Latest Developments:
Interest Rate Modelling &
Interest Rate Exotic & Hybrid Products

London: 30th March – 1st April 2009

This workshop provides THREE booking options

Register to ANY ONE day TWO days or all THREE days of the workshop

Register to ANY TWO days of the workshop and receive £200 discount

Register to ALL THREE workshop days and receive £300 discount

Early Bird Discount:

15% Before 31st December 2008 and 10% Before 31st January 2009
Topics:

Day 1: The LMM-SABR Model: The New Paradigm for Pricing, Calibrating, Hedging Interest-Rate Derivatives Modelling in the Presence of Smiles

• The LIBOR Market Model framework (deterministic volatility)
• Deriving the Drifts of the Forward Rates
• The SABR Model
• Qualitative Hedging Behaviour
• Combining LMM and SABR
• Analytical Approximation to Swaption Prices
• Calibrating
• Calibrating the Volatility Function
• Empirical Evidence
• Statistical Behaviour of Fitted Parameters, and How to Use This Information for Hedging
• Hedging under Conditions of Market Turmoil

Presenter:

Riccardo Rebonato: Global Head of Market Risk, CM & Head of Quantitative Research, Royal Bank of Scotland

Day 2: Interest Rate Modelling & Interest Rate Exotic & Hybrid Products

• Analytical formulas for pricing CMS products in the LMM model
• Simultaneous calibration to European swaptions and European CMS products
• Approximation of the European CMS products for the BGM SV model: basic idea
• Numerical Methods for Markov Functional Models and Their Stability
• Markov functional models
• Stable numerical schemes
• Theory of Interest Rate Term Structure: Dynamics and Calibration with Stochastic Volatility
• Parameterisation and calibration of interest rate dynamics
• New interest rate models with stochastic volatility
• Adjusters, Internal adjusters, and Pricing Callable Exotics
• External adjusters
• Extension to other callable exotic

Presenters:

Alexandre Antonov: Senior Quantitative Analyst, NumeriX
Dorje C. Brody: Reader in Mathematics, Imperial College London
Lane P Hughston: Professor of Financial Mathematics, Imperial College London
Pat Hagan: Head, Quantitative Analytics, Chief Investment Office, JP Morgan
Jochen Theis: Head of Quantitative Risk Management EMEA, Merrill Lynch
Topics:

Day 3: Interest Rate Modelling & Interest Rate Exotic & Hybrid Products

- Interest Rate Exotics and GPU Computing
- Stochastic monetary policy models
- Calibration against swaptions, exotic baskets and correlation data
- Valuing and trading interest rate derivatives in a short rate model with stochastic volatility
- A model with Heston volatility
- Historical and relative value analysis
- Stochastic interest rates for local volatility hybrids models
- Bias for local volatility model with stochastic Interest rates
- Reduced form for hull and white type models
- Pricing long-dated derivatives with stochastic interest rates and stochastic volatility
- Incorporating stochastic interest rates in stochastic volatility models
- The Schöbel-Zhu-Hull-White (SZHW) model

Presenters:

Claudio Albanese: Independent Consultant
Eric Benhamou: CEO, Pricing Partners
Roger Lord: Quantitative Analyst/Associate Director, Rabobank International
Julien Turc: Head of Quantitative Strategy, Société Générale
The LIBOR Market Model framework (deterministic volatility)

- Deriving the Drifts of the Forward Rates
- Specifying the volatility
- Specifying the correlation
- Calibrating

The SABR Model

- Pricing formulae
- Special Cases
- Qualitative Hedging Behaviour
- Pitfalls

Combining LMM and SABR

- Deriving the Drifts of the Forward Rates
- Deriving the Drifts of the Volatilities
- Analytical Approximation to Swaption Prices

Calibrating

- Calibrating the Volatility Function
- Calibrating the Volatility of Volatility
- Calibrating the Correlation Structure
- When to use the Implied Approach and When to Use the Historical Approach

Empirical Evidence

- Estimating the Volatilities
- Estimating the Volatility of Volatility
- Estimating the Correlation Structure
- Statistical Behaviour of Fitted Parameters, and How to Use This Information for Hedging

Hedging

- Hedging under Normal Market Conditions: How to Quantify the Exposure to Level, Slope and Curvature of the Smile
- Hedging under Conditions of Market Turmoil

Day schedule:

Day 1: The LMM-SABR Model: The New Paradigm for Pricing, Calibrating, Hedging Interest-Rate Derivatives Modelling in the Presence of Smiles:
Riccardo Rebonato, Royal Bank of Scotland

- 09:00 – 17:00
- Break: 10:30 – 10:45
- Lunch: 12:30 – 13:30
- Break: 15:15 – 15:30
Day 2: Interest Rate Modelling & Interest Rate Exotic & Hybrid Products

09:00 – 10:30 / Analytical Formulas for Pricing CMS Products in the LMM Model: Alexandre Antonov, NumeriX

Simultaneous calibration to European swaptions and European CMS products
Approximation of the European CMS products for the BGM SV model: basic idea
Case studies:

• Approximation of the CMS swaps and CMS caps
• Approximation of the CMS spread options

Numerical experiments

10:30 – 10:45 Break

10:45 – 12:30 / Numerical Methods for Markov Functional Models and Their Stability: Jochen Theis, Merrill Lynch

• Markov functional models
• General approach to implementation
• Examples of stability issues
• Accuracy estimation and consequences
• Stable numerical schemes

12:30 – 13:30 Lunch

13:30 – 15:00 / Theory of Interest Rate Term Structure: Dynamics and Calibration with Stochastic Volatility:

Dorje C Brody & Lane P Hughston, Imperial College London

• Overview of the pricing kernel methodologies
• Dynamics of discount bonds, HJM equations
• The volatility structure approach: pros and cons
• Conditional variance representation for the pricing kernel
• Parameterisation and calibration of interest rate dynamics
• Use of chaos expansions in term-structure calibration
• New interest rate models with stochastic volatility
• Pricing interest rate derivatives
• Applications to foreign exchange and FX derivatives
• Macroeconomic models

15:00 – 15:15 Break
• Need for risk migrators
• External adjusters
• Rationale for internal adjustors
• Example: Callable range notes
• Extension to other callable exotic
Day 3: Interest Rate Modelling & Interest Rate Exotic & Hybrid Products

09:00 – 11:00 / Interest Rate Exotics and GPU Computing: / Claudio Albanese, Independent Consultant

- Stochastic monetary policy models
- Operator methods and GPU coprocessors
- Implementing backward induction
- Optimization algorithms for calibration
- Calibration against swaptions, exotic baskets and correlation data
- Benchmarking against market models and methods with adjustors
- System design on multi-GPU equipment
- Bermudans and callable CMS spread options
- Monte Carlo methods and variance reduction schemes
- Modeling correlations and multicurrency exotics

11:00 – 11:15 Break

11:15 – 12:45 / Valuing and Trading Interest Rate Derivatives in a Short Rate Model with Stochastic Volatility: / Julien Turc, Société Générale

- A model with Heston volatility
- Solving the model and pricing options
- How the model simulates changes in the curve and in the volatility surface
- Estimating the model
- Historical and relative value analysis

12:45 – 13:45 Lunch


- Bias for local volatility model with stochastic Interest rates
- Reduced form for hull and white type models
- Impact on local volatility
- Numerical results and fast calibration

15:15 – 15:30 Break
• Examples of long-dated structures
• Incorporating stochastic interest rates in stochastic volatility models
• The Schöbel-Zhu-Hull-White (SZHW) model
• The SZHW Fx model
• Efficient simulation within the Schöbel-Zhu and SZHW models
Latest Developments: Interest Rate Modelling & Interest Rate Exotic & Hybrid Products
London: 30th March – 1st April 2009

Workshop Fee:

- Any One day: £1099 + UK VAT
- Any Two days: £1998 + UK VAT (Including £200 Discount)
- All Three days: £2997 + UK VAT (Including £300 Discount)
- Early Bird Discount: 15% Before 31st December 2008
- Early Bird Discount: 10% Before 31st January 2009
- 30% discount Academic delegates

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To register please fax the completed booking form to:
Fax: +44 (0) 1273 201360

Flight details:
All delegates flying into London on the morning of the event are reminded that they should arrive 30 minutes before the workshop starts for registration. The hotels West End location is approximately 1 hour from all 3 main London airports, Heathrow, Gatwick and City. Returning flights should equally allow for the events finishing time.

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Prior to the two week deadline, cancellations are subject to a fee of 25% of the overall course cost.

Discount Structure:
The discount is available on any day permutation, and can be combined across delegates within the same company (only at the time of booking and not retrospectively).