# mve men

N I N T H E D I T I O N

### **ZVI BODIE**

**Boston University** 

### **ALEX KANE**

University of California, San Diego

J.

Boston College

-r-n r-i HOCHSCHULE #§ Q LIECHTENSTEIN Bibliothek



Preface xvi

#### Introduction 1

#### Chapter 1

#### The Investment Environment

- 1.1 Real Assets versus Financial Assets 2
- 1.2 Financial Assets 4
- 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-Off7 Efficient Markets
- 1.6 The Players 11

Financial Intermediaries / Investment Bankers

- 1.7 The Financial Crisis of 2008 14

  Antecedents of the Crisis/Changes in Housing Finance/
  Mortgage Derivatives/Credit Default Swaps/The Rise
  of Systemic Risk/The Shoe Drops/Systemic Risk and the
  Real Economy
- 1.8 Outline of the Text 23

  End of Chapter Material 24-27

#### Chapter 2

#### Asset Classes and Financial Instruments 28

2.1 The Money Market 29

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 34

Treasury Notes and Bonds/Inflation-Protected Treasury Bonds/Federal Agency Debt 7 International Bonds/ Municipal Bonds/Corporate Bonds/Mortgages and Mortgage-Backed Securities

2.3 Equity Securities 41

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

- 2.4 Stock and Bond Market Indexes 44

  Stock Market Indexes / Dow Jones Averages / Standard
  & Poor's Indexes / Other U.S. Market-Value Indexes /
  Equally Weighted Indexes / Foreign and International
  Stock Market Indexes / Bond Market Indicators
- 2.5 Derivative Markets 51Options/Futures ContractsEnd of Chapter Material 54-58

#### Chapter 3

#### How Securities Are Traded 59

- 3.1 How Firms Issue Securities 59

  Investment Banking/Shelf Registration/Private
  Placements/Initial Public Offerings
- 3.2 How Securities Are Traded 63

  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 U.S. Securities Markets 68

NASDAQ/The New York Stock Exchange Block Sales / Electronic Trading on the NYSE / Settlement Electronic Communication Networks / The National Market System / Bond Trading

3.4	Market Structure in Other Countries	74
	London/Euronext/Tokyo/Globalizati	on
	and Consolidation of Stock Markets	

- Trading Costs 76 3.5
- 3.6 Buying on Margin 76
- 3.7 Short Sales 79
- Regulation of Securities Markets 82 3.8 Self-Regulation / The Sarbanes-Oxley Act/Insider Trading End of Chapter Material 86-91

#### Chapter 4

#### Mutual Funds and Other Investment Companies

- 4.1 Investment Companies 92
- 4.2 Types of Investment Companies 93 Unit Investment Trusts/Managed Investment Companies / Other Investment Organizations Commingled Funds / Real Estate Investment Trusts (REITS)/Hedge Funds
- 4.3 Mutual Funds 96

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 99

Fee Structure

Operating Expenses/Front-End Load/Back-End Load/I2b-1 Charges

Fees and Mutual Fund Returns / Late Trading and Market Timing

- 4.5 Taxation of Mutual Fund Income 103
- 4.6 Exchange-Traded Funds 104
- Mutual Fund Investment Performance: 4.7 A First Look 106
- 4.8 Information on Mutual Funds 109 End of Chapter Material 112-116

# Portfolio Theory and Practice 117

#### Chapter 5

#### Introduction to Risk, Return, and the Historical Record

Determinants of the Level of Interest Rates 118 5 1 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

- Comparing Rates of Return for Different Holding Periods 122 Annual Percentage Rates / Continuous Compounding
- Bills and Inflation, 1926-2009 125 5.3
- 5.4 Risk and Risk Premiums 127 Holding-Period Returns / Expected Return and Standard Deviation / Excess Returns and Risk Premiums
- Time Series Analysis of Past Rates of Return 130 Time Series versus Scenario Analysis / Expected Returns and the Arithmetic Average / The Geometric (Time-Weighted) Average Return / Variance and Standard Deviation / The Reward-to-Volatility (Sharpe) Ratio
- 5.6 The Normal Distribution 134
- 5.7 Deviations from Normality and Risk Measures 136 Value at Risk/Expected Shortfall/Lower Partial Standard Deviation and the Sortino Ratio
- Historical Returns on Risky Portfolios: Equities and Long-Term Government Bonds 139 Total Returns / Excess Returns / Performance / A Global View of the Historical Record
- Long-Term Investments 147 Risk in the Long Run and the Lognormal Distribution / The Sharpe Ratio Revisited/Simulation of Long-Term Future Rates of Return / Forecasts for the Long Haul End of Chapter Material 154-159

#### Chapter 6

#### Risk Aversion and Capital Allocation to Risky Assets

- 6.1 Risk and Risk Aversion 161 Risk, Speculation, and Gambling / Risk Aversion and Utility Values / Estimating Risk Aversion
- 6.2 Capital Allocation across Risky and Risk-Free Portfolios 167
- 6.3 The Risk-Free Asset 169
- 6.4 Portfolios of One Risky Asset and a Risk-Free Asset 170
- Risk Tolerance and Asset Allocation 174 6.5 Nonnormal Returns
- Passive Strategies: The Capital Market Line 179 6.6 End of Chapter Material 182-190 Appendix A: Risk Aversion, Expected Utility, and the St. Petersburg Paradox 191 Appendix B: Utility Functions and Equilibrium Prices of Insurance Contracts 194

#### Chapter 7

#### Optimal Risky Portfolios 196

- 7.1 Diversification and Portfolio Risk
- 7.2 Portfolios of Two Risky Assets 199

- 7.3 Asset Allocation with Stocks, Bonds, and Bills 206

  The Optimal Risky Portfolio with Two Risky Assets
  and a Risk-Free Asset
- 7.4 The Markowitz Portfolio Selection Model 211
  Security Selection / Capital Allocation and the Separation
  Property / The Power of Diversification / Asset Allocation
  and Security Selection / Optimal Portfolios and
  Nonnormal Returns
- 7.5 Risk Pooling, Risk Sharing, and the Risk of Long-Term Investments 220
  Risk Pooling and the Insurance Principle / Risk Pooling / Risk Sharing / Investments for the Long Run
  End of Chapter Material 224-234
  Appendix A: A Spreadsheet Model for Efficient Diversification 234

#### Chapter 8

Appendix B: Review of Portfolio Statistics 239

#### Index Models 246

- 8.1 A Single-Factor Security Market 247

  The Input List of the Markowitz Model/Normality of Returns and Systematic Risk
- 8.2 The Single-Index Model 249

  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 254

  The Security Characteristic Line for Hewlett-Packard/
  The Explanatory Power of the SCLfor HP/Analysis
  of Variance/The Estimate of Alpha/The Estimate of
  Beta/Firm-Specific Risk/Correlation and Covariance
  Matrix
- 8.4 Portfolio Construction and the Single-Index Model 261

Alpha and Security Analysis/The Index Portfolio as an Investment Asset/The Single-Index-Model Input List/ The Optimal Risky Portfolio of the Single-Index Model/ The Information Ratio/Summary of Optimization Procedure/An Example

Risk Premium Forecasts / The Optimal Risky Portfolio

with the Index Model 268

Is the Index Model Inferior to the Full-Covariance

Model? / The Industry Version of the Index Model /

Predicting Betas / Index Models and Tracking Portfolios

End of Chapter Material 274-279

Practical Aspects of Portfolio Management

# Equilibrium in Capital Markets 280

#### Chapter 9

#### The Capital Asset Pricing Model 280

- 9.1 The Capital Asset Pricing Model 280
  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
- 9.2 The CAPM and the Index Model 293

  Actual Returns versus Expected Returns / The Index

  Model and Realized Returns / The Index Model and the

  Expected Return-Beta Relationship
- 9.3 Is the CAPM Practical? 296

  Is the CAPM Testable? / The CAPM Fails Empirical
  Tests/The Economy and the Validity of the CAPM / The
  Investments Industry and the Validity of the CAPM
- 9.4 Econometrics and the Expected Return-Beta Relationship 300
- 9.5 Extensions of the CAPM 301

  The Zero-Beta Model / Labor Income and Nontraded
  Assets / A Multiperiod Model and Hedge Portfolios /
  A Consumption-Based CAPM
- 9.6 Liquidity and the CAPM 306 End of Chapter Material 310-317

#### Chapter 10

# Arbitrage Pricing Theory and Multifactor u, Models of Risk and Return 318

- 10.1 Multifactor Models: An Overview 319
  Factor Models of Security Returns / A Multifactor
  Security Market Line
- 10.2 Arbitrage Pricing Theory 323

  Arbitrage, Risk Arbitrage, and Equilibrium/WellDiversified Portfolios/Betas and Expected Returns/
  The One-Factor Security Market Line
- 10.3 Individual Assets and the APT 330

  The APT and the CAPM
- 10.4 A Multifactor APT 331
- 10.5 Where Should We Look for Factors? 333

  The Fama-French (FF) Three-Factor Model
- 10.6 A Multifactor CAPM and the APT 336 End of Chapter Material 336-342

#### Chapter 11

#### The Efficient Market Hypothesis 343

11.1 Random Walks and the Efficient Market Hypothesis 344

Competition as the Source of Efficiency / Versions of the Efficient Market Hypothesis

11.2 Implications of the EMH 348

Technical Analysis / Fundamental Analysis / Active versus Passive Portfolio Management / The Role of Portfolio Management in an Efficient Market / Resource Allocation

- 11.3 Event Studies 353
- 11.4 Are Markets Efficient? 356

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-in-January 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?

Bubbles and Market Efficiency

11.5 Mutual Fund and Analyst Performance 368Stock Market Analysts / Mutual Fund Managers /So, Are Markets Efficient?End of Chapter Material 373-380

#### Chapter 12

#### Behavioral Finance and Technical Analysis 381

12.1 The Behavioral Critique 382

Information Processing

Forecasting Errors / Overconfidence / Conservatism / Sample Size Neglect and Representativeness

Behavioral Biases

Framing / Mental Accounting / Regret Avoidance / 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 392

\*Trends and Corrections\*

Dow Theory / Moving Averages / Breadth Sentiment Indicators

Trin Statistic / Confidence Index / Put/Call Ratio
A Warning

End of Chapter Material 400^106

#### Chapter 13

#### Empirical Evidence on Security Returns 407

13.1 The Index Model and the Single-Factor APT 408

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 / The EMH and the CAPM / Accounting for Human Capital and Cyclical Variations in Asset Betas / Accounting for Nontraded Business

- 13.2 Tests of Multifactor CAPM and APT 417

  A Macro Factor Model
- 13.3 The Fama-French Three-Factor Model 419
  Risk-Based Interpretations / Behavioral Explanations /
  Momentum: A Fourth Factor
- 13.4 Liquidity and Asset Pricing 426

  Liquidity and Efficient Market Anomalies
- 13.5 Consumption-Based Asset Pricing and the Equity Premium Puzzle 428

Consumption Growth and Market Rates of Return /
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 435-438

#### PARTIIV

#### Fixed-Income Securities 439

#### Chapter 14

#### Bond Prices and Yields 439

14.1 Bond Characteristics 440

Treasury Bonds and Notes

Accrued Interest and Quoted Bond Prices

Corporate Bonds	Cor	por	ate	Во	nds
-----------------	-----	-----	-----	----	-----

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

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

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

14.2 Bond Pricing 446

Bond Pricing between Coupon Dates

.14.3 Bond Yields 451
Yield to Maturity/Yield to Call/Realized Compound
Return versus Yield to Maturity

14.4 Bond Prices over Time 456

Yield to Maturity versus Holding-Period Return/ZeroCoupon Bonds and Treasury Strips/Aftertax Returns

14.5 Default Risk and Bond Pricing 461

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 472-479

#### Chapter 15

## The Term Structure of Interest Rates 480

15.1 The Yield Curve 480 Bond Pricing

- 15.2 The Yield Curve and Future Interest Rates 483

  The Yield Curve under Certainty/Holding-Period

  Returns/Forward Rates
- 15.3 Interest Rate Uncertainty and Forward Rates 488
- 15.4 Theories of the Term Structure 490

  The Expectations Hypothesis / Liquidity Preference
- 15.5 Interpreting the Term Structure 494
- 15.6 Forward Rates as Forward Contracts 497 End of Chapter Material 499-507

# Chapter 16 Managing Bond Portfolios 508

16.1 Interest Rate Risk 509

Interest Rate Sensitivity/Duration/What Determines Duration?

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

16.2 Convexity 518

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

16.3 Passive Bond Management 526

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

16.4 Active Bond Management 535
 Sources of Potential Profit/Horizon Analysis
 End of Chapter Material 538-547

#### PART V

### Security Analysis 548

#### Chapter 17

#### Macroeconomic and Industry Analysis 548

- 17.1 The Global Economy 549
- 17.2 The Domestic Macroeconomy 551
- 17.3 Demand and Supply Shocks 553
- 17.4 Federal Government Policy 554

  Fiscal Policy/Monetary Policy/Supply-Side Policies

17.5 Business Cycles 557

The Business Cycle/Economic Indicators/Other
Indicators

17.6 Industry Analysis 562

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 574-582

#### Chapter 18\_\_\_

#### Equity Valuation Models 583

- 18.1 Valuation by Comparables 583 *Limitations of Book Value*
- 18.2 Intrinsic Value versus Market Price 586
- 18.3 Dividend Discount Models 587

  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	Price-Earnings	Ratio	601
------	----------------	-------	-----

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 ValuationiApproaches 609

  Comparing the Valuation Models
- 18.6 The Aggregate Stock Market 613 Explaining Past Behavior/ Forecasting the Stock Market End of Chapter Material 615-626

#### Chapter 19

#### Financial Statement Analysis 627

- 19.1 The Major Financial Statements 627

  The Income Statement/The Balance Sheet/
  The Statement of Cash Flows
- 19.2 Accounting versus Economic Earnings 632
- 19.3 Profitability Measures 632

  Past versus Future ROE/Financial Leverage and ROE
- 19.4 Ratio Analysis 635

  Decomposition of ROE/Turnover and Other Asset
  Utilization Ratios/Liquidity Ratios/Market Price
  Ratios: Growth versus Value/Choosing a Benchmark
- 19.5 Economic Value Added 644
- 19.6 An Illustration of Financial Statement Analysis 646
- 19.7 Comparability Problems 648

  Inventory Valuation/Depreciation/Infiation and Interest
  Expense/Fair Value Accounting/Quality of Earnings/
  International Accounting Conventions
- 19.8 Value Investing: The Graham Technique 654End of Chapter Material 655-666

#### PART VI

# Options, Futures, and Other Derivatives 667

#### Chapter 20

#### Options Markets: Introduction 667

20.1 The Option Contract 668

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 674

  Call Options/Put Options/Option versus Stock
  Investments
- 20.3 Option Strategies 678

  Protective Put/Covered Calls/Straddle/Spreads/
  Collars
- 20.4 The Put-Call Parity Relationship 687
- 20.5 Option-like Securities 690

  Callable Bonds / Convertible Securities / Warrants /
  Collateralized Loans / Levered Equity and Risky Debt
- 20.6 Financial Engineering 696
- 20.7 Exotic Options 698
   Asian Options / Barrier Options / Lookback Options /
   Currency-Translated Options / Digital Options
   End of Chapter Material 699-710

#### Chapter 21

#### Option Valuation 711

- 21.1 Option Valuation: Introduction 711

  Intrinsic and Time Values / Determinants of Option Values
- 21.2 Restrictions on Option Values 714

  Restrictions on the Value of a Call Option/Early Exercise and Dividends/Early Exercise of American Puts
- 21.3 Binomial Option Pricing 718

  Two-State Option Pricing / Generalizing the Two-State

  Approach
- 21.4 Black-Scholes Option Valuation 724

  The Black-Scholes Formula/Dividends and Call Option
  Valuation/Put Option Valuation/Dividends and Put
  Option Valuation
- 21.5 Using the Black-Scholes Formula 733

  Hedge Ratios and the Black-Scholes Formula/Portfolio
  Insurance/Hedging Bets on Mispriced Options
- 21.6 Empirical Evidence on Option Pricing 743
  End of Chapter Material 744-754

#### Chapter 22

#### Futures Markets 755

- 22.1 The Futures Contract 756

  The Basics of Futures Contracts / Existing Contracts
- 22.2 Trading Mechanics 760

  The Clearinghouse and Open Interest/The Margin
  Account and Marking to Market/Cash versus Actual
  Delivery/Regulations/Taxation
- 22.3 Futures Markets Strategies 766

  Hedging and Speculation / Basis Risk and Hedging

- 22.4 Futures Prices 770

  The Spot-Futures Parity Theorem/Spreads/Forward versus Futures Pricing
- 22.5 Futures Prices versus Expected Spot Prices 776

  Expectation Hypothesis/Normal Backwardation/
  Contango/Modern Portfolio Theory
  - > End of Chapter Material 778-783

#### Chapter 23

#### Futures, Swaps, and Risk Management 784

- 23.1 Foreign Exchange Futures 784

  The Markets/Interest Rate Parity/Direct versus Indirect
  Quotes/Using Futures to Manage Exchange Rate Risk
- 23.2 Stock-Index Futures 791

  The Contracts/Creating Synthetic Stock Positions: An Asset Allocation Tool/Index Arbitrage/Using Index-Futures to Hedge Market Risk
- 23.3 Interest Rate Futures 798

  Hedging Interest Rate Risk
- 23.4 Swaps 800
  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 806

  Pricing with Storage Costs/Discounted Cash Flow
  Analysis for Commodity Futures

  End of Chapter Material 810-818

### Applied Portfolio Management 819

#### Chapter 24

#### Portfolio Performance Evaluation 819

24.1 The Conventional Theory of Performance Evaluation 819

> Average Rates of Return/Time-Weighted Returns versus Dollar-Weighted Returns/Adjusting Returns for Risk/ The M" Measure of Performance/Sharpe's Measure as the Criterion for Overall Portfolios/Appropriate Peiformance Measures in Two Scenarios

Jane's Portfolio Represents Her Entire Risky Investment Fund/Jane's Choice Portfolio Is One of Many Portfolios Combined into a Large Investment Fund The Role of Alpha in Peiformance Measures/Actual Peiformance Measurement: An Example / Realized Returns versus Expected Returns

- 24.2 Performance Measurement for Hedge Funds 830
- 24.3 Performance Measurement with Changing Portfolio Composition 833
- 24.4 Market Timing 834

  The Potential Value of Market Timing / Valuing Market
  Timing as a Call Option/The Value of Imperfect
  Forecasting
- 24.5 Style Analysis 840
  Style Analysis and Multifactor Benchmarks/Style
  Analysis in Excel
- 24.6 Morningstar's Risk-Adjusted Rating 844
- 24.7 Evaluating Performance Evaluation 845
- 24.8 Performance Attribution Procedures 846 Asset Allocation Decisions/Sector and Security Selection Decisions/Summing Up Component Contributions End of Chapter Material 852-862

#### Chapter 25

#### International Diversification 863

- 25.1 Global Markets for Equities 864

  Developed Countries/Emerging Markets/Market
  Capitalization and GDP/Home-Country Bias
- 25.2 Risk Factors in International Investing 868

  Exchange Rate Risk/Political Risk
- 25.3 International Investing: Risk, Return, and Benefits from Diversification 875

  Risk and Return: Summary Statistics / Are Investments in Emerging Markets Riskier? / Average Country-Index Returns and Capital Asset Pricing Theory / Benefits from International Diversification / Misleading Representation of Diversification Benefits / Realistic Benefits from International Diversification / Are Benefits from International Diversification Preserved in Bear Markets?
- 25.4 Assessing the Potential of International Diversification 888
- 25.5 International Investing and Performance
   Attribution 893

   Constructing a Benchmark Portfolio of Foreign Assets / Peiformance Attribution
   End of Chapter Material 897-902

#### Chapter 26

#### Hedge Funds 903

- 26.1 Hedge Funds versus Mutual Funds 904
- 26.2 Hedge Fund Strategies 905

  Directional and Nondirectional Strategies / Statistical Arbitrage

- 26.3 Portable Alpha 908

  An Example of a Pure Play
- 26.4 Style Analysis for Hedge Funds 910
- 26.5 Performance Measurement for Hedge Funds 912
  Liquidity and Hedge Fund Performance/Hedge Fund
  Performance and Survivorship Bias/Hedge Fund
  Peiformance and Changing Factor Loadings/Tail Events
  and Hedge Fund Performance
- 26.6 Fee Structure in Hedge Funds 919 End of Chapter Material 921-925

#### Chapter 27

## The Theory of Active Portfolio Management 926

- 27.1 Optimal Portfolios and Alpha Values 926

  Forecasts of Alpha Values and Extreme Portfolio Weights /
  Restriction of Benchmark Risk
- 27.2 The Treynor-Black Model and Forecast Precision 933
  Adjusting Forecasts for the Precision of Alpha / Distribution of Alpha Values / Organizational Structure and Performance
- 27.3 The Black-Litterman Model 937

  A Simple 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
- 21A Treynor-Black versus Black-Litterman: Complements,
   Not Substitutes 943
   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 945

  A Model for the Estimation of Potential Fees/Results
  from the Distribution of Actual Information Ratios/
  Results from Distribution of Actual Forecasts/Results
  with Reasonable Forecasting Records
- 27.6 Concluding Remarks on Active Management 948
   End of Chapter Material 949-951
   Appendix A: Forecasts and Realizations of Alpha 950
   Appendix B: The General Black-Litterman Model 950

#### Chapter 28

## Investment Policy and the Framework of the CFA Institute 952

- 28.1 The Investment Management Process 953

  Objectives/Individual Investors/Personal Trusts/
  Mutual Funds/Pension Funds/Endowment Funds/Life
  Insurance Companies/Non-Life Insurance Companies/
  Banks
- 28.2 Constraints 957

  Liquidity/Investment Horizon/Regulations/Tax

  Considerations/Unique Needs
- 28.3 Policy Statements 959

  Sample Policy Statements for Individual Investors
- 28.4 Asset Allocation 967

  Policy Statements / Taxes and Asset Allocation

Life Insurance

- 28.5 Managing Portfolios of Individual Investors 969

  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-Deferred Retirement
  Plans/Deferred Annuities/Variable and Universal
- 28.6 Pension Funds 975

  Defined Contribution Plans / Defined Benefit Plans /
  Alternative Perspectives on Defined Benefit Pension
  Obligations / Pension Investment Strategies
  Investing in Equities / Wrong Reasons to Invest
  in Equities
- 28.7 Investments for the Long Run 979
  Advice from the Mutual Fund Industry/Target Investing and the Term Structure of Bonds/Making Simple Investment Choices/Inflation Risk and Long-Term Investors
  End of Chapter Material 982-992

REFERENCES TO CFA PROBLEMS 993 GLOSSARY G-I NAME INDEX 1-I SUBJECT INDEX 14