IAP PROJECT StUDyS

Université de Liège
– METHODOLOGICAL STATISTICS –

STATISTICS SEMINAR

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A new methodological approach for the selection of the error distribution in finance

Since 2008 and its financial crisis, an increasing attention has been devoted to the selection of an adequate error distribution in risk models, in particular for Value-at-Risk (VaR) predictions. In this article, we propose a robust methodology to select the most appropriate error distribution candidate, in a classical multiplicative heteroskedastic model. In a first step, unlike to the traditional approach, we don't use any GARCH-type estimation of the conditional variance. Instead, we propose to use a recently developed nonparametric procedure (Mercurio and Spokoiny, 2004): the Local Adaptive Volatility Estimation (LAVE). The motivation for using this method is to avoid a possible model misspecification for the conditional variance. In a second step, we suggest a set of estimation and model selection procedures (Berk-Jones (1978) tests, kernel density-based selection, Diks et al. (2011) weighting method) based on the so-obtained residuals. These methods enable to assess the global fit of a given distribution as well as to focus on its behaviour in the tails. Finally, we illustrate our methodology on three time series (UBS stock returns, BOVESPA returns and EUR/USD exchange rates).

Friday, November 22, 2013 - 14h00 - Séminaire 12 (Building B31)
Boulevard du Rectorat 7, 4000 Liege (Parking P15-16)