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Modeling and Forecasting Volatility of the Malaysian and the Singaporean Stock Indices using Asymmetric GARCH Models and Non-normal Densities

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ABSTRACT

This paper examines and estimates the three GARCH(1,1) models (GARCH, EGARCH and GJR-GARCH) using daily price data. Two Asian stock indices KLCI and STI were studied using daily data over a 14-years period. The competing models include GARCH, EGARCH and GJR-GARCH using the Gaussian normal, Student-t and Generalized Error Distributions. The estimates showed that the forecasting performance of asymmetric GARCH Models (GJR-GARCH and EGARCH), especially when fat-tailed densities are taken into account in the conditional volatility, are better than symmetric GARCH. Moreover, it was found that the AR(1)-GJR model provides the best out-of-sample forecast for the Malaysian stock market, while AR(1)-EGARCH provides a better estimation for the Singaporean stock market.

Keywords: ARCH-Models, Asymmetry, Stock market indices and volatility modeling
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