Abstracts and Speaker Biographies

Hans Föllmer has been Professor of Statistics in the Economics Department of the University of Bonn and Professor of Mathematics at the Universities of Frankfurt and Bonn, at ETH Zurich, and at Humboldt University in Berlin. He is at present Professor Emeritus at Humboldt University and Visiting Professor at the National University of Singapore. His research interests are in Stochastic Analysis and in Mathematical Finance.

On the dynamics of convex risk measures
We discuss convex risk measures and their dynamics. The focus will be on different aspects of time consistency and on asymptotic properties with respect to increasing information, in particular on criteria for asymptotic safety and asymptotic precision. The talk will be based on joint work with Irina Penner.

Adrian Gfeller is a PhD student in statistics at the London School of Economics and Political Science under the supervision of Professor Ragnar Norberg. He received an MSc in Physics from the University of Bern in 2003. His current research focuses on sensitivity analysis of financial contracts, notably in Lévy process driven models when closed form price functions do not exist and on sensitivities with respect to changes in model classes.

Dynamic Greeks and model risk
The sensitivity of a price function to changes in its arguments is given by its derivatives, in finance known as greeks. Option prices in the Black Scholes model can often be expressed as solutions to partial differential equations (PDE). In general exponential Lévy models an additional non-local term has to be added and the prices and greeks can be expressed as solutions of partial integro-differential equations (PIDE). The PDE or PIDE for the greeks are obtained by differentiating the equation and side conditions of the price function. We derive systems of equations both for vanilla and for exotic options in a financial market where the underlying stock prices are driven by an arbitrary Lévy processes. In particular we are interested in options whose price can be expressed as the solution of an equation that depends only on time and one further state variable. Such systems of PIDE can be solved numerically efficiently via a finite difference approach. Furthermore, we investigate sensitivities of option prices with respect to changes in the nature of the underlying stock price process.

Stewart Hodges has been professor of Financial Management at the University of Warwick, England since 1984. His qualifications include a PhD in Economics, an MSc in Numerical Analysis and Computing and a BSc in Mathematics. He is also a Fellow of the Institute of Mathematics and its Applications. He has taught at the London Business School, at MIT and at UC Berkeley. He founded the Financial Options Research Centre at Warwick in 1989 and established their MSc in Financial Mathematics in 1998. He has extensive publications in derivatives and investments and he makes frequent presentations at professional and academic conferences. He is an associate editor of the Journal of Derivatives and is a director of two F&C Asset Management hedge funds.

Good-deal bounds
Good-deal bounds on derivative values in incomplete markets can provide substantially tighter bounds than those based on no-arbitrage, and without making the strong assumptions required to obtain a unique value. This includes the situation where transactions costs are associated with hedging. Alternative versions are considered: versions based on utility measures can also be used to derive coherent risk measures.

Mogens Steffensen in an associate professor at the Institute for Mathematical Sciences, University of Copenhagen. During his PhD studies which ended in 2001 and thereafter he has undertaken gradually longer visits to Karlsruhe, Stony Brook – New York, Kaiserslautern, and LSE. Currently working with market-valuation and various applications of stochastic control in life insurance and pension, in addition to recent research within credit risk valuation and management. He is also Editor of the Scandinavian Actuarial Journal.

Decisions and design in life insurance and pension
Personal financial decision making plays an important role in modern finance. Decision problems about consumption and insurance protection are here modelled in a continuous-time Markovian framework. The decision problem is studied in two examples where the individual takes optimal positions against the risk of dying and the risk of losing income as consequence of disability, respectively. The studies lead to a discussion about how life insurance payment streams are optimally designed. The talk ends surprisingly with a twist of credit risk management.

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Angelos Dassios is a reader in the statistics department at the London School of Economics and Political Science. He did his PhD at Imperial College and briefly worked there with Professor Mark Davis until he came to LSE in 1989. He has been responsible for running the Actuarial Science degree course. His interests are applications of stochastic processes in Insurance and Finance. He has been working on Cox processes in insurance and also on the pricing of path dependent options in Mathematical Finance. One fascinating topic for which he has got some results is Quantile Options. A review of these results will be the subject of his talk.

Quantiles of Levy processes and applications in finance
We will present a survey of results on the quantiles of a Brownian motion with drift as well as a general Levy process. The motivation is to calculate the price of related financial options. At the end of the talk some new results on variability orderings between various quantities associated with path dependent and European options are presented. This survey is not exhaustive, but intends to provide a flavour of research carried out in the area.

Monique Jeanblanc is Professor in the Mathematics Department at Evry University, France. She has published, with various co-authors, a series of papers on credit risk modeling, based on hazard process approach. She is co-author, with R-A Dana of 'Financial Markets in Continuous Time, Valuation and Equilibrium', published by Springer and of 'Mathematical Models for Financial Markets' with M. Yor and M. Chesney (forthcoming in Springer Finance series).

Default risk models: intensity versus hazard process
In this paper, we show how the density process, ie the density of the conditional law of default given the information, allows to give closed form formulae for the evaluation of defaultable claims. We extend this tool to the case of multiple defaults, introducing a dynamic copula. The talk will be based on joint work with Nicole El Karoui and Ying Jiao.