

Abstract

In this paper, the main objective was to analyse the influence of exchange and interest rates on volatility persistence using asymmetric GARCH models (EGARCH and TGARCH) on NSE data. The analysis of the relationship between stock return volatility, exchange, and interest rates on volatility persistence was performed using the models ARMA (1, 2) -EGARCH (1,1) and ARMA (1, 2) -TGARCH (1,1) under the student t distribution and the generalised error distribution assumption using the NSE daily 20-share price index, interest rates, and exchange rates from 02/01/2015 to 31/12/2024 accounting for 3106 observations. The degree of persistence in the conditional variance equations slightly increased for the ARMA(1,2)-TGARCH(1,1) model and there was a slight reduction for the ARMA(1,2)-EGARCH(1,1) with the inclusion of interest rate and exchange rate which was consistent regardless of the error term distribution assumption. Generally, information shocks increase volatility persistence, and negative shocks have a greater impact than positive shocks. The coefficient of the exchange rate (δ_2) is positive and statistically significant for ARMA (1,2)-TGARCH (1,1). Hence, we deduce that the volatility in the NSE can be explained by the exchange rate, and there exists a positive relationship. Therefore, it is evident that stock returns are positively related to changes in exchange rates. The government should implement policy measures to control the exchange rate, such as real-time disclosure of financial information, trading volumes, and corporate actions, as these affect stock returns.

Keywords:

Stock return, Volatility, Macroeconomic variables, Asymmetric GARCH models, Leverage effect