Department of Statistics

MASTER'S THESIS PRESENTATION

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Adaptive Varying-Coefficient GARCH Models

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ABSTRACT

This paper offers an adaptive method for estimation and forecasting the volatility of financial time series when the stationarity assumption is violated. Parametric models such as ARCH and GARCH, whose coefficients may vary with time, are in our consideration. It includes global parametric and change-point models as special cases. Our main goal is to select the largest interval of homogeneity with a given right-end point, which can be achieved by local change-point analysis. We construct locally adaptive volatility test statistics that can perform this task and determine the critical values by methods as parametric bootstrap. Besides, we consider two alternative nonparametric methods to compare the results. Additionally, the proposed method is applied to stock-index series, which we show it outperforms the global parametric GARCH model.

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