CG080 Room MAL 415 CONTRIBUTIONS IN VALUE-AT-RISK Chair: Alexandra Dias

C1618: **Multivariate extensions of the ACD peaks-over-threshold method for forecasting value at risk**
Presenter: **Katarzyna Bien-Barkowska**, Warsaw School of Economics, Poland

A new dynamic peaks-over-threshold (POT) model is proposed for extreme events in financial markets. The random times when the sizes of negative financial returns exceed given threshold are modeled in line within the marked point process theory, where the marks correspond to the magnitudes of extreme losses. We develop a multivariate version of the autoregressive conditional duration (ACD) model, where the conditional intensity of extreme negative returns has not only the self-exciting structure, but also the cross-exciting structure, since it can instantaneously react to the time-varying covariates such as large positive returns or volatility peaks. In our approach the observed times of all these intervening events can accelerate or decelerate the awaited occurrence of extreme losses. We apply the extended multivariate version of the ACD model to six major stock indexes and show that it outperforms the standard ACD-based POT methods for forecasting value-at-risk and expected shortfall.

C1629: **Measurement of common risk factors: A panel quantile regression model for returns**
Presenter: **Frantisek Cech**, UTIA AV CR vvi, Czech Republic
Co-authors: Jozef Barunik

The aim is to investigate how to measure common market risk factors using newly proposed Panel Quantile Regression Model for Returns. By exploring the fact that volatility crosses all quantiles of the return distribution and using penalized fixed effects estimator we are able to control for otherwise unobserved heterogeneity among financial assets. Direct benefits of the proposed approach are revealed in the portfolio Value–at–Risk forecasting application, where our modeling strategy performs significantly better than several benchmark models according to both statistical and economic comparison. In particular Panel Quantile Regression Model for Returns consistently outperforms all the competitors in the 5% and 10% quantiles. Sound statistical performance translates directly into economic gains which is demonstrated in the Global Minimum Value–at–Risk Portfolio and Markowitz-like comparison. Overall results of our research are important for correct identification of the sources of systemic risk, and are particularly attractive for high dimensional applications.

C1598: **New indicators in systemic risk analytics: Theory and applications**
Presenter: **Mario Maggi**, University of Pavia, Italy
Co-authors: Silvia Figini, Pierpaolo Uberti

A novel class of indicators to forecast financial crises is presented. The proposal can also be viewed as a supplementary measure in financial systemic risk analysis. The family of indicators introduced is applied to different stock market indexes to assess the predictive ability to detect tensions in the financial market. Moreover, a comparison with alternative measures of systemic risk confirms the predictive ability and shows that our indicator's predicting power outperforms other measures proposed in the literature.