter 28

Investment Policy and the Framework of the CFA Institute 931

- 28.1 The Investment Management Process 932**
Objectives / Individual Investors / Personal Trusts / Mutual Funds / Pension Funds / Endowment Funds / Life Insurance Companies / Non-Life Insurance Companies / Banks

- 28.2 Constraints 937**
Liquidity / Investment Horizon / Regulations / Tax Considerations / Unique Needs
- 28.3 Policy Statements 939**
Sample Policy Statements for Individual Investors
- 28.4 Asset Allocation 943**
Taxes and Asset Allocation 944
- 28.5 Managing Portfolios of Individual Investors 945**
Human Capital and Insurance / Investment in Residence / Saving for Retirement and the Assumption of Risk / Retirement Planning Models / Manage Your Own Portfolio or Rely on Others? / Tax Sheltering
The Tax-Deferral Option / Tax-Protected Retirement Plans / Deferred Annuities / Variable and Universal Life Insurance
- 28.6 Pension Funds 951**
Defined Contribution Plans / Defined Benefit Plans / Pension Investment Strategies
Investing in Equities / Wrong Reasons to Invest in Equities
- 28.7 Investments for the Long Run 954**
Making Simple Investment Choices / Inflation Risk and Long-Term Investors
- End of Chapter Material 956–966**

- REFERENCES TO CFA PROBLEMS 967**
- GLOSSARY G-1**
- NAME INDEX I-1**
- SUBJECT INDEX I-4**
- FORMULAS F-1**