

# Research in Options 2010

## SPECIAL SESSION ON COMMODITIES AND ENERGY

Panel Organizer: Fernando Aiube (Petrobras and PUC-RJ)

### **2:30PM**

Title: Simulation and Prediction of Oil and Refined Products Prices in a ALM Project

Presenter: Cristiano Fernandes (PUC-RJ)

In a stochastic ALM for the oil industry it is necessary to simulate oil and refined products prices, since these are major risk factors that affect decisions along time. In this paper we develop a state space model for the prediction of oil and refined products spot prices. Our model extends the well known Schwartz & Smith two factor univariate model in two directions: an extra factor is introduced to make the long run trend less erratic in time, and a parsimonious multivariate version of the model is derived by considering only three common factors. Finally, through model calibration, simulation for long term prices (30 to 50 years) are obtained.

### **3:00PM**

Title: Statistical Arbitrage in the Futures Term Structure

Presenter: Steve Lillywhite (IMPA)

Abstract: We discuss investing in commodities from the point of view of a small investor. In commodities, essentially every investment is a strategy, and it can be quite deleterious to ignore the term structure. We explore whether statistical arbitrage can help augment returns in the context of trading a single commodity using simple multi-factor models. We give concrete examples for oil and natural gas.

### **3:30PM**

Evaluation of Optional Cancellation Contracts

Presenter: Max Souza, U. Federal Fluminense, Brazil

We consider the problem of evaluating the cost of the optionality to cancel a future delivery of a commodity when the seller has a number of markets to choose from. The technique has potential applications to contracts of Liquefied Natural Gas loads and requires solving certain diffusion problems in a multi-variable context.

### **4:00PM**

Questions and discussion (Fernando Aiube - Facilitator)