

An Empirical Analysis of Stochastic Behavior of Sri Lankan Exchange Rate

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ABSTRACT. The main purpose of this study to explore the main characteristics of stochastic behaviour of Sri Lankan exchange rate against to US dollar. The study used daily exchange rate time series, Sri Lankan exchange rate, (LKR/US\$) and collected from Central Bank, Sri Lanka. The study period covers a time period from 2008 to 2010, which represents 722 trading days. The sample period was divided into two as January 1, 2008 to May 19, 2009 and May 30, 2009 to December 31, 2010 in order to investigate the impact of the war.

The results shows that basic statistics properties of Sri Lankan exchange rate series was a nonlinear, nonstationary series with stochastic trend, $I(1)$, and has fatter tails, random walk nature (unit roots), asymmetric shape, serial dependence, volatility clustering, ARCH effects in both sample periods. In the period I: The exchange rate was depreciating, distribution was positively skewed, larger volatility ($SD=3.4$), non normal, nonstationary. But in the period II, exchange rate was appreciating, high persistent (sum of auto correlated coefficients=32), skewed negatively.

The changes of log exchange rate behave as normal with an autoregressive conditional heteroscedasticity process for innovations. The characteristics of exchange rate change indicate the presence of heterogeneity among market participants as well as changing parameters over time. Standard deviation of this distribution dominates the mean value. Variance was also time varying.

The results of this study have important implications for exchange rate determination, risk management, forecasting, market efficiency, statistical inference in empirical work.

Key words: Fatter Tails, Volatility, Nonstationary, Unit Root.

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