LSE Mathematics

Financial Mathematics Reading Group 2012

Seminars are listed in reverse chronological order, most recent first.

Friday 7 December – Pucheng Shi (LSE)
Insider Trading

In this presentation, I present the solution to the equilibrium risk-averse insider trading model. I consider two possible structures of the insider's private information: static and dynamic one. Differing from the previous literature, I assume that a) the insider is risk-averse, b) that the signal received by the insider is not necessarily Gaussian, and c) that the price set by the market maker is a function of weighted signal which is not necessarily Gaussian either.

Friday 23 November – Mathieu Dubois (LSE)
Estimation Risk and Risk-Aversion in Vast Portfolio Selection

We consider a market consisting of one risk-free asset and a large number of risky stocks following geometric Brownian motions. We evaluate the performance of optimal portfolios when the drift has to be estimated. For CRRA utility functions, we show that the loss in expected utility is large when using simple plug-in strategies. We also show that the loss due to estimation depends crucially on the coefficient of RRA. To reduce the effect of estimation, we constrain the weights of the risky stocks with a L1-norm. We show that the sparsity of the constrained strategy depends on the coefficient of RRA. This implies the existence of a unique optimal bound on the L1-norm, for each risk-adverse investor.

Friday 16 November - Kamil Kladivko (Visiting PhD student, LSE / Prague School of Economics)
Valuation of CEZ Employee Stock Options: A Case Study

The largest Czech electricity producer, CEZ, has granted employee stock options (ESOs) to its top executives since 2001. The controversial CEZ ESO program was redesigned twice by introducing, for example, a payoff cap or sequential granting. I build on the popular Hull and White (2004) model to assess costs of CEZ ESO grants to shareholders. First, I show that in an environment of relatively high dividends and low risk-free rates, the exogenously specified exercise boundary, may be suboptimal, an ESO is exercised too late, and thus it is underpriced. I adjust this inconsistency and relate the model to the American capped option model. Further, I extend the model to value CEZ ESOs and analyze how changes in CEZ ESO program effect its granting costs. Finally, I compare my CEZ ESO valuation with the valuation used by CEZ.

Friday 2 November - Yavor Stoev (LSE)
On the problems of statistical sequential analysis for some Gaussian processes

We study the sequential testing and quickest disorder detection problems with linear and exponential delay penalty costs for certain observable Gaussian processes. We derive explicit estimates for the Bayesian risk functions and optimal stopping boundaries for the weighted likelihood ratios and study the asymptotic behavior of the boundaries under large time values.

Thursday 1 March - Mathieu Dubois (LSE)
The effect of estimation on optimal portfolios with a large number of securities
Abstract unavailable

Friday 10 February - Neofytos Rodosthenous (LSE)
Perpetual American options in diffusion-type models with running maxima and drawdowns
Abstract unavailable

Thursday 9 February - Daniel Hernández (CIMAT, Mexico)
Dynamic risk measures for exponential Levy market models

The study of robust utility maximization problems for Levy processes is closely related with risk measures. In this talk we shall present recent results on the form of the penalization function associated with risk measures defined in a proper set of absolutely continuous measures, for a Levy market model.

Thursday 2 February - Yavor Stoev (LSE)
Two-dimensional disorder problems for natural exponential families of Lévy processes
Abstract unavailable