Seminar

FORECASTING LARGE REALIZED COVARIANCE MATRICES: THE BENEFITS OF FACTOR MODELS AND SHRINKAGE

Marcelo Cunha Medeiros

Pontifical Catholic University of rio de Janeiro

May 23,2018 | 2.00 p.m. | Aula Cucconi Campus S. Caterina

Abstract : www.stat.unipd.it/fare-ricerca/seminari

www.stat.unipd.it | www.facebook.com/scienzestatisticheunipd| segrorg@stat.unipd.it

FORECASTING LARGE REALIZED COVARIANCES MATRICES: THE BENEFITS OF FACTOR MODELS AND SHRINKAGE*

Marcelo Cunha Medeiros

Associate Professor | Department of Economics | Pontifical Catholic University of Rio de Janeiro (Brazil)

We propose a model to forecast very large realized covariance matrices of returns, applying it to the constituents of the S&P 500 on a daily basis. To deal with the curse of dimensionality, we decompose the return covariance matrix using standard firm-level factors (e.g. size, value, profitability) and use sectoral restrictions in the residual covariance matrix. This restricted model is then estimated using Vector Heterogeneous Autoregressive (VHAR) models estimated with the Least Absolute Shrinkage and Selection Operator (LASSO). Our methodology improves forecasting precision relative to standard benchmarks and leads to better estimates of the minimum variance portfolios

Joint work with Diego Brito and Ruy Ribeiro