Realized Stochastic Volatility with Leverage and Long Memory

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Abstract

The daily return and the realized volatility are simultaneously modeled in the stochastic volatility model with leverage and long memory. In addition to the stochastic volatility model with leverage for the daily returns, ARFIMA process is jointly considered for the realized volatilities. Using a state space representation of the model, we estimate parameters by Markov chain Monte Carlo methods. Model comparison with realized stochastic volatility models with short memory is conducted by computing the marginal likelihood.

Keywords: ARFIMA Bayesian inference; Long memory; Realized volatility; Stochastic volatility.

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