



Latest Developments:  
Commodities & Commodity Derivatives  
by Professor Hélyette Geman

Central London 14th / 15th / 16th March 2007

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## Latest Developments: Commodities & Commodity Derivatives

Presenter: Hélyette Geman

Hélyette GEMAN is a Professor of Finance at Birkbeck, University of London and ESSEC Graduate Business School. She is a graduate of Ecole Normale Supérieure in mathematics, holds a Masters degree in theoretical physics and a PhD in mathematics from the University Pierre et Marie Curie and a PhD in Finance from the University Pantheon Sorbonne. Professor Geman has been a scientific advisor to a number of major energy companies for the last decade, covering the spectrum of oil, natural gas and electricity as well as agricultural commodities origination and trading. She was previously the head of Research and Development at Caisse des Dépôts.

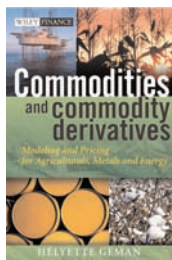
She has published more than 80 papers in major finance journals including the *Journal of Finance*, *Mathematical Finance*, *Journal of Financial Economics*, *Journal of Banking and Finance* and *Journal of Business*. She has also written a book entitled *Insurance and Weather Derivatives* and is a Member of Honor of the French Society of Actuaries. Professor Geman's research includes asset price modelling using jump-diffusions and Lévy processes, commodity forward curve modelling and exotic option pricing for which she won the first prize of the Merrill Lynch Awards. She was named in 2004 in the Hall of Fame of Energy Risk. Her latest book *Commodities and Commodity Derivatives* was published by Wiley Finance in January 2005.

### Summary:

In the context of exploding commodity markets, the goal of the course is to offer a thorough and detailed understanding of both spot and derivative transactions.

The discussion will focus in particular on such fundamental issues as volume risk, forward curve, theory of storage. Plain-vanilla and exotic options on commodities will be analysed, as well as a real options approach to energy physical assets

All delegates will receive a complimentary copy of the following Wiley 2005 publication:



**Commodities and Commodity Derivatives:  
Modelling and Pricing for Agriculturals,  
Metals and Energy**

**By Hélyette Geman**

## Day 1 – Fundamentals of Spot and Forwards / Futures Commodity Markets

- **Instruments and Commodity Exchanges: LME, NYMEX, CBOT**
- **Commodity Spot Markets: the importance of liquid indexes**
- **Shipping and Freight: Spot and Freight Forward Agreement Markets**
- **Futures contracts and Price discovery**
- **Theory of storage and convenience yield**
- **The forward curve as a key element when trading commodities**
- **Spot-forward relationship and shape of the forward curve**

### The Different Commodity Markets:

#### Metals:

- **industrial (zinc, copper..)**
- **precious**

#### Agriculturals:

- **corn & wheat**
- **sugar**
- **water as a new commodity**

#### Energy:

- **oil and oil refined products**
- **natural gas**
- **coal and its large reserves**
- **electricity**
- **emissions**

**Case Study: Calendar spreads in energy Futures and the 6 billion Amaranth loss:  
Was it a 5-standard deviation event?**

## Day 2 – Commodity Options

- **Dynamics of commodity spot prices**
- **Seasonality**
- **The current bull cycle: mean-reversion or persistent upward trend in energy commodity price processes?**
- **The unique features of electricity**
- **Modelling energy commodity prices**
- **Incorporating spikes in the trajectories**

**Case Study: Modelling the dynamics of the oil forward curve.  
Modeling the joint dynamics of the oil and natural gas forward curves**

- **Options on commodity futures contracts**
- **Plain-vanilla options on commodity spot prices**
- **Exchange options for agricultural and energy commodities**
- **The case of sugar and ethanol**
- **The case of sparkspread and darkspread options**

## Day 3 – Advanced Topics

- **Enhancing the Markowitz frontier by introducing a new asset class**
- **The major commodity indexes and their specific features**
- **Investing in commodity- related companies versus commodity indexes**
- **Relationship between inventory and spot price volatility: the examples of Agriculturals and crude oil**
- **Volatility Smile in commodities: the inverse leverage effect**
- **Correlations between oil and natural gas prices: the case of the UK and continental Europe**
- **Asian Options and floating-strike Asian options: the example of the oil market**
- **Calendar spread options and gas storage valuation**
- **Volumetric and swing options in energy commodity contracts**

**Case Study: How to choose the weights (volume, production, inventory) and the rebalancing rule (e.g., mean-reversion) when building a commodity index**

**\* Daily schedule: 09:00 – 17:00**

**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

**Delegate details:**

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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.

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