Monitoring the intraday volatility pattern

Robertas Gabrys

Joint work with Siegfried Hörmann and Piotr Kokoszka

A functional time series consists of curves, typically one curve per day. The most important parameter of such a series is the mean curve. We propose two methods of detecting a change in the mean function of a functional time series. The change is detected on line, as new functional observations arrive. The general methodology is motivated by and applied to the detection of a change in the average intraday volatility pattern. The methodology is asymptotically justified by applying a new notion of weak dependence for functional time series. It is calibrated and validated by simulations based on real intraday volatility curves.

Keywords: Change point detection; Intraday volatility; Functional data analysis; Sequential analysis.

Abbreviated Title: Monitoring intraday volatility.