Inflation Derivatives: Modelling and Trading Challenges

London: 16th – 17th November 2009

This workshop provides TWO booking options

Register to ANY ONE day of the workshop

Register to BOTH days of the workshop and receive £200 discount
Topics:

Day 1: Models for Inflation and for Inflation-linked Financial Products

- Overview of main issues for inflation modelling
- Pricing kernel techniques for inflation
- Forward rates: relation to the HJM model
- Calibration of the term structure models for real and nominal interest rates
- Conditional variance representation for the pricing kernel
- Foreign exchange, equity indices, commodities, and inflation
- Price levels: towards hybrid modelling for inflation linked products
- Modelling inflation-linked derivatives
- Dynamical frameworks for inflation and inflation-linked products
- Monetary models for the real pricing kernel
- Modelling commodity prices and their relation to inflation
- Option valuation for commodity prices

Presenters:

Dorje C Brody: Reader in Mathematical Finance, Imperial College London
Lane P Hughston: Professor of Mathematical Finance, Imperial College London
Andrea Macrina: Lecturer in Financial Mathematics, King’s College London

Day 2: Inflation Derivatives

- Theory and Practice of Inflation Derivative vs. Inflation-Indexed Bond Relative Value Pricing
- Why relative value pricing?
- Practical trading perspectives
- Post-Credit Crunch Approaches to Trading Inflation Derivatives
- Counter party risk, collateral, haircuts, and other practical issues
- Fixing risks in a deflationary scenario
- A Practical Approach of Managing Inflation & Deflation Risks
- Building efficient risk management tools and extreme inflation events scenario
- Practical issues of managing an International Inflation products portfolios
- Inflation Risk and Asset and Liability Management
- Hedging the linear and non linear risk
- Understanding the convexity

Presenters:

Brice Benaben: Global Head of Inflation Trading, Deutsche Bank
Dariush Mirfendereski: Head of Inflation Linked Trading, UBS
Day 1: Models for Inflation and for Inflation-linked Financial Products: Dorje C Brody, Lane P Hughston & Andrea Macrina

1. Overview of main issues for inflation modelling

2. Pricing kernel techniques for inflation
   • Introduction: Why pricing kernels?
   • Defining the pricing kernel methodology
   • Dynamical models for risky assets
   • The dynamics of discount bonds
   • The volatility structure approach: pros and cons
   • Pricing formulae for discount-bond
   • Forward rates: relation to the HJM model
   • Asymptotic conditions on long-dated discount bonds

3. Calibration of the term structure models for real and nominal interest rates
   • Conditional variance representation for the pricing kernel
   • Parameterisation of interest rate dynamics
   • The role of chaos expansion in term-structure calibration
   • First chaos models
   • Second chaos models
   • Factorisable second chaos models

4. Foreign exchange, equity indices, commodities, and inflation
   • Interest rate and general “foreign exchange” systems
   • Quotient representation for exchange-rate matrix
   • Geometric analysis of price volatility
   • Foreign discount bonds
   • Price levels: towards hybrid modelling for inflation linked products
   • Geometric Brownian motion model

5. Modelling inflation-linked derivatives
   • Inflation derivatives and inflation-linked products
   • Dynamical frameworks for inflation and inflation-linked products
   • The FX analogy and its applications
   • Real and nominal interest rates
   • Dynamics of the consumer price index
   • Convexity adjustments in inflation-linked derivatives
   • Pricing inflation swaps with delayed payment using the multi-factor Hughston-Jarrow-Yildirim model
   • Monetary models for the real pricing kernel
   • Sidrauski-type utilities
   • Worked examples

6. Modelling commodity prices and their relation to inflation
   • Storable commodities
   • Modelling the convenience yield process
   • Orthogonal decomposition properties of OU processes
   • Valuation of commodity prices
   • Option valuation for commodity prices
   • Impact of inflation

Day schedule:
09:00 – 17:00
Break: 10:30 – 10:45
Lunch: 12:30 – 13:30
Break: 15:15 – 15:30
Day 2: Inflation Derivatives

09:00 – 10:30 / Theory and Practice of Inflation Derivative vs. Inflation-Indexed Bond Relative Value Pricing: Dariush Mirfendereski, UBS

• Why relative value pricing?
• Supply / demand dynamics
• ‘Arbitrage’ instruments
• Historical relative value analysis in the US, UK, and Euro-zone markets
• Practical trading perspectives

10:30 – 11:00 Break

11:00 – 12:30 / Post-Credit Crunch Approaches to Trading Inflation Derivatives: Dariush Mirfendereski, UBS

• Pricing for ‘Black Swan’ scenarios
• Counter party risk, collateral, haircuts, and other practical issues
• Mark-to-market issues when market illiquidity result in uncertainty in Closing prices
• Fixing risks in a deflationary scenario
• Inflation floors in structured notes and in IL bond asset swaps

12:30 – 13:30 Lunch


• Understanding the Inflation-linked products in G10 and EM countries
• Understanding their different risks (credit risk, the greeks in the nominal world and inflation world)
• Building efficient risk management tools and extreme inflation events scenarii (Example: Disconnection between the cash and derivatives market)
• Building its trading tools (forward CPI curve, seasonality, asset swap spread)
• Practical issues of managing an International Inflation products portfolios

15:00 – 15:15 Break

15:15 – 16:45 / Inflation Risk and Asset and Liability Management: Brice Benaben, Deutsche Bank

• Example of inflation risk within pension funds and insurance companies
• Hedging the linear and non linear risk
• Inflation swaps and Inflation options
• Understanding the convexity
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Workshop Fee:
☐ Any One day: £1099 + UK VAT
☐ Both days: £1998 + UK VAT (Including £200 Discount)
30% discount Academic delegates

To register please fax the completed booking form to:
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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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