



Latest Developments:  
Commodities & Commodity Derivatives  
by Professor Hélyette Geman

New York City 9th, 10th & 11th May 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.

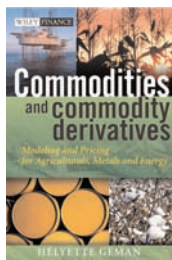
She has published more than 80 papers in major finance journals including the *Journal of Finance*, *Mathematical Finance*, *Journal of Financial Economics*, *Journal of Banking and Finance* and *Journal of Business*. She has also written a book entitled *Insurance and Weather Derivatives* and is a Member 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: the Rally of Zinc and Copper**
- **Gold and the London Bullion Market**
- **Uranium and Uranium Futures**

#### Agriculturals:

- **Wheat and Soybeans**
- **Sugar, Corn and Ethanol**
- **Water and the WOWAX Index**

#### Energy:

- **The Natural Gas Markets: the US and UK examples**
- **Gas structured products**

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

## Day 2 – Energy and Commodity Options

- **Coal and its increasing share**
- **Crude Oil and Oil Products**
- **Oil forward curve and its hump- shape: Theory of storage Revisited**
- **Ethanol**
- **Commodity Spot prices modelling: Structural versus reduced- form models**
- **Mean -reversion versus Random walk in Energy markets**
- **The unique features of electricity: power stack function and spikes in trajectories**
- **Options on Commodity Spot and Futures Prices**
- **The volatility smile/ skew**
- **Exchange and Spread options for agriculturals and energy**
- **Darksreads and sparkspread Options**

**Case Study: Modelling the dynamics of the oil Forward curve and the joint dynamics of Oil and  
Natural Gas forward curves**

## 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: Valuation of a Gas Storage Facility and an Aluminum Smelter**

**\* Daily schedule: 09:00 – 17:00**



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**Workshop Fees:**

- Any One day: \$1399.00
- Any Two days: \$2598  
(Including \$200 Discount)
- Any Three days: \$3897  
(Including \$300 Discount)
- 30% discount Academic delegates

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