



Próximo Seminario DMAT

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Sala de Seminarios, DEPARTAMENTO DE MATEMÁTICA

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Volatility Estimation when Observations Are Missing

In empirical practice observations are often missing. This invalidates standard estimation methods of Generalised Autoregressive Conditional Heteroscedasticity (GARCH) models because of a repeated invertibility problem induced at each missing location. As a solution we propose a log-ARCH model – i.e. no GARCH-terms – with stochastic conditioning covariates (e.g. volatility proxies) and an associated estimator that sidesteps the repeated invertibility problem. Apart from omitted GARCH terms, however, the model is very general and flexible: It is multivariate, asymmetric, allows for (unknown) Dynamic Conditional Correlations (DCCs), and non-negativity constraints are not needed on the parameters nor on the covariates. We derive a two-step estimator of the model, and prove its Consistency and Asymptotic Normality (CAN) when the missing data process is stationary, unknown and not necessarily independent of the log-ARCH process itself. Our results are illustrated in a simulation study, and in an empirical application.