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# TIME SERIES ANALYSIS OF ALL SHARE PRICE INDEX

# &

# SECTOR INDICES

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**Master Of Science**

**In**

**Operational Research**

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## Abstract

In the recent past, stock market trading became one of the most important factors in a country. Colombo Stock Exchange (CSE) is the main stock exchange in Sri Lanka and All Share Price Index (ASPI) is a main index used by CSE. ASPI indicates the price fluctuations of all the listed companies and covers all the traded companies during a market day. The CSE market has been divided in to 20 sectors, based on the nature of the business. Out of the 20 sector indices "Bank Finance and Insurance" (BFI) sector has become one of the most important and influential indicator on economy of Sri Lanka and it has a high influence on ASPI as well. Thus, forecasting ASPI and BFI is very important for the decision maker. Hence this study was carried out to study, the pattern of time series of ASPI and BFI and to forecast values of ASPI and BFI.

The data considered for this study was from 3rd January 2000 to 30th January 2009 which accommodate to 2177 daily data points in each index. The result found that the original ASPI series depicts a similar trend pattern to "S Curve" . The SLR/US $ Exchange Rate does not have an impact on ASPI. As a result a univariate time series Autoregressive Integrated Moving Average (ARIMA (2,1,2)) model was fitted to predict values of ASPI. The validity of the model was confirmed using various statistic tests. And found the predicted values of ASPI were below 5%. Thus, this model is recommended to forecast ASPI.

Thus, BFI sector has a high influence on ASPI with the most number of companies coming under it. Hence, tried to fit a combined model to predict values of BFI. The Granger causality test and cointegration test confirmed that BFI is influenced by 10 sector indices and with a lag length of 3 for each sector index. Hence, a Vector Autoregression (VAR) model was identified as the predictive model to forecast values of BFI. The percentage error for the forecasted values of BFI also varied between 0.44% and 4.83% ensuring the suitability of the model. Thus, this model is also recommended to forecast BFI.


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## Declaration

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## Acknowledgement

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# Dedicated to

# Amma & Thaththa

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**support, &**

**most of all love, the completion of this work**

**would not**

**have been possible……**

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