

Singapore

23 & 24 August 2007

EQUITY DERIVATIVES

ADVANCED TECHNIQUES FOR THE PRICING, MODELLING AND HEDGING

An advanced two-day training course for financial professionals

Course Highlights

- Analyse models beyond the Black-Scholes-Merton Model
- Fourier analysis in equity derivative pricing
- Delta-gamma-vega hedging
- Pros and Cons of the most advanced equity derivative models

The tutor:

Marcello Minenna, Head of the Quantitative Analysis Unit, CONSOB (the Italian Securities and Exchange Commission).



The Author of the risk book – *Guide to Quantitative Finance Tools and Techniques for Understanding and Implementing Financial Analytics*

Who should attend?

The core target markets are investment banks, but the course will be also of interest to retail banks. Everyone with the following job titles will be our core target market:

- Heads of quantitative research
- Global heads of performance and risk
- Heads of portfolio risk
- Heads of quantitative risk
- Heads of derivative marketing
- Equity derivatives traders
- Directors of exotic derivatives groups
- Chief risk managers
- Senior quantitative analysts
- Market risk managers
- Equity linked sales managers
- Securities traders
- Quantitative analysts
- Risk managers
- Equity analysts
- Senior auditors
- Portfolio managers
- Quantitative analysts
- Risk researchers
- Executive directors/Managing directors/Vice presidents / Associates – within equity derivatives, structured equity products or exotics

Background

Equity derivatives are one of the fastest-growing financial products globally. The equity derivatives market continues to surge in volume and is growing more rapidly. Exchange-traded equity derivative volumes surged to record levels in the first four months of the year as hedge funds and “black box” traders increasingly sought new ways to boost returns.

Risk has developed this newly researched training programme designed to focus on advanced techniques for pricing, modelling and hedging Equity Derivatives, allowing you to walk away with in-depth understanding of these versatile products and giving you the confidence to effectively use your new knowledge!

Delegates will learn how to:

- Price and hedge in discrete and continuous time
- Implement models with stochastic volatility and interest rate
- Control the use of jumps in equity derivatives pricing and hedging
- Derive customized quantitative models

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About the tutor:

Marcello Minenna is the Head of the Quantitative Analysis Unit at CONSOB (the Italian Securities and Exchange Commission). In charge of what Risk magazine addressed as the “quant enforcement”, he analyses and develops quantitative models for surveillance and supports the enforcement units in their activities.



Marcello has taught mathematical models for finance in several Italian and foreign universities and is presently teaching financial mathematics at the universities of Milano Bicocca and Bocconi. He received his Phd in applied mathematics for social sciences from the State University of Brescia and his MA in mathematics in finance from Columbia University.

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DAY ONE

Thursday 23 August 2007

08.30 Registration and coffee

9.00 PRICING AND HEDGING IN DISCRETE TIME

- Replication portfolio approach
- Martingale measure approach
- Binomial model
- Excel implementation

10.30 Morning break

11.00 FROM DISCRETE TO CONTINUOUS TIME

- Asymptotic binomial
- Risk-neutral measure
- Recombination of the approaches
- Excel implementation

12.30 Lunch

13.30 BLACK-SCHOLES-MERTON

- Risk-neutrality - stochastic processes derivation
- Change of measure
- Partial Differential Equation approach
- Recombination of the approaches
- Excel implementation

15.00 Afternoon break

15.30 BEYOND BLACK-SCHOLES-MERTON: PRICING AND HEDGING WITH STOCHASTIC VOLATILITY, JUMPS AND STOCHASTIC INTEREST RATE – PART I

- Partial Differential Equation approach
- Cauchy problem solved via Feynman-Cac formula
- Cauchy problem solved via Fourier Transform
- Numerical solution and implementation

17.00 End of day one

DAY TWO

Friday 24 August 2007

08.30 Registration and coffee

9.00 BEYOND BLACK-SCHOLES-MERTON: PRICING AND HEDGING WITH STOCHASTIC VOLATILITY, JUMPS AND STOCHASTIC INTEREST RATE – PART II

- Fourier Transform approach
- Risk neutrality
- Fourier space and α parameter
- Numerical solution and implementation

10.30 Morning break

11.00 BEYOND BLACK-SCHOLES-MERTON: PRICING AND HEDGING WITH STOCHASTIC VOLATILITY, JUMPS AND STOCHASTIC INTEREST RATE – PART III

- Discrete Fourier Transform approach
- Derivation through Convergence theorem
- Numerical solution and implementation
- Recombination of the approaches

12.30 Lunch

13.30 BEYOND BLACK-SCHOLES-MERTON: PRICING AND HEDGING WITH STOCHASTIC VOLATILITY, JUMPS AND STOCHASTIC INTEREST RATE – PART VI

- Fast Fourier Transform approach
- FFT vs DFT – computational costs
- Danielson-Lanczos representation
- Cooley-Tuckey algorithm
- Implementation

15.00 Afternoon break

15.30 GREEKS

- Derivation for discrete and continuous time models
- Delta-gamma-vega hedging
- Risk-management for exotic derivatives
- Excel implementation

17.00 End of course

PRE-COURSE READING

Produced in consultation with the course tutor, every delegate will receive a comprehensive pre-course reading pack to ensure they obtain maximum benefit from the course. Each article has been selected based upon its relevance to the topics covered within the presentations.