

Contents

Preface	xiii
Acknowledgements	xv
About the Authors	xvii
1 Product Fundamentals	1
1.1 Chapter Overview	1
1.2 Bond Fundamentals	1
1.2.1 Fixed income structures	1
1.2.2 Floating-rate notes	2
1.2.3 Inflation	2
1.3 Repurchase Agreements	5
1.4 Credit Fundamentals	7
1.5 Derivative Fundamentals	8
1.5.1 Futures	8
1.5.2 Forwards	9
1.5.3 Swaps	11
1.5.4 Vanilla options	18
1.5.5 Exotic options	21
2 Pricing Relationships	23
2.1 Relative Value	23
2.2 The Relative Value Triangle	23
2.3 Spot Pricing	24
2.3.1 Pricing fixed income securities	24
2.3.2 Par yield curves	27
2.3.3 Zero-coupon yield curves	27
2.3.4 Forward yield curves	30
2.3.5 Pricing floating-rate notes	36
2.3.6 Inflation pricing	37
2.3.7 Credit pricing	39

2.4	The Spot–Forward Relationship	40
2.4.1	Fixed income	40
2.4.2	Credit markets	42
2.5	The Spot–Swap Relationship	43
2.5.1	Pricing swaps – counterparty credit risk	46
2.6	The Forward–Swap Relationship	49
2.7	Pricing Options–Relationship With The Underlying Market	49
2.7.1	Black–Scholes–Merton: an intuitive approach	50
2.7.2	From closed-form to binomial pricing techniques	52
2.7.3	Monte Carlo simulation	55
2.7.4	Put–call parity	56
Appendix 2.1	Monetary Policy and Overnight Interest Rates	57
Appendix 2.2	OIS Discounting	59
3	Market Risk Management	63
3.1	What Do We Mean By Risk?	63
3.2	Defining Market Risk	63
3.3	Spot Market Risk	64
3.3.1	Macaulay duration	64
3.3.2	Modified duration	65
3.3.3	Convexity	66
3.3.4	Dollar value of an 01	68
3.3.5	Market risk of a floating-rate note	69
3.3.6	Market risk of credit instruments	70
3.4	Forward Risk	72
3.4.1	Fixed income	73
3.4.2	Credit	73
3.5	Swap Market Risk	73
3.5.1	Spot swap risk	73
3.5.2	Carry and roll down	75
3.5.3	Application of DV01	75
3.5.4	Forward-starting swap risk	76
3.6	Option Risk Management	79
3.6.1	Delta	80
3.6.2	Gamma	82
3.6.3	Theta	87
3.6.4	Vega	88
3.6.5	Smiles, skews and surfaces	92
3.7	Value at Risk	93
4	Expressing Views on the Interrelationships between Products	97
4.1	The Spot–Forward Relationship	98
4.1.1	Bond futures	98
4.1.2	The cheapest to deliver	100
4.1.3	Changes in the cheapest to deliver	105
4.1.4	The yield beta	108

4.1.5	Trading the basis	108
4.1.6	Implementing a basis trade	113
4.2	The Spot–Swap Relationship	117
4.2.1	Understanding swap spreads	117
4.2.2	Negative swap spreads	121
4.3	The Forward–Swap Relationship	122
4.4	Options and Trading Volatility	123
4.4.1	Expressing views on market direction and volatility	123
4.4.2	Assessing volatility: cheap or rich?	138
4.4.3	Expressing views on volatility of volatility	139
4.4.4	The relationship between volatility and the underlying asset	140
5	Identifying Value in Sovereign Bonds	149
5.1	What Is Relative Value?	149
5.2	Understanding the Yield Curve	150
5.2.1	Yield curve formation	150
5.2.2	How does the yield curve move?	153
5.2.3	Yield curve movements	154
5.2.4	How do yield curves actually move?	154
5.2.5	Yield curve modelling	160
5.3	Measures of Spread	162
5.3.1	Decomposing bond yields	162
5.3.2	Swap spreads	164
5.3.3	CDS spreads	164
5.3.4	I-spread	165
5.3.5	TED spread	165
5.3.6	Z-spread	165
5.3.7	Option-adjusted spread	166
5.3.8	Asset swap spread	167
5.4	Identifying Value in Sovereign Bonds Using Asset Swaps	170
5.4.1	Determining the appropriate benchmark	170
5.4.2	Term structure of asset swap spreads	171
5.4.3	Assessing value in sovereign bonds	172
5.4.4	Forward asset swap spreads	176
5.4.5	Inflation-linked asset swaps	178
5.5	Summary of Yield Measures	179
Appendix 5.1	Curve flattening trade	180
6	Trading the Yield Curve	183
6.1	Trading Terminology	183
6.1.1	Long or short?	183
6.1.2	Roll down and carry revisited	183
6.2	Trading the Short End of the Yield Curve	186
6.2.1	Money-market loans and deposits	186
6.2.2	Interest rate futures	186

6.2.3	Interest rate swaps	190
6.2.4	Options on single-period short-term interest rates	192
6.3	Trading the Slope of the Yield Curve	192
6.3.1	Short-term interest rate futures vs. bond futures	192
6.3.2	Fed Funds futures vs. interest rate swaps	193
6.3.3	Bonds and swaps	193
6.3.4	Conditional curve trades	197
6.3.5	Identifying slope trades using swaptions	199
6.3.6	Volatility and the level of interest rates	200
6.4	Trading the Curvature of the Yield Curve	202
6.4.1	An overview of butterfly spreads	202
6.4.2	2s5s10s Butterfly trade using bonds	203
6.4.3	2s5s10s Butterfly trade using swaps	206
6.4.4	Forward and spot spreads and carry	213
6.4.5	Volatility and yield curve slope and curvature	213
6.5	Volatility, Curvature and Skew	214
6.6	Constant-Maturity Products	217
6.6.1	Product definitions	217
6.6.2	CMS product pricing	218
6.6.3	CMS sensitivities and impact on market	219
6.6.4	Applications of CMS products	219
6.7	Structured Products – Range Accruals	220
7	Relative Value in Credit	223
7.1	Applying the Relative Value Triangle to Credit	223
7.1.1	The bond–credit default swap relationship	223
7.1.2	The forward–swap relationship	228
7.1.3	Volatility	230
7.2	Expressing Views on the Credit Term Structure	235
7.2.1	Steepening/flattening trades	235
7.2.2	Butterfly trades	237
7.2.3	Convexity	238
7.3	Expressing a View on a Single Reference Entity	239
7.3.1	Credit-linked notes	239
7.3.2	Expressing a view on a single reference entity – an example	242
7.4	Expressing a View on a Basket of Reference Entities	243
7.4.1	Total return swaps	243
7.4.2	Basket default swaps	244
7.4.3	Index tranche investing	246
8	Relative Value in Inflation	251
8.1	Payers and Receivers of Inflation	252
8.2	Term Structure of Breakeven Inflation and Real Yields	252
8.2.1	Trading the slope of inflation curves	252
8.2.2	The importance of liquidity	253
8.3	Seasonality	254

8.4 Identifying Value in Inflation-Linked Bonds	255
8.4.1 Fitted curves - cheap/rich analysis	255
8.4.2 Forward rate analysis	257
8.4.3 Butterfly trades	258
8.5 An Overview of Inflation-Linked Trading Strategies	258
8.5.1 Inflation market risk	258
8.5.2 Forward prices and carry	259
8.5.3 Summary of popular inflation trades	260
8.6 Expressing Views on Breakeven Inflation	260
8.6.1 Cash strategies	260
8.6.2 Derivative strategies	263
8.6.3 Expressing views on swap breakevens	265
8.7 Expressing Views on Real Yields	266
8.7.1 Total return inflation swaps	267
8.7.2 Real rate swap	267
8.8 Forward Breakevens	268
8.8.1 Background	268
8.8.2 Assessing the risk premium	269
8.8.3 Trading forward breakevens using bonds	269
8.8.4 Trading forward breakevens using swaps	272
8.8.5 Calculating forward swap rates	273
8.8.6 Forward real-yield trades	274
8.9 Using Options to Express Views on Breakeven and Real Yields	274
9 Trading Axioms: An A to Z	277
Notes	281
Bibliography	283
Index	285

