Dynamic equicorrelation, realized stochastic volatility and cross leverage

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Abstract

Multivariate daily returns and realized measures are simultaneously modeled in multivariate realized stochastic volatility model with dynamic equicorrelation and cross leverage effect. Using a state space representation, we propose a Bayesian estimation algorithm implemented by Markov chain Monte Carlo (MCMC) method. With additional information to estimate unobserved variables by using the realized measures, we can obtain an estimation result efficiently by the simple algorithm that generates one latent variable at a time given other latent variables. Numerical examples are provided and the proposed model is applied to the multivariate daily stock price data.

Key words: Asymmetry, cross leverage effect, dynamic equicorrelation, Markov chain Monte Carlo, multivariate realized stochastic volatility, realized dynamic equicorrelation, realized volatility.