

**DEVELOPMENT OF A FORECASTING MODEL TO
DETERMINE THE INTEREST RATE IN SRI LANKA – AN
APPROACH BASED ON THE 91-DAY TREASURY BILL
RATE**

Theodore John Kotelawala

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Department of Computing

**Informatics Institute of Technology, Sri Lanka
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Robert Gordon University, Aberdeen**

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Abstract

With the increased level of economic development and growth and the need for government, corporations, and individuals alike to borrow in order to spur economic and business growth, the requirement to accurately forecast interest rates, especially in a volatile economic environment and/or a sub-par economic growth, is essential. In simple terms, interest rate can be considered as the opportunity cost of holding money. However, the definition is expressed in terms of borrowing and saving; it is quite simply the additional rate charged by a lender for lending the required amount by the borrower. On the other hand, it is also defined as the minimum required rate of return a lender or investor requires for lending or investing their money to an individual or in a variety of assets. While there have been various theoretical and empirical studies in identifying the determinants of interest rates, it is essential for a country to identify the specific determinants which determine their interest rates and hence, arrive at a forecasting model which can accurately determine the interest rate. Considering the change in exchange rate regime in 2001 (and the significant relationship between exchange rates and interest rates as specified in certain studies) and the higher level of transactions with the global economy after the end of the civil war in 2009, it is of immense importance that a suitable forecasting model is identified for the interest rate in Sri Lanka. Therefore, in line with the reasoning provided, this study is aimed at identifying a suitable forecasting model in determining the interest rate of Sri Lanka. The 91-day Treasury Bill rate is used as a proxy for the interest rates owing to the high-level of liquidity in both primary and secondary markets and because it represents a majority of the total accepted bid amount at Treasury Bill auctions held by the Central Bank of Sri Lanka. Owing to the high level of market activity for the 91-day Treasury Bill, it is considered as a strong proxy for the interest rate in Sri Lanka. This is further considered as a strong proxy across some of the reviewed literature as well. The study is not restricted to a particular theory or study and instead follows an eclectic approach based on the literature review of various studies. The study is based on the sample period from 2000 to 2020 and data at monthly frequency is used. This data is used for the Long Short-Term Memory (LSTM) Network and Vector Autoregression with Exogenous Variables (VARX) models with 65% of the data as training data and 35%

of the data as testing data. It is further identified that the LSTM model, is the best fit although there exists considerable differences during certain periods with respect to the forecasted values against the actual values.

Keywords: Interest Rate, 91-Day Treasury Bill Rate, Long Short-Term Memory (LSTM) Network, Vector Autoregression with Exogenous Variables (VARX)