The role of high-frequency data in volatility forecasting: evidence from the China stock market

ABSTRACT

This research investigates the role of high-frequency data in volatility forecasting of the China stock market by particularly feeding different frequency return series directly into a large number of GARCH versions. The contributions of this research are as follows. 1) We provide clear evidence to support that the superiority of traditional time series models in volatility forecasting remains by taking advantage of high-frequency data. 2) We incorporate different distribution assumptions in GARCH models to capture the stylized facts of high-frequency data. The result shows that: 1) data frequency in GARCH application substantially influence the accuracy of volatility forecasting, as the higher the frequency is of the return series, the better are the forecasts provided; 2) non-normal distributions such as skewed student-t and generalized error distribution are more capable at reproducing the stylized facts of both intraday and daily return series than normal distribution; and 3) GARCH estimated by 5-min returns not only outperforms other GARCH alternatives, but also considerably beats RV-based models such as HAR and ARFIMA at volatility forecasting.

Keyword: Volatility forecasting; High-frequency data; GARCH; Distribution; China