

A Comparative Analysis of E-GARCH and MIDAS Models for Stock Price Prediction in Sri Lanka

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ABSTRACT

Stock market price fluctuations, driven by internal and external uncertainties, can undermine investor confidence and complicate investment decision-making. This study compares the forecasting accuracy of the Exponential Generalised Autoregressive Conditional Heteroskedasticity (E-GARCH) and Mixed Data Sampling (MIDAS) models in predicting the All Share Price Index (ASPI) in Sri Lanka. The analysis was conducted using EViews and Python software. Monthly ASPI data and quarterly Standing Lending Facility Rate (SLFR) data, covering January 2018 to December 2024, were obtained from the Colombo Stock Exchange and the Central Bank of Sri Lanka. Stationarity was assessed using the ADF and KPSS tests, and all variables were found to be integrated of order one (I(1)). The E-GARCH model produced a forecasted return of only 0.39%, whereas the MIDAS model predicted an average return of 4.65% for the ASPI from January to December 2025. Notably, the MIDAS forecast aligned with the actual return range of 3% to 5% recorded from January to May 2025, highlighting its practical relevance. Forecast evaluation further confirms this result, as the MIDAS model achieved a low MAPE of 2.30%, with MAE and RMSE below 1%, indicating high predictive accuracy. In contrast, the E-GARCH model generated comparatively higher forecast errors, reflecting weaker performance. Overall, the findings demonstrate that the MIDAS model outperforms the E-GARCH model in forecasting ASPI values. These results provide valuable implications for investors, financial analysts, and policymakers by emphasising the advantages of mixed-frequency forecasting in enhancing investor confidence, supporting informed policy decisions, and promoting sustainable economic growth in Sri Lanka.

Keywords: *ASPI, E-GARCH, MIDAS, Stock Price Prediction, Sri Lanka*