TEDAS - Tail Event Driven Asset Allocation

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The talk is based on the joint work with Sergey Nasekin, David Lee and Phoon Kok Fai

Session: 22. Multivariate stochastic modelling in finance, insurance and risk management

Portfolio selection and risk management is one of very actively studied topics in quantitative finance and applied statistics. It is closely related to the dependency structure of portfolio assets or risk factors. The correlation structure across assets and opposite tail movements is a main component of the asset allocation problem, since it determines the level of risk in a position. Correlation alone is not informative on the distributional details of the asset components. By introducing TEDAS -Tail Event Driven Asset allocation, one studies the dependence between assets at different quantiles. In a hedging exercise, TEDAS uses adaptive Lasso based quantile regression in order to determine an active set of negative non-zero coefficients. Based on these active risk factors, an adjustment for intertemporal correlation is made. Finally, the asset allocation weights are determined via a Cornish-Fisher Value-at-Risk optimization. TEDAS is studied in simulation and a practical example using hedge fund indices.