Realized Box-Cox Stochastic Volatility Models

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Abstract

We extend the realized stochastic volatility (RSV) model proposed by Takahashi et al. (2009) to the realized Box-Cox stochastic volatility (RBCSV) model by applying the Box-Cox transformation to the volatility equation. Our empirical applications use daily returns and intraday returns of the TOPIX. To analyze the RBCSV models, we employ Chib's marginal likelihood method. The logarithmic Bayes factors give very strong evidence for the heavy-tailed asymmetric RBCSV model against the heavy-tailed asymmetric RSV model.

Keywords: Realized stochastic volatility, Box-Cox transformation, Bayes factor.

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