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Abstract

Title: Statistical inference for nonparametric GARCH models

We consider extensions of the famous GARCH(1,1) model where the recursive equation for the volatilities is not specified by a parametric link but by a smooth autoregression function. Our goal is to estimate this function under nonparametric constraints when the volatilities are observed with multiplicative innovation errors. We construct an estimation procedure whose risk attains nearly the usual convergence rates for bivariate nonparametric regression estimation. Furthermore, those rates are shown to be nearly optimal in the minimax sense. Numerical simulations are provided for a parametric submodel. This talk is based on a joint work with Jens-Peter Kreiß (TU Braunschweig).

Reference: Meister, A. & Kreiß, J.-P. (2016). Statistical inference for nonparametric GARCH models. Stoch. Proc. Appl., to appear.