Determinants of Exchange Rate: Evidence from Sri Lanka

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ABSTRACT

This present research investigated the modelling of exchange rate volatility of USD/LKR and analyses whether macroeconomic factors could influence the exchange rate. A combination of Autoregressive Integrated Moving Average (ARIMA) and Autoregressive Conditional Heteroskedasticity (ARCH) family models were used to model the exchange rate volatility. The most suitable model was determined based on the maximum likelihood criterion. To explore the presence of dynamic short-run and long-run relationships, and the impact of macroeconomic variables on the exchange rate was analyzed using the ARDL model. The empirical findings indicate that the most appropriate statistically significant model for volatility is ARIMA (1,0,0)-ARCH (1). The ARDL model suggested that a long-run relationship between the macroeconomic variables and the exchange rate does not exist. In contrast, a short-run relationship exists between exchange rate lag one, exchange rate lag two, inflation, Merchandising trade balance. Thereby, we suggest that improving the merchandising trade balance and minimizing inflation could minimize volatility in the exchange rate. The practical implications inferred from this study could influence all stakeholders exposed to foreign exchange volatility, including policymakers, importers, exporters, and financial institutions. The contribution of this research considered the most recent economic phenomena of Sri Lanka and used Gross official reserve as a variable that was not used earlier in Sri Lankan studies.

Keywords: Exchange Rate; Volatility; GARCH; ARIMA; ARDL

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey Fuller
AIC	Akaike Infromation Criterion
ARCH	Autoregressive Conditional Heteroskedasticity
ARCH LM	Autoregressive Conditional Heteroscedasticity Lagrange Multiplier
ARDL	Autoregressive Distributed Lag
ARFIMA	Autoregressive Fractionally Integrated Moving Average
ASEAN	Association of Southeast Asian Nations
CBSL	Central Bank of Sri Lanka
COVID-19	Coronavirus Disease 2019
E-GARCH	Exponential Generalized Autoregressive Conditional Heteroskedasticity
First Diff	First Difference
FDI	Foreign Direct Investment
GARCH	Generalized Autoregressive Conditional Heteroskedasticity
GDP	Gross Domestic Product
INR	Indian Rupee
PP	Philip Perron
LKR	Sri Lanka Rupee
UIP	Uncovered Interest Parity
USD	United States Dollar
VAR	Vector Autoregression
VECM	Vector Error Correction Model