Financial Engineering

Summer School

Barcelona 2013, June 18 - 21

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Afi Analistas Financieros Internacionales

Borsa de Barcelona

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Useful information

To register, please visit www.crm.cat/FESS2013

Registration fee: 750 € (after April 14, 2013)

Early-bird fee: 600 € (before April 14, 2013)

Registration and payment deadline: by May 31, 2013

For special academic rates and student scholarships, please apply at nportet@crm.cat by March 15, 2013.

Analistas Financieros Internacionales and the Centre de Recerca Matemàtica (CRM) present the sixth Financial Engineering Summer School. The school aims to bring together practitioners and academics working in the area of quantitative finance to learn about issues of current interest from some of the world's foremost experts. The programme will consist of four short courses; each course is three 1.5 hour sessions

Participants

Prof. Damiano Brigo is Chair and co-Head of Mathematical Finance at Imperial College London, consistently ranked among the top 10 world universities, and Global Head of the industry Capco Research Institute. Formerly Gilbart Professor at King's, Managing Director of Fitch and senior quant in investment banking, Damiano published 70+ works and field reference books in Mathematical Finance, Probability and Statistics. Damiano's H-index is 24 on Scholar. Damiano's interests include pricing, risk, credit, funding, and stochastic models for commodities and inflation. Damiano holds a PhD in differential geometric stochastic filtering.

Consistent Modling of Counterparty Credit risk, Collateral and Funding Costs
According to Basel III, two thirds of the losses during the financial crisis were due to Counterparty Risk mark to market (CVA) rather than to actual defaults. A clear understanding of the fundamental paradigms underlying proper counterparty risk pricing and of the related subtleties and intricacies, including proper modeling and discussion of debit valuation adjustment, wrong way risk, Gap Risk, collateral margining and funding costs, is fundamental in today's financial environment. While most current research is patching together inconsistent adjustments to account for risks that are not really separate, in this work we develop a consistent arbitrage-free framework for dealing with such effects in a coordinated way.

Jim Gatheral is professor of mathematics at Baruch College, CUNY, teaching mostly courses in the Masters of Financial Engineering (MFE) program. Jim was also a Managing Director at Bank of America Merrill Lynch, and adjunt professor at the Courant Institute of the Mathematical Sciences, New York. Prior to 2005 he headed the Equity Quantitative Analytics group at Merrill Lynch. He has been involved at one time or other in all of the major derivative product areas as trader, risk manager and quantitative analyst. Jim has a BSc in mathematics and natural philosophy from Glasgow University and a PhD in theoretical physics from Cambridge University. His currently research focus is on volatility modeling and modeling equity market microstructure for algorithmic trading. His best-selling book, The Volatility Surface: A Practitioner's Guide (Wiley 2006) is one of the standard references on the subject of volatility modeling.

The Volatility Surface: Statics and Dynamics
In these lectures, we will examine the static and dynamical properties of empirically observed implied volatility surfaces, comparing and contrasting these with the properties of models typically adopted for pricing and hedging. Topics covered will include self-consistent computation of implied volatilities from listed equity option prices, the SVI ("Stochastic Volatility Inspired") parametrization of the volatility surface, and fitting the volatility surface without introducing butterfly or calendar spread arbitrage. Throughout, we will perform computations in R, walking through the R-code in detail and executing it in real time.

Richard Martin is a Founding Partner at Longwood Credit Partners in London. His interests include credit trading and risk management, and systematic trading in different asset classes. He was previously a senior portfolio manager at AHL in London, and before that Head of Quantitative Credit Strategy at Credit Suisse, and Head of Fixed Income Capital Management at BNP Paribas. He began his career with GEC-Marconi in London working as a research scientist principally in signal processing, in which he holds a PhD from London University. He was awarded Quant of the Uear by RISK Magazine in 2002 and has been RISK's most published author for the last decade.

Hedge Fund Trading Strategies
I will be talking about some of the methods by which money is made in hedge funds, with an emphasis on systematic trading. Much of my talk will be of interest to practitioners from all asset classes, as I will be covering in detail momentum trading, risk management and the influence of transaction costs. I will also present some strategies that are applicable to specific asset classes such as relative value trading in fixed income and in credit.

Alexander McNeil is Maxwell Professor of Mathematics in the Department of Actuarial Mathematics and Statistics at Heriot-Watt University. He is also Director of the Scottish Financial Risk Academy (SFRA), which organizes knowledge exchange activities between the university and financial sectors in Scotland including Risk Colloquia, training events and postgraduate placements in industry. Formely Assistant Professor in the Department of Mathematics at ETH Zürich he has a BSc in mathematics from Imperial College, London and a PhD in mathematical statistics from Cambridge University. His interests lie in the development of mathematical and statistical methodology for integrated financial risk management and include extreme value theory (EVT), risk theory, financial time series analysis and the modeling of correlated risks. He has published papers in leading statistics, econometrics, finance and insurance mathematics journals and is a regular speaker at international risk management conferences. He is joint author, together with Rüdiger Frey and Paul Embrechts, of the book "Quantitative Risk Management: Concepts, Techniques and Tools", published by Princeton University Press in 2005.

Portfolio Credit Risk Models and Basel III
We will give an overview of portfolio credit risk modeling with an emphasis on three themes. First, we will discuss the changing regulatory environment and its impact on portfolio credit risk modeling. Second, we will review approaches to capturing systematic risk and credit concentration. Finally we will illustrate how certain important portfolio models can be implemented in R; the examples will include both calibration of model parameters from data and computation of the portfolio loss distribution and measures of tail risk.