

Equity and Fixed Income

CFA® PROGRAM CURRICULUM • VOLUME 5

LEVEL I
2009



CONTENTS

EQUITY INVESTMENTS		1
STUDY SESSION 13	SECURITIES MARKETS	3
READING 52	ORGANIZATION AND FUNCTIONING OF SECURITIES MARKETS	5
	INTRODUCTION	5
	WHAT IS A MARKET?	6
	Characteristics of a Good Market	6
	Decimal Pricing	8
	Organization of the Securities Market	8
	PRIMARY CAPITAL MARKETS	8
	Government Bond Issues	8
	Municipal Bond Issues	9
	Corporate Bond Issues	9
	Corporate Stock Issues	10
	Private Placements and Rule 144A	11
	SECONDARY FINANCIAL MARKETS	12
	Why Secondary Markets Are Important	12
	Secondary Bond Markets	12
	Financial Futures	13
	Secondary Equity Markets	13
	CLASSIFICATION OF U.S. SECONDARY EQUITY MARKETS	15
	Primary Listing Markets	15
	Regional Stock Exchanges	22
	The Third Market	23
	Alternative Trading Systems (ATSs)	23
	DETAILED ANALYSIS OF EXCHANGE MARKETS	24
	Exchange Membership	24
	Types of Orders	24
	Exchange Market Makers	29
	New Trading Systems	30
	Innovations for Competition	31
	Where Do We Go from Here?	33
	SUMMARY	36
	PRACTICE PROBLEMS FOR READING 52	37
READING 53	SECURITY-MARKET INDEXES	39
	INTRODUCTION	39
	USES OF SECURITY-MARKET INDEXES	40






DIFFERENTIATING FACTORS IN CONSTRUCTING MARKET INDEXES	41
The Sample	41
Weighting Sample Members	41
Computational Procedure	41
STOCK-MARKET INDEXES	42
Price-Weighted Index	42
Value-Weighted Index	44
Unweighted Index	46
Style Indexes	46
Global Equity Indexes	47
BOND-MARKET INDEXES	50
U.S. Investment-Grade Bond Indexes	53
High-Yield Bond Indexes	53
Global Government Bond Indexes	53
COMPOSITE STOCK-BOND INDEXES	53
COMPARISON OF INDEXES OVER TIME	56
Correlations between Monthly Equity Price Changes	56
Correlations between Monthly Bond Indexes	57
Mean Annual Security Returns and Risk	58
SUMMARY	59
PRACTICE PROBLEMS FOR READING 53	60
READING 54	
EFFICIENT CAPITAL MARKETS	61
INTRODUCTION	61
WHY SHOULD CAPITAL MARKETS BE EFFICIENT?	62
ALTERNATIVE EFFICIENT MARKET HYPOTHESES	63
Weak-Form Efficient Market Hypothesis	64
Semistrong-Form Efficient Market Hypothesis	64
Strong-Form Efficient Market Hypothesis	64
TESTS AND RESULTS OF EFFICIENT MARKET HYPOTHESES	65
Weak-Form Hypothesis: Tests and Results	65
Semistrong-Form Hypothesis Tests and Results	67
Strong-Form Hypothesis: Tests and Results	79
BEHAVIORAL FINANCE	83
Explaining Biases	83
Fusion Investing	84
IMPLICATIONS OF EFFICIENT CAPITAL MARKETS	84
Efficient Markets and Technical Analysis	85
Efficient Markets and Fundamental Analysis	85
Efficient Markets and Portfolio Management	87
SUMMARY	91
PRACTICE PROBLEMS FOR READING 54	93
READING 55	
MARKET EFFICIENCY AND ANOMALIES	95
INTRODUCTION	95
WHAT IS MARKET EFFICIENCY?	95
WHO CARES ABOUT MARKET EFFICIENCY?	96

CAN CAPITAL MARKETS BE FULLY EFFICIENT?	97
Limitation 1: Cost of Information	97
Limitation 2: Cost of Trading	98
Limitation 3: Limits of Arbitrage	98
WHAT IS A PRICING ANOMALY?	100
WHEN IS A MISPRICING NOT A MISPRICING?	100
Measurement of Abnormal Return	100
Data Mining	101
Survivorship Bias	102
Small Sample Bias	103
Selection Bias	103
Nonsynchronous Trading	103
Risk	104
Explanation for the Mispricing	104
CAN NEW MISPRICINGS BE DISCOVERED?	104
WHY DOES A MISPRICING PERSIST?	105
The Mispricing Is Not Well Understood	105
Arbitrage Is Too Costly	105
Profit Potential Is Insufficient	105
Arbitrage Is Not Possible Due to Trading Restrictions	106
Behavioral Biases May Affect Investment Decisions	106
Limits of Arbitrage Revisited	106
CAN VALID ANOMALIES BE UNPROFITABLE?	107
Documented Anomalies Are Based on Averages	107
Positive Abnormal Returns Do Not Mean Positive Returns	107
Conditions Governing Anomalies May Change	107
Anomalies May Be Arbitraged Away by Trading	108
ROLE OF INDIVIDUAL INVESTORS	108
SUMMARY	109
PRACTICE PROBLEM FOR READING 55	110
STUDY SESSION 14 INDUSTRY AND COMPANY ANALYSIS	111
READING 56	
AN INTRODUCTION TO SECURITY VALUATION	113
INTRODUCTION	113
AN OVERVIEW OF THE VALUATION PROCESS	115
WHY A THREE-STEP VALUATION PROCESS?	116
General Economic Influences	116
Industry Influences	117
Company Analysis	118
Does the Three-Step Process Work?	119
THEORY OF VALUATION	119
Stream of Expected Returns (Cash Flows)	120
Required Rate of Return	120
Investment Decision Process: A Comparison of Estimated Values and Market Prices	120
VALUATION OF ALTERNATIVE INVESTMENTS	121
Valuation of Bonds	121
Valuation of Preferred Stock	122
Approaches to the Valuation of Common Stock	123

Why and When to Use the Discounted Cash Flow Valuation Approach	124
Why and When to Use the Relative Valuation Techniques	125
Discounted Cash Flow Valuation Techniques	126
Infinite Period DDM and Growth Companies	131
Valuation with Temporary Supernormal Growth	132
Present Value of Operating Free Cash Flows	134
Present Value of Free Cash Flows to Equity	135
RELATIVE VALUATION TECHNIQUES	136
Earnings Multiplier Model	136
The Price/Cash Flow Ratio	138
The Price/Book Value Ratio	139
The Price/Sales Ratio	140
Implementing the Relative Valuation Technique	140
ESTIMATING THE INPUTS: THE REQUIRED RATE OF RETURN AND THE EXPECTED GROWTH RATE OF VALUATION VARIABLES	141
Required Rate of Return (k)	141
Estimating the Required Return for Foreign Securities	143
Expected Growth Rates	146
Estimating Dividend Growth for Foreign Stocks	149
SUMMARY	151
PRACTICE PROBLEMS FOR READING 56	152
READING 57	
INDUSTRY ANALYSIS	155
STRUCTURAL ECONOMIC CHANGES AND ALTERNATIVE INDUSTRIES	155
Demographics	155
Lifestyles	156
Technology	156
Politics and Regulations	157
READING 58	
COMPANY ANALYSIS AND STOCK VALUATION	159
INTRODUCTION	159
COMPANY ANALYSIS VERSUS THE VALUATION OF STOCK	160
Growth Companies and Growth Stocks	160
Defensive Companies and Stocks	161
Cyclical Companies and Stocks	161
Speculative Companies and Stocks	161
Value versus Growth Investing	162
ESTIMATING COMPANY EARNINGS PER SHARE	162
Company Sales Forecast	162
Estimating the Company Profit Margin	166
WALGREEN CO.'S COMPETITIVE STRATEGIES	166
The Internal Performance	166
Importance of Quarterly Estimates	169
ESTIMATING COMPANY EARNINGS MULTIPLIERS	170
Macroanalysis of the Earnings Multiplier	170
Microanalysis of the Earnings Multiplier	170
Making the Investment Decision	176
SUMMARY	178
PRACTICE PROBLEM FOR READING 58	179

READING 59	INTRODUCTION TO PRICE MULTIPLES	181
	INTRODUCTION	181
	PRICE TO EARNINGS	182
	Rationales for Using Price to Earnings Ratios	182
	Determining Earnings	183
	PRICE TO BOOK VALUE	188
	Rationales for Using Price to Book Value Ratios	189
	Determining Book Value	191
	PRICE TO SALES	196
	Rationales for Using Price to Sales Ratios	196
	Determining Sales	197
	PRICE TO CASH FLOW	199
	Rationales for Using Price to Cash Flow Ratios	200
	<i>SUMMARY</i>	202
	<i>PRACTICE PROBLEMS FOR READING 59</i>	203
FIXED INCOME		209
STUDY SESSION 15	BASIC CONCEPTS	211
READING 60	FEATURES OF DEBT SECURITIES	213
	INTRODUCTION	213
	INDENTURE AND COVENANTS	215
	MATURITY	215
	PAR VALUE	216
	COUPON RATE	217
	Zero-Coupon Bonds	218
	Step-Up Notes	218
	Deferred Coupon Bonds	218
	Floating-Rate Securities	218
	Accrued Interest	222
	PROVISIONS FOR PAYING OFF BONDS	223
	Call and Refunding Provisions	223
	Prepayments	227
	Sinking Fund Provision	227
	CONVERSION PRIVILEGE	228
	PUT PROVISION	228
	CURRENCY DENOMINATION	228
	EMBEDDED OPTIONS	228
	Embedded Options Granted to Issuers	229
	Embedded Options Granted to Bondholders	229
	Importance of Understanding Embedded Options	229
	BORROWING FUNDS TO PURCHASE BONDS	230
	Margin Buying	230
	Repurchase Agreement	231
	<i>SUMMARY</i>	232
	<i>PRACTICE PROBLEMS FOR READING 60</i>	234

READING 61	RISKS ASSOCIATED WITH INVESTING IN BONDS	239
	INTRODUCTION	240
	INTEREST RATE RISK	240
	Reason for the Inverse Relationship between Changes in Interest Rates and Price	241
	Bond Features that Affect Interest Rate Risk	242
	The Impact of the Yield Level	243
	Interest Rate Risk for Floating-Rate Securities	244
	Measuring Interest Rate Risk	245
	YIELD CURVE RISK	247
	CALL AND PREPAYMENT RISK	251
	REINVESTMENT RISK	252
	CREDIT RISK	253
	Default Risk	253
	Credit Spread Risk	253
	Downgrade Risk	254
	LIQUIDITY RISK	257
	Liquidity Risk and Marking Positions to Market	258
	Changes in Liquidity Risk	258
	EXCHANGE RATE OR CURRENCY RISK	259
	INFLATION OR PURCHASING POWER RISK	259
	VOLATILITY RISK	260
	EVENT RISK	260
	Corporate Takeover/Restructurings	261
	Regulatory Risk	261
	SOVEREIGN RISK	261
	SUMMARY	262
	PRACTICE PROBLEMS FOR READING 61	265
READING 62	OVERVIEW OF BOND SECTORS AND INSTRUMENTS	271
	INTRODUCTION	272
	SECTORS OF THE BOND MARKET	272
	Internal Bond Market	272
	External Bond Market	273
	SOVEREIGN BONDS	273
	Credit Risk	273
	Methods of Distributing New Government Securities	274
	SEMI-GOVERNMENT/AGENCY BONDS	279
	U.S. Agency Debentures and Discount Notes	281
	U.S. Agency Mortgage-Backed Securities	281
	STATE AND LOCAL GOVERNMENTS	288
	Tax-Backed Debt	289
	Revenue Bonds	290
	Special Bond Structures	291
	CORPORATE DEBT SECURITIES	292
	Bankruptcy and Bondholder Rights in the United States	292
	Factors Considered in Assigning a Credit Rating	293
	Corporate Bonds	294

	Medium-Term Notes	298
	Commercial Paper	301
	Bank Obligations	301
	ASSET-BACKED SECURITIES	304
	The Role of the Special Purpose Vehicle	304
	Credit Enhancement Mechanisms	305
	COLLATERALIZED DEBT OBLIGATIONS	306
	PRIMARY MARKET AND SECONDARY MARKET FOR BONDS	307
	Primary Market	307
	Secondary Market	309
	SUMMARY	311
	PRACTICE PROBLEMS FOR READING 62	315
READING 63	UNDERSTANDING YIELD SPREADS	319
	INTRODUCTION	319
	INTEREST RATE DETERMINATION	320
	U.S. TREASURY RATES	321
	Risks of Treasury Securities	321
	The Treasury Yield Curve	322
	Treasury Strips	327
	YIELDS ON NON-TREASURY SECURITIES	328
	Measuring Yield Spreads	328
	Intermarket Sector Spreads and Intramarket Spreads	330
	Credit Spreads	331
	Including Embedded Options	333
	Liquidity	334
	Taxability of Interest Income	335
	Technical Factors	337
	NON-U.S. INTEREST RATES	337
	 SWAP SPREADS	340
	 Interest Rate Swap and the Swap Spread	340
	 Role of Interest Rate Swaps	341
	 Determinants of the Swap Spread	343
	 Swap Spread Curve	344
	SUMMARY	346
	PRACTICE PROBLEMS FOR READING 63	349
STUDY SESSION 16	ANALYSIS AND VALUATION	353
READING 64	INTRODUCTION TO THE VALUATION OF DEBT SECURITIES	355
	INTRODUCTION	355
	GENERAL PRINCIPLES OF VALUATION	356
	Estimating Cash Flows	356
	Determining the Appropriate Rate or Rates	357
	Discounting the Expected Cash Flows	357
	Valuation Using Multiple Discount Rates	363
	Valuing Semiannual Cash Flows	364

Valuing a Zero-Coupon Bond	366
Valuing a Bond between Coupon Payments	367
TRADITIONAL APPROACH TO VALUATION	371
THE ARBITRAGE-FREE VALUATION APPROACH	372
Valuation Using Treasury Spot Rates	372
Reason for Using Treasury Spot Rates	374
Credit Spreads and the Valuation of Non-Treasury Securities	378
VALUATION MODELS	380
SUMMARY	382
PRACTICE PROBLEMS FOR READING 64	384

READING 65

YIELD MEASURES, SPOT RATES, AND FORWARD RATES	389
INTRODUCTION	389
SOURCES OF RETURN	390
Coupon Interest Payments	390
Capital Gain or Loss	390
Reinvestment Income	391
TRADITIONAL YIELD MEASURES	391
Current Yield	391
Yield to Maturity	392
Yield to Call	400
Yield to Put	402
Yield to Worst	402
Cash Flow Yield	402
Spread/Margin Measures for Floating-Rate Securities	403
Yield on Treasury Bills	406
THEORETICAL SPOT RATES	408
Bootstrapping	408
Yield Spread Measures Relative to a Spot Rate Curve	413
FORWARD RATES	421
Deriving 6-Month Forward Rates	421
Relationship between Spot Rates and Short-Term Forward Rates	425
Valuation Using Forward Rates	426
Computing Any Forward Rate	429
SUMMARY	432
PRACTICE PROBLEMS FOR READING 65	434

READING 66

INTRODUCTION TO THE MEASUREMENT OF INTEREST RATE RISK	443
INTRODUCTION	444
THE FULL VALUATION APPROACH	444
PRICE VOLATILITY CHARACTERISTICS OF BONDS	448
Price Volatility Characteristics of Option-Free Bonds	448
Price Volatility of Bonds with Embedded Options	452
DURATION	456
Calculating Duration	456
Approximating the Percentage Price Change Using Duration	458
Graphical Depiction of Using Duration to Estimate Price Changes	460
Rate Shocks and Duration Estimate	462

Modified Duration versus Effective Duration	464
Macaulay Duration and Modified Duration	465
Interpretations of Duration	466
Portfolio Duration	468
CONVEXITY ADJUSTMENT	469
Positive and Negative Convexity Adjustment	470
Modified and Effective Convexity Adjustment	472
PRICE VALUE OF A BASIS POINT	472
THE IMPORTANCE OF YIELD VOLATILITY	473
SUMMARY	475
PRACTICE PROBLEMS FOR READING 66	478
APPENDIX	A-1
Appendix A Solutions to End-of-Reading Problems and Practice Questions	A-2
GLOSSARY	G-1
INDEX	I-1