EVALUATION OF LONG MEMORY AND ASYMMETRIC VALUE-AT-RISK FOR LONG AND SHORT TRADING POSITIONS: AN EMPIRICAL STUDY OF MALAYSIAN STOCK MARKET

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ABSTRACT

In this paper, we analyze the asymmetric long memory volatility of Bursa Malaysia (formerly known as Kuala Lumpur Stock Exchange, KLSE) using daily data. The long memory behaviour of the stock returns is examines by variance-time plot, rescaled-range (R/S) analysis and Whittle's estimator. With the evidence of long memory behaviour, the volatility is estimates by using the component Generalized AutoRegressive Conditional Heteroscedasticity (Component-GARCH) and fractionally integrated GARCH modelling (FiGARCH). A battery of statistical tests has been employed to diagnose the model specifications. The evaluations of the one-step-ahead volatility forecasting are base on the realized volatility with the scaled sum of the 30-minute returns without using the returns of non-trading hours. It is found that the asymmetric and long memory models exhibited better predictability. Finally, the Value at risk (VaR) for long and short trading positions is determined base on the estimated benchmark GARCH models.

Keywords: Long memory process; ARCH, Value-at-Risk, Financial time series, Econometrics.