

Predictive Analytics & Filtering for Finance - 1 day Workshop

Objectives: Scope and Purpose

The application of regime-switching models and filtering techniques gain in importance in financial modelling. Financial variables, e.g. asset price dynamics, interest rates or asset volatilities, can be modelled within a regime-switching framework to allow for switching market conditions. These conditions are typically unobservable, therefore filtering techniques are applied for a predictive analysis of financial variables. The aim of this workshop is to introduce regime-switching framework and filtering techniques such as Kalman Filters and the EM-algorithm. In addition Particle Filters are briefly presented. The use of these methods in the calibration of dynamic state space models as well as in the prediction of unobservable variables is discussed. States of the market are filtered and utilized to estimate parameters and calibrate financial models to market data. The predictions of future volatility and asset price distributions are explained with examples. Switching ARCH/GARCH models for volatility modelling are introduced.



Learning Outcomes:

After successful completion of the workshop, the participants will

- be able to:
 - apply standard filtering techniques to financial data sets,
 - apply concepts from time series modelling with regime shifts
 - utilize regime-switching models for a predictive analysis of asset prices and volatilities.
- have acquired a good knowledge of regime-switching models and their applications and benefits in changing market situations.

Further Information

Workshop Duration: 1 day

Workshop Format:

The workshop is well balanced between Theory and Practical Sessions.

Practical sessions:

In the practical sessions, the statistical software R is briefly introduced. It is utilized to demonstrate the filtering techniques and models with regime shifts in some examples. Practical application of basic filter techniques is demonstrated.

Target Audience:

The workshop is designed to provide insight for a wide range of individuals such as financial quantitative analysts, risk analysts, consultants, and academics.

Organised by:



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Registration Fee: £575 + VAT

Delegates are also welcome to participate online at a 50% discounted rate to the prices listed above. This workshop will be streamed live online to delegates all around the world.

Presenters:



Dr Christina Erlwein-Sayer is a quantitative analyst and senior researcher working on the topic of financial analytics in general and models and tools for portfolio construction and credit risk assessment in particular. Dr Erlwein-Sayer completed her PhD in Mathematics at Brunel University, London in 2008. She then worked as a researcher and consultant in the Financial Mathematics Department at Fraunhofer ITWM, Kaiserslautern, Germany before she started her role at OptiRisk in 2015 under a joint project between OptiRisk Systems and its partner Fraunhofer ITWM. Prior to the current assignment Dr Erlwein-Sayer had presented workshops on behalf of OptiRisk at IIM Calcutta in Kolkata and Mumbai. She was also the lead member of the training partnership between OptiRisk Systems and Fraunhofer ITWM and presented at many of the workshops; notable among these was the training delivered to the World Bank in Washington. Dr Erlwein-Sayer is fluent in German (her native language) and in English.



Dr Zryan Sadik has a bachelor's degree in Mathematics from Salahaddin University – Erbil in the Kurdistan region of Iraq. After working as an IT technician; in 2011-12 he pursued an MSc Degree in Computational Mathematics with Modelling at Brunel University. Between 2015 and 2018 he worked with OptiRisk as a part time intern and OptiRisk sponsored his PhD research at Brunel University. Dr Sadik completed his PhD in Applied Mathematics with a thesis on the 'Asset Price and Volatility Forecasting Using News Sentiment' at Brunel University. In 2018 he joined OptiRisk fulltime. His research focuses on news sentiment analysis, macroeconomic sentiment analysis, stochastic volatility models, filtering in linear and nonlinear time series applying Kalman filters, volatility forecasting as well as optimization and risk assessment. Dr Sadik is fluent in Kurdish (his native language), as well as in English and Arabic.

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