Estimation of stable CARMA models with an application to electricity spot prices

Abstract:
We discuss theoretical properties and estimation of continuous-time ARMA (CARMA) processes, which are driven by a stable Lévy process. Such processes are very useful in a continuous-time linear stationary set-up: they have a similar structure as the widely used ARMA models, and provide all advantages of a continuous-time model. As an application we consider data from a deregulated electricity market. Here we fit a CARMA(2,1) model to spot prices from the Singapore New Electricity Market. The quality of the estimates is assessed in a simulation study. The continuous-time modelling aims at a new pricing methodology for energy derivatives.

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