
Foreign Exchange Exotics and Structured Products

Overview

Particular emphasis is placed on the dynamic interaction between option price determinants, the impact on portfolio risk of higher order risk properties of exotic options (e.g. Vanna, Volga) and their pricing and risk management. Specific attention will be placed on higher order volatility risks Vanna and Volga, and their management within portfolios of vanilla and exotic option types.

Key Contents

- Exotic Options
 - Exotic option classification
 - Pay-off structure
 - Motivations and applications of exotic options
 - Pricing and valuation issues:
 - Black-Scholes, analytical models; advantages and shortcomings
 - Numerical methods (Binomial, Trinomial lattice models, Monte Carlo simulation)
 - Modelling considerations for exotic option pay-offs
 - Skew effects

- Exotic Options - Barrier Options
 - Overview of types (knock-ins and knock-outs; reverse knock-in/out
 - DOWN and OUT/IN
 - UP and OUT/IN
 - Pricing and valuation of Barrier options
 - Analytic solutions
 - Parity relationships (European = knock-out plus a knock-in)
 - Numerical methods of Barrier option pricing
 - Pricing double barrier options and other variants
 - Impact of varying barrier parameters on performance, cost
 - Hedging Barrier options
 - Risk sensitivities and their characteristics
 - Static replication of barrier option risks
 - Managing Greeks close to barriers; managing sign changes
 - Risks of hedged positions
 - Higher order sensitivities
 - Vanna, Volga sensitivities
 - Skew risk
 - The importance of higher order sensitivities in the management of barrier options

- Applications of Barrier Options
 - Trading and hedging applications
 - Trading optionality with barrier options
 - Structured Barrier option strategies:

- Digital and One Touch Options
 - CASH or NOTHING Calls/Puts
 - 'One Touch' digitals and rebates
 - Contingent premium 'pay later' options
 - Pricing of digital options
 - Hedging and risk management of digital options
 - Delta hedging; risk management problems
 - Disappearing Greeks
 - Pricing using a volatility surface
 - Gamma, Vega, theta behaviour
 - Replication using spreads, risk reversals

- Quanto (Quantity Adjusted) Options
 - Quanto derivatives
 - Pricing quanto derivatives
 - Replication approach
 - Analytical approach
 - Pricing parameters –
 - correlation and volatility inputs
 - Hedging quanto derivatives
 - Applications of Quanto options

- Average Rate (Asian) Options
 - Mechanics of average rate options
 - Pricing and risk management characteristics
 - Motivations and rationale for the use of Asian options
 - hedging with Asian options
- Second Generation Exotic Options
 - Exotic Barrier options
 - Multi-asset options
 - Spreads and baskets
- Structured FX Products
 - Structured FX hedge instruments
 - Barrier structures (forward plus)
 - Knock-in cylinders
 - Knock-out forwards
 - Fader and accumulator forwards
 - Currency linked notes
 - Dual currency deposits
 - Reverse dual currency notes
 - Power Reverse Dual Currency Notes (PRDCs)
 - Range accruals
 - FX hybrids