

Contents

Introduction	1
The Trading Process	3
CHAPTER 1 Option Pricing	7
The Black-Scholes-Merton Model	7
Summary	14
CHAPTER 2 Volatility Measurement and Forecasting	15
Defining and Measuring Volatility	15
Definition of Volatility	16
Alternative Volatility Estimators	22
Close-to-Close Estimator	26
Parkinson Estimator	26
Garman-Klass Estimator	27
Rogers-Satchell Estimator	27
Yang-Zhang Estimator	27
Using Higher-Frequency Data	27
Forecasting Volatility	31
Maximum Likelihood Estimation	36
Forecasting the Volatility Distribution	39
Summary	43
CHAPTER 3 Implied Volatility Dynamics	45
Volatility Level Dynamics	48
Informal Definition	50
More Formal Definition	50
A Traders' Definition	50
	vii

viii	CONTENTS
Smile Dynamics	54
Summary	62
CHAPTER 4 Hedging	63
Ad Hoc Hedging Methods	65
Hedging at Regular Intervals	65
Hedging to a Delta Band	65
Hedging Based on Underlying Price Changes	65
Utility-Based Methods	66
The Asymptotic Solution of Whalley and Wilmott	71
The Double Asymptotic Method of Zakamouline	74
Estimation of Transaction Costs	78
Aggregation of Options on Different Underlyings	83
Summary	85
CHAPTER 5 Hedged Option Positions	87
Discrete Hedging and Path Dependency	87
Volatility Dependency	93
Summary	99
CHAPTER 6 Money Management	101
Ad Hoc Schemes	101
The Kelly Criterion	103
Alternatives to the Kelly Criterion	113
Trade Sizing in a Continuously Changing Setting	118
A Simple Approximation	124
Summary	126
CHAPTER 7 Trade Evaluation	127
General Planning Procedures	128
Risk-Adjusted Performance Measures	134
The Sharpe Ratio	135
Alternatives to the Sharpe Ratio	137
Setting Goals	140

<i>Contents</i>	ix
Persistence of Performance	142
Relative Persistence	143
Absolute Persistence	144
Summary	147
CHAPTER 8 Psychology	149
Self-Attribution Bias	151
Overconfidence	152
The Availability Heuristic	155
Short-Term Thinking	156
Loss Aversion	157
Conservatism and Representativeness	158
Confirmation Bias	160
Hindsight Bias	161
Anchoring and Adjustment	162
Summary	162
CHAPTER 9 Life Cycle of a Trade	165
Pretrade Analysis	165
June 25, 2007	165
June 26, 2007	169
June 27, 2007	169
June 28, 2007	170
June 29, 2007	170
July 2, 2007	170
July 3, 2007	170
Post-Trade Analysis	171
Summary	173
CHAPTER 10 Conclusion	175
Execution Ability	176
Concentration	177
Product Selection	177
Appendix A: Model-Free Implied Variance and Volatility	179
The VIX Index	180

Appendix B: Spreadsheet Instructions	183
GARCH	183
Volatility Cones and Skew and Kurtosis Cones	184
Daily Option Hedging Simulation	184
Trade Evaluation	185
Trading Goals	185
Corrado-Su Skew Curve	185
Mean Reversion Simulator	186
Resources	187
Essential Books	187
Thought-Provoking Books	189
Useful Web Sites	190
References	193
About the CD-ROM	201
Index	203

<http://www.pbookshop.com>