WBS

Interest Rate Modelling, Risk Management & Hybrids Products

London: 27th – 29th November 2007

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

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Topics:

Day 1: Interest Rate Modelling & Risk Management

- **Stochastic Volatility in Interest Rate Models**
- **SQ-BGM Model**
- **Modelling the Volatility Surface**
- **Conventional Models**
- **Model Misspecification and Hedging Robustness**
- **Determine Closed-Form Expressions for the Total Replication Error**
- **Monte-Carlo Pricing of Bermudan Options**
- **Correction of Super-Optimal and Sub-Optimal Exercise**
- **Fast and Robust Calculation of Monte-Carlo Sensitivities**

Presenters:

Philippe Balland: Managing Director in the Fixed Income Division, Merrill Lynch
Christian Fries: Head of Model Development, Rates and Hybrids, DZ Bank
Stefano Galluccio: Co-head of Exotic and Hybrid Derivatives Trading, BNP Paribas
Pat Hagan: Head, Quantitative Analytics, Chief Investment Office, JP Morgan

Day 2: Interest Rate Hybrids

- **Model Misspecification**
- **Pricing and Hedging Hybrid Derivatives**
- **Modelling the Long-Dated FX Smile**
- **Stochastic Skew Models for FX Derivatives and Applications**
- **FX Hybrids Modelling**
- **Pricings of Equity / Interest Rates Hybrids**
- **Local Volatility and Stochastic Volatility Models with Stochastic Interest Rates**
- **Case Study: Pricing of Equity / Interest Rates Coupon Structures**
- **Pricing Inflation / Interest Rate Hybrids**
- **Valuing inflation - IR spread products**

Presenters:

Messaoud Chibane: Senior Quantitative Analyst, Bank of America
Alexander Giese: Co-Head of Quantitative Research Equities, Commodities and Portfolio Strategies, HypoVereinsbank
Jeroen Kerkhof: Vice President, Morgan Stanley
Youssef Randjiou: Head of Hybrid Derivatives Research, Citigroup

Day 3: New Advances in Market Models for Interest Rates

- **Pricing the Smile: a LIBOR Model with Uncertain Parameters**
- **Derivation of Analytical Formulas for Caps and Swaptions**
- **Model's Implications: Forward Volatilities and Implied Swaptions Smile**
- **A Specific Case allowing for an Exact Calibration to ATM Volatilities**
- **Introducing the CMS Convexity Adjustments**
- **A Joint Calibration to Swaptions and CMS Swap Spread**

Presenter:

Massimo Morini: Financial Consultant

Day 1: Interest Rate Modelling & Risk Management

09:00 – 10:30 / Stochastic Volatility in Interest Rate Models:
1 hour 30 minutes / Philippe Balland, Merrill Lynch

- **Discrete Setup**
- **SQ-BGM Model**
- **Markov Chain for the Volatility**
- **Effective Standard Deviation**
- **Correlation Assumption**
- **Effective Swaption Pricing**
- **Calibration**

10:30 – 10:45 Break

10:45 – 12:30 / Modelling the Volatility Surface:
1 hour 45 minutes / Pat Hagan, JP Morgan

- **Conventional models**
- **Observed realized and implied vols**
- **Contemporary models**

12:30 – 13:30 Lunch

13:30 – 15:15 / Model Misspecification and Hedging Robustness:
1 hour 45 minutes / Theory and Impact on Risk Management:
/ Stefano Galluccio, BNP Paribas

- **Model misspecification in models driven by general mixed processes in presence of stochastic volatility**
- **Determine closed-form expressions for the total replication error**
- **Examples of important cases**

15:15 – 15:30 Break

15:30 – 17:00 / Fast and Robust Monte-Carlo Sensitivities:
1 hour 30 minutes / Christian Fries, DZ Bank

Sensitivities (Greeks) in Monte-Carlo:

- **Brute Force Finite Differences**
- **Path-Wise Differentiation**
- **Path-Wise Differentiation for Path-Wise Discontinuous Payouts**
- **Likelihood Ratio**
- **Malliavin Calculus**

Proxy Simulation Scheme Method:

- **Monte-Carlo Pricing under a Proxy Scheme**
- **Monte-Carlo Sensitivities under a Proxy Scheme**
- **Partial Proxy Simulation Schemes**
- **Localized Proxy Simulation Schemes**
- **Object Oriented Implementation**

Applications and Benchmark Examples:

- **Path-Wise Method for Path-Wise Discontinuous Payouts**
- **Proxy Scheme Method and Importance Sampling**
- **Proxy Scheme Method for a LIBOR Market Model and Target Redemption Notes (TARNs)**
- **Localized Proxy Scheme for a LIBOR Market Model**

Day 2: Interest Rate Hybrids

09:00 – 10:30 / The Hybrid Derivatives Challenge:
1 hour 30 minutes / Youssef Randjiou, Citigroup

- **Hybrid derivatives**
- **Need for Hybrid products**
- **Hybrid products and solutions**
- **Issues with Hybrid derivatives**
- **Model misspecification**
- **Need for consistency across asset classes**
- **Pricing and hedging hybrid derivatives**
- **Know your limits**

10:30 – 10:45 Break

10:45 – 12:30 / FX Hybrids Modelling:
1 hour 45 minutes / Messaoud Chibane, Bank of America

Examples of typical products:

- **Power Reverse Dual Currency knock outs and cancellables**
- **FX inverse floaters**
- **FX tarns**
- **Quantoed structures:**

History of FX model for long dated structures:

- **Cross-Currency Libor Market Models**
- **Modelling the long-dated FX smile**

12:30 – 13:30 Lunch

13:30 – 15:00 / Pricings of Equity / Interest Rates Hybrids:
1 hour 30 minutes / Alexander Giese, HypoVereinsbank

- **Local Volatility and Stochastic Volatility Models with Stochastic Interest Rates**
- **Case Study: Pricing of Auto Callable Structures**
- **Case Study: Pricing of Equity / Interest Rates Coupon Structures**

15:00 – 15:15 Break

15:15 – 16:45 / Pricing Inflation / Interest Rate Hybrids:
1 hour 30 minutes / Jeroen Kerkhof, Morgan Stanley

- **Inflation essentials**
- **Valuing inflation volatility products**
- **Valuing inflation - IR spread products**
- **Valuing indexed IR products**

Day 3: New Advances in Market Models for Interest Rates: Massimo Morini, Financial Consultant

9:00 – 10:30

- **Standard and skewed Libor market model dynamics**
- **Derivation of the indirectly stochastic drift**
- **Leaving the canon**
- **Futures convexity corrections in the Libor market model**
- **Speed is everything - the predictor-corrector scheme**

10:30 – 10:45 Break

10:45 – 12:30

- **Parametrisation of correlation and volatility backbone**
- **Factor reduction - pros and cons**
- **Speed is everything - the drift term**
- **Analytical calibration to coterminal swaptions**

12:30 – 13:30 Lunch

13:30 – 17:30

- **Non-parametric volatility specification**
- **Global calibration to the full swaption matrix**
- **Bermudan Monte Carlo**
- **Cross-currency Libor market modelling**
- **Calibration of FX volatilities in a cross-currency Libor market model**

15:30 – 15:45 Break

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Workshop Fees:

☐ Any One day: £999 + UK VAT

☐ Any Two days: £1798 + UK VAT
(Including £200 Discount)

☐ All Three days: £2697 + UK VAT
(Including £300 Discount)

30% discount Academic delegates

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