## **CONTENTS**

Forew	ord	xiii
Acknowledgments Introduction		xvii
		xxi
Note c	on Rounding Differences	xxvii
CHAP Feat	ΓER 1 ures of Debt Securities	1
I.	Introduction	1
II.	Indenture and Covenants	2
III.	Maturity	2
	Par Value	3
	Coupon Rate	4
	Provisions for Paying Off Bonds	8
	Conversion Privilege	13
	Put Provision	13
	Currency Denomination	13
	Embedded Options	14
XI.	Borrowing Funds to Purchase Bonds	15
CHAP Risk	TER 2 s Associated with Investing in Bonds	17
I.	Introduction	17
II.	Interest Rate Risk	17
III.	Yield Curve Risk	23
IV.	Call and Prepayment Risk	26
	Reinvestment Risk	27
Vl.	Credit Risk	28
VII.	Liquidity Risk	32
	Exchange Rate or Currency Risk	33
	Inflation or Purchasing Power Risk	34
X.	Volatility Risk	34

	Event Risk	35
XII.	Sovereign Risk	36
	TER 3	
Ove	rview of Bond Sectors and Instruments	37
I.		37
II.	Sectors of the Bond Market	37
	Sovereign Bonds	39 44
IV. V.	e ,	53
	Corporate Debt Securities	56
	Asset-Backed Securities	67
VIII	. Collateralized Debt Obligations	69
IX.	Primary Market and Secondary Market for Bonds	70
_	PTER 4	
Une	derstanding Yield Spreads	74
I.	Introduction	74
II.		74
	U.S. Treasury Rates	75
	Yields on Non-Treasury Securities	82 90
V. 1/1	Non-U.S. Interest Rates Swap Spreads	90
		,2
_	PTER 5 roduction to the Valuation of Debt Securities	97
I.	Introduction	97
II.		97
III.		109
IV.		110
V.	Valuation Models	117
CHA	PTER 6	
Yie	ld Measures, Spot Rates, and Forward Rates	119
I.	Introduction	119
II.	Sources of Return	119
III.	Traditional Yield Measures	120
IV.	<u> </u>	135
V.	Forward Rates	147
	PTER 7	4==
Int	roduction to the Measurement of Interest Rate Risk	157
I.	Introduction	157
II.	The Full Valuation Approach	157

III.	Price Volatility Characteristics of Bonds	160
IV.	Duration	168
V.	Convexity Adjustment	180
VI.	Price Value of a Basis Point	182
VII.	The Importance of Yield Volatility	183
СНАТ	PTER 8	
_	m Structure and Volatility of Interest Rates	185
I.	Introduction	185
II.	Historical Look at the Treasury Yield Curve	186
III.	Treasury Returns Resulting from Yield Curve Movements	189
IV.	Constructing the Theoretical Spot Rate Curve for Treasuries	190
V.	The Swap Curve (LIBOR Curve)	193
VI.	Expectations Theories of the Term Structure of Interest Rates	196
VII.	Measuring Yield Curve Risk	204
VIII	. Yield Volatility and Measurement	207
СНАТ	PTER 9	
	uing Bonds with Embedded Options	215
I.	Introduction	215
II.	Elements of a Bond Valuation Model	215
III.	Overview of the Bond Valuation Process	218
IV.	Review of How to Value an Option-Free Bond	225
V.	Valuing a Bond with an Embedded Option Using the Binomial Model	226
	Valuing and Analyzing a Callable Bond	233
	Valuing a Putable Bond	240
	. Valuing a Step-Up Callable Note	243
IX.	Valuing a Capped Floater	244
X.	Analysis of Convertible Bonds	247
СНАІ	PTER 10	
	rtgage-Backed Sector of the Bond Market	256
I.	Introduction	256
II.	Residential Mortgage Loans	257
III.	Mortgage Passthrough Securities	260
IV.	Collateralized Mortgage Obligations	273
V.	Stripped Mortgage-Backed Securities	294
VI.	Nonagency Residential Mortgage-Backed Securities	296
VII.	Commercial Mortgage-Backed Securities	298
CHAI	PTER 11	
	eet-Backed Sector of the Bond Market	302
I.	Introduction	302
II.	The Securitization Process and Features of ABS	303

III.	Home Equity Loans	313
IV.	Manufactured Housing-Backed Securities	317
V.	Residential MBS Outside the United States	318
VI.	Auto Loan-Backed Securities	320
VII	Student Loan-Backed Securities	322
VII	I. SBA Loan-Backed Securities	324
IX.	Credit Card Receivable-Backed Securities	325
X.	Collateralized Debt Obligations	327
CHA	PTER 12	
Val	uing Mortgage-Backed and Asset-Backed Securities	335
I.	Introduction	335
II.	Cash Flow Yield Analysis	336
III.	Zero-Volatility Spread	337
IV.	Monte Carlo Simulation Model and OAS	338
V.	Measuring Interest Rate Risk	351
VI.	Valuing Asset-Backed Securities	358
VII	Valuing Any Security	359
	PTER 13	
Int	erest Rate Derivative Instruments	360
I.	Introduction	360
П.	Interest Rate Futures	360
III.	Interest Rate Options	371
IV.	Interest Rate Swaps	377
V.	Interest Rate Caps and Floors	382
CHA	PTER 14	
Val	uation of Interest Rate Derivative Instruments	386
I.	Introduction	386
II.	Interest Rate Futures Contracts	386
III.	Interest Rate Swaps	392
IV.	Options	403
V.	Caps and Floors	416
CHAI	PTER 15	
Ge	neral Principles of Credit Analysis	421
I.	Introduction	421
П.	Credit Ratings	421
III.	Traditional Credit Analysis	424
IV.	Credit Scoring Models	453
V.	Credit Risk Models	455
	Appendix: Case Study	456

_	PTER 16 roduction to Bond Portfolio Management	462
I.	Introduction	462
II.	Setting Investment Objectives for Fixed-Income Investors	463
III.	Developing and Implementing a Portfolio Strategy	471
IV.	Monitoring the Portfolio	475
V.	Adjusting the Portfolio	475
	PTER 17 asuring a Portfolio's Risk Profile	476
		476
I. II.	Introduction Review of Standard Deviation and Downside Risk Measures	476 476
	Tracking Error	482
111. TV	Measuring a Portfolio's Interest Rate Risk	487
V.	Measuring Yield Curve Risk	491
VI.	e e e e e e e e e e e e e e e e e e e	492
	Credit Risk	493
	I. Optionality Risk for Non-MBS	494
IX.		495
Х.	Multi-Factor Risk Models	498
	PTER 18 Inaging Funds against a Bond Market Index	503
		503
I. II.	Introduction Degrees of Active Management	503
III.	·	507
IV.	U	513
V.		525
VI.		528
VII	. Leveraging Strategies	531
	PTER 19	
Po	rtfolio Immunization and Cash Flow Matching	541
I.	Introduction	541
II.	Immunization Strategy for a Single Liability	541
III.	Contingent Immunization	551
IV.	Immunization for Multiple Liabilities	554
V.	Cash Flow Matching for Multiple Liabilities	557
СНА	PTER 20	
	lative-Value Methodologies for Global Credit Bond ortfolio Management (by Jack Malvey)	560
I.	Introduction	560
II.	Credit Relative-Value Analysis	561

<u>X</u>		Contents
III.	Total Return Analysis	565
	Primary Market Analysis	566
V.	Liquidity and Trading Analysis	567
VI.	· · · · · · · · · · · · · · · · · · ·	568
	Spread Analysis	572
	. Structural Analysis	575
IX.	·	579
Χ.	Credit Analysis	579
XI.	Asset Allocation/Sector Rotation	581
	PTER 21	
	ernational Bond Portfolio Management (by Christopher B.	<b>500</b>
Ste	eward, J. Hank Lynch, and Frank J. Fabozzi)	583
I.	Introduction	583
I1.	Investment Objectives and Policy Statements	584
III.	·	588
IV.	Portfolio Construction	595
	Appendix	614
	••	
CHAI	PTER 22	
	ntrolling Interest Rate Risk with Derivatives (by Frank)	I Fahazzi
	rikant Ramamurthy, and Mark Pitts)	617
l.	Introduction	617
II.	Controlling Interest Rate Risk with Futures	617
III.	Controlling Interest Rate Risk with Swaps	633
IV.	Hedging with Options	637
V.	Using Caps and Floors	649
CHAI	PTER 23	
	lging Mortgage Securities to Capture Relative Value	
	y Kenneth B. Dunn, Roberto M. Sella, and Frank J. Fabozzi)	651
•	·	
	Introduction	651
II.	The Problem	651
III.	Mortgage Security Risks	655
IV.	How Interest Rates Change Over Time	660
V.	Hedging Methodology	661
VI.	Hedging Cuspy-Coupon Mortgage Securities	671
CHAI	PTER 24	
	dit Derivatives in Bond Portfolio Management (by Mark	J.P. Anson
	d Frank J. Fabozzi)	673
I.	Introduction	673
II.	Market Participants	674
III.	Why Credit Risk Is Important	674
	,	

Contents	xi
IV. Total Return Swap V. Credit Default Products VI. Credit Spread Products	677 679 687
VII. Synthetic Collateralized Debt Obligations VIII. Basket Default Swaps	691 692
About the CFA Program	695
About the Author	697
About the Contributors	699
ndex	703