

Contents

Preface	v
Authors	xi
Introduction	xxiii

I. VOLATILITY I: QUALITATIVE AND QUANTITATIVE DESCRIPTION

1	Correcting Black–Scholes	3
	Michael Kamal and Emanuel Derman	
2	Regimes of Volatility	9
	Emanuel Derman	
3	If the Skew Fits	17
	Gregory Brown and Curt Randall	
4	Uncertain Volatility	23
	Terry Lyons and Adam T. Smith	
5	Jumping Smiles	31
	Leif Andersen and Jesper Andreasen	
6	Calibrating Random Volatility	39
	Jean-Pierre Fouque, George Papanicolaou and Ronnie Sircar	
7	A Mixed-up Smile	45
	Damiano Brigo and Fabio Mercurio	
8	A Fair Value for the Skew	51
	Emanuel Derman and Joseph Zou	
9	Principles of the Skew	57
	Carol Alexander	
10	Crises and Volatility	65
	Allan Malz	
11	The Vol Smile Problem	71
	Alexander Lipton	
12	Trees from History	79
	Nusret Cakici and Kevin Foster	
13	Reconstructing Volatility	87
	Marco Avellaneda, Dash Boyer-Olson, Jérôme Busca and Peter Friz	
14	Volatile Volatilities	95
	Leif Andersen and Jesper Andreasen	

II. VOLATILITY II: VOLATILITY AND VARIANCE SWAPPING

15	Introducing the Covariance Swap	107
	Peter Carr and Dilip Madan	
16	A Guide to Variance Swaps	113
	Kresimir Demeterfi, Emanuel Derman, Michael Kamal and Joseph Zou	

17	Market Risk of Variance Swaps Neil Chriss and William Morokoff	119
18	Volatility Swaps Made Simple Oliver Brockhaus and Douglas Long	127

III. EXOTIC OPTIONS: PRODUCTS AND METHODS

19	Similarities via Self-similarities Alexander Lipton	135
20	Pricing Exotics Under the Smile Klaus Said	143
21	Upgrading Your Passport Jan Vecer and Steven Shreve	149
22	Going with the Flow Peter Carr, Alexander Lipton and Dilip Madan	155
23	Static Barriers Leif Andersen and Jesper Andreasen	165
24	Jumping in Line Claudio Albanese, Sebastian Jaimungal and Dmitri Rubisov	171
25	Hedge Your Monte Carlo Marc Fotters, Jean-Philippe Bouchaud and Dragan Šestović	177
26	Behind the Mirror Jesper Andreasen	183
27	Black-Scholes Goes Hypergeometric Claudio Albanese, Giuseppe Campolieti, Peter Carr and Alexander Lipton	185
28	New Products, New Risks Richard Quessette	193
29	Himalaya Options Marcus Overhaus	201
30	Exotic Spectra Vadim Linetsky	207
31	Universal Barriers Alexander Lipton and William McGhee	215
32	Unified Asian Pricing Jan Vecer	223
33	Assets with Jumps Alexander Lipton	229
34	Why be Backward? Peter Carr and Ali Hirsā	237

IV. EXOTIC UNDERLIERS

35	Hedging Under Asymmetry Angelo Arvanitis and Jean-Michel Lasry	247
36	Insurance Optional Claudio Giraldi, Gabriele Susinno, Giacomo Berti, Silvia Buttarazzi, Carlo Daroda, Giuseppe Stamegna, John Brunello and Gianluca Cenciarelli	255
37	Pricing the Weather Melanie Cao and Jason Wei	263
38	Hedging Electoral Risk Steve Kou and Michael Sobel	269
39	Plugging into Electricity Hélyette Geman and Oldrich Vasilek	275

40	Mean-reverting Smiles	283	CONTENTS
	David Beaglehole and Alain Chebanier		
41	Substitute Hedging	289	
	Vicky Henderson and David Hobson		
42	A Two-factor Mean-reverting Model	297	
	David Beaglehole and Alain Chebanier		
	Index	305	