MULTISTEP FORECASTING FOR HIGHLY VOLATILE DATA USING NEW ALGORITHM OF BOX-JENKINS AND GARCH

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Abstract
The study of the multistep ahead forecast is significant for practical application purposes using the proposed statistical model. This study is proposing a new algorithm of Box-Jenkins and GARCH (or BJ-G) in evaluating the multistep forecasting performance of the BJ-G model for highly volatile time series data. The promising results from one-step ahead out-of-sample forecast series using the BJ-G model has motivated the extension to multiple step ahead forecast. In order to achieve the objective, the algorithm of multistep ahead forecast for BJ-G model is proposed using R language. In evaluating the performance of the multistep ahead forecast, the proposed algorithm is employed to daily world gold price series of 5-year data. Based on the empirical results, the proposed algorithm of multistep ahead forecast to the algorithm of BJ-G provides a promising procedure to assess the performance of the BJ-G model in forecasting a highly volatile time series data. The algorithm adds the value of BJ-G model since it allows the model to explain more about the characteristics of the volatile series up to n-step ahead forecast.

Keyword – Box-Jenkins; GARCH; highly volatile data; multistep forecast; gold price