
Contents

Preface to the Second Edition	x
Acknowledgments	xiii
1 Price calculations for short-term securities	1
Simple interest	1
Accumulation at simple interest	1
Present value (or discounted value) at simple interest	3
Simple discount	6
Relationship between simple interest and simple discount	8
365 and 360 day years	10
Bills, promissory notes and short-term government securities	11
Certificates of deposit	14
2 Yield calculations for short-term securities	15
Calculation of yields	15
Holding period calculations	17
Riding the yield curve	18
Break-even analysis and funding costs	20
Transaction costs	22
Effect of tax	23
3 Pricing of long-term securities	27
Compound interest	27
Accumulation with compound interest	27
Present values with compound interest	29
Nominal and effective rates	30
Zero coupon bonds	32
Annuities	32
Treasury bonds	34
Accrued interest	38
Overseas markets	39

Indexed bonds	40
Indexed annuities	43
4 Yield calculations for long-term securities	45
Linear interpolation	46
Net present value and internal rate of return	48
Floating rate securities	50
Reinvestment assumptions and holding period analysis	55
Transaction costs	58
Effect of tax	59
Bond switch (swap) analysis	66
Book value switches	72
5 Interest rate risk analysis	74
Duration	75
Modified duration	80
Convexity	83
Spread or M^2 of cashflows	85
Duration and convexity for portfolios	87
Managing interest rate risk	89
6 Forwards and futures	95
Spot and forward interest rates	96
Spot and forward exchange rates	103
Pricing forward contracts	107
The valuation of outstanding forward contracts	113
Futures contracts—relationship with forwards	115
The tail hedge	120
Duration and convexity for futures contracts	126
Forward rate agreements	129
7 Swaps	132
Bill swaps	132
Foreign exchange swaps	137
Interest rate swaps	140
Cross currency swaps	149
8 Options	151
Introduction to options	151
Option payoffs	152
Asset price distributions	155
Option valuation	164
Binomial option pricing formula	165
Binomial model parameters	173
Black–Scholes option pricing formula	175
Put option pricing	177

Other options to be allowed for in option valuation	178
Forward contracts and options	179
Convertible bonds and warrants	181
Guaranteed indexed notes	183
Exotic options	184
9 Interest rate derivatives	185
The binomial lattice	186
Parameters of the binomial interest rate model	194
Simulation	201
Exchange-traded interest rate options	202
Bond options and swaptions	204
Caps and floors	205
Callable and puttable bonds (optional redemption dates)	206
Glossary of securities	207
Bibliography and further references	213
Index	215