

THE IMPACT OF MACRO ECONOMIC VARIABLES ON STOCK PRICES: EVIDENCE FROM COLOMBO STOCK EXCHANGE

Ranjani R. P. C.*, Dharmadasa W. N. D.*

Abstract *The impact of macro-economic variables on share prices is one of the major concern in Sri Lanka as there are many variables impact on share price. Although there are number of studies conducted to identify the relationship in between these two, the results are contradictory. This study is undertaken to identify the impact of most significant three macro-economic variables namely, Gross Domestic Product (GDP), Interest Rate (IR) and Exchange Rate (ER) on Sri Lankan stock market index (S & P SL 20 index share price) over the period of July 2012 - June 2017 using monthly time-series data. In terms of analysis, Johansen's co-integration model has applied to identify whether there is any long-term causality between the variables. The test revealed that there is no long-term causality between the variables, which emphasizes the researcher to use Vector Autoregressive Model (VAR). VAR model revealed that there is a short run relationship between share price and previous month exchange rate only. The previous month's exchange rate has a negative significant impact towards share price. Interest rate and GDP are found to be insignificant in determining share price. Variance decomposition revealed that the shock to the price lag and ER cause huge variation in price within short term period. Impulse Response confirmed that the price lag and exchange rate's error term shock were affected significantly to the price in the short run. In the Granger Causality test, there is a unidirectional relationship between the exchange rate and share price. It can be concluded that understanding the impact of IR, GDP and ER on S&P SL 20 index with the recent data can be useful to investors as well as policy makers for being prudent on their financial decisions.*

Keywords: S&P SL 20 Index, Macro Economic Variables, VAR, Johansen Co-Integration Test, Granger Causality

INTRODUCTION

A well-functioning system provides a boost to economic growth through proper and efficient allocation of resources. As a part of the financial system, the importance and role of the stock market towards achieving economic growth is crucial because the stock market is the center of a network of transactions where buyers and sellers of securities meet at a specified price, which is influenced by a number of economic factors. Transformation of funds from capital borrowers to capital investors are very essential for the economic growth. It is significant to increase the liquidity of assets and diversify the risk in order to make wise decisions. Therefore, a well performing stock exchange is very helpful for economic activity through growth and saving, efficient allocation of investments and foreign direct investments.

If the stock price changes frequently it will be a high risk, so investors seek information about the factors which impact on the price, as their ultimate decision is to increase wealth. Efficient Market hypothesis stated that all the necessary information to investors about profit maximizing and macro-economic variables fall the possibility of earning super normal profits. Therefore, stock prices reflect the current

position in the stock market.

Then the question arises whether the efficiency of stock market is crucial only to investors as policy makers and other major players also have an interest about the stock market because it will be a decision to make a huge loss or profit. The stock market reveals the confidence of investors in order to develop future economic conditions. If the confidence is low, it will negatively impact on the economic structure of the country. This is because when the confidence level of investors is low, they will have decreased demand for shares, which will ultimately impact on low share price. Thus, the people who lost confidence will invest their money in banks, which will ultimately impact on the economic structure.

As there are many variables that have an impact on stock prices, and many researchers investigated those variables on stock prices, in this research only interest rate, exchange rate, GDP considered due to most significant determinants on share price. Interest rate is the amount charged, expressed as a percentage of principle by a lender to a borrower for the use of assets. As per the Interest rate, Treasury bill rate is used on this research as the literature directed to use it. Exchange rate is the price of a nation's currency in terms of another currency. As this research is related to the Sri Lankan stock

* Department of Finance, Faculty of Commerce and Management Studies, University of Kelaniya, Sri Lanka.
Email: chitra@kln.ac.lk; nisaldinuka@gmail.com

market, it will be comparing at Sri Lankan rupees with US Dollars. GDP represents the health of the economy as well as the total value of the goods produced over a specific time-period. Previous researchers considered the All Share Price Index (ASPI) to measure the stock market performance and this study has been taken Standard and Poor's Sri Lanka 20 index (S&P SL 20 index).

Standard and Poor's Sri Lanka 20 index was initiated in June 2012 which is an index based on the market capitalization that follows the performance of 20 leading publicly traded companies listed in the Colombo Stock Exchange. The 20 companies, which enter in to the index, is determined by Standard & Poor's global index methodology, according to which the index's listing, is reviewed each year in December. All S&P SL20 listed stocks are classified according to S&P and MSCI's (Morgan Stanley Capital International) Global industry classification standard thereby enabling better comparison of performance of Sri Lanka's largest and most liquid stocks with global indices.

LITREATURE REVIEW

According to Fama (1965), in an efficient market, competition among the many participants leads to a situation where at any point in time actual prices of individual securities will already reflect the effect of information based both on events that have already occurred.

The assumption that investors are rational and behave in a rational manner is at the core of the EMH. As per the Behavioral Finance theory, investors are not always rational and therefore the study of market efficiencies and security pricing should take in to account the behavior of investors.

Belsky and Gilovich (1999) referred to behavioral finance as behavioral economics in that "Behavioral Economics combines the two disciplines of psychology and economics to explain why and how people make seemingly irrational illogical decisions when they spend, save, borrow. Economic and financial theories presume that individuals act rationally and consider all available information in the investment decision-making process".

As Chen, Roll, and Ross (1986) and Rahman, Sidek, and Tafri (2009) mentioned Dividend discount model and arbitrage pricing theory has theoretical background in this research as well. The dividend discount model focuses on the long run relationship whereas arbitrage-pricing theory focuses on the short run relationship between the stock market movements and the macroeconomic fundamentals. According to these models any new information about the fundamental macroeconomic factors such as real output, inflation, money supply, interest rate and so on may influence the stock price/return through the impact of expected dividends, the discount rate or both. A simple discount model

shows that the fundamental value of corporate stock equals the present value of expected future dividends. The future dividends must ultimately reflect real economic activity. If all the currently available information is taken into account, there could be a close relationship between stock price and expected future economic activity.

Finance theory explains interest rate as a measurement of time value of money, which is one of the main determinant of stock prices. Any changes in the interest rate can cause difficulty for the investors, as it will affect the profitability of the firm. Many researchers and a large number of studies have theoretically and empirically explored sensitivity of stock prices to interest rates. In many countries, share prices are affected by interest rate changes and identifies by employing a single factor framework and multivariate approach.

Menike (2006) investigated the effect of macroeconomic variables on including money supply, exchange rate, interest rate and inflation on share prices in evolving Sri Lankan stock market by using monthly data for the period of September 1991 to December 2002. The multivariate regression used to find out the influence of macroeconomic variables on stock prices. The null hypothesis which stated that money supply, exchange rate, inflation rate and interest rate collectively did not accord any impact on equity prices. According to the findings inflation rate and exchange rate impact negatively on stock prices in the CSE. The negative effect of Treasury bill rate implies that whenever the interest rate on treasury securities rise, investors tend to switch out of stock causing stock prices to fall.

Elangkumaran and Jenitta (2014) examined the relationship between macroeconomic variables and stock prices from Colombo stock exchange data. The findings revealed that GDP has a significant strong positive correlation with ASPI. Further, there was a significant positive correlation between exchange rate and ASPI, and negatively correlated with interest rate. Finally, multiple regression analysis revealed that macroeconomic variables significantly impact on stock prices.

Nijam, Ismail, and Musthafa (2015) investigated the impact of macro-economic variables on stock market performance by analyzing the data from 1980 to 2012. This study investigated the relationship between ASPI and five economic variables namely, gross domestic product, interest rate, balance of payment, inflation proxies by wholesale price index and exchange rate. It was revealed that share market index positively related to GDP, ER, and IR, negatively related with inflation rate proxies by wholesale price index. The balance of payment is insignificant in determining stock market performance.

Singh (2009) examined the relationship between the Indian stock market (BSE Sensex) and five macroeconomic

variables, namely money supply, wholesale price index, industrial production index, Treasury bill rates and exchange rates. It was found that the share prices positively related to wholesale price index, money supply and interest rate but negatively related to index of industrial production and exchange rate. Furthermore, it was found that money supply causes stock prices in the long run but not in short run.

Chirchir (2012) examined the changes in interest rates (represented by the weighted average lending rate by commercial banks in Kenya) and stock prices related to each other for Kenya. The results indicated that there is no significant causal relationship between exchange rate and share price. As regards the causality, negative causality exists in both directions.

Talla (2013) investigated the impact of macroeconomic variables on the stock market prices of the Stockholm stock exchange. According to the research time period examined as 1993-2012 in a monthly basis, it was found that inflation and currency depreciation have a negative influence on stock prices. In addition, interest rate is negatively related to stock prices change, but it was not significant in the model. Money supply was positively associated to stock prices although it was not significant. In terms of Granger causality sense there was only a unidirectional relationship between stock price to inflation comparison to other predicted variables.

Amarasinghe (2015) examined the dynamic relationship between interest rate and stock price. Monthly data was taken from January 2007 to December 2013. As per the Granger Causality test and regression output, it showed that interest rate was a significant factor for stock return changes and interest rate had a significant negative relationship with ASPI.

Research gap

In the Sri Lankan context, there is a gap in terms of identifying the impact of interest rate, exchange rate and GDP on stock prices as per the literature review gathered from Sri Lanka. Menike (2006), Elangkumaran and Jenitta (2014) and Nijam, Ismail, and Musthafa, (2015) stated differently on the impact of macro-economic variables on stock prices due to the variation in the period within the same index. Menike (2006) selected 1991 September – 2002 December using stock market index, Elangkumaran and Jenitta (2014) selected 1993 – 2012 using ASPI and Nijam, Ismail, and Musthafa, (2015) selected 1980– 2012 Using ASPI. So this research has been conducted in order to provide an answer to investors on how these three variables impact on stock prices as per the S&P SL 20 index (which is the 20 best performing companies based on market capitalization) during the period of July 2012 to June 2017.

Research Objectives

The goal of this study is to test whether the selected macro-economic variables influence to the S&P SL 20 Index. In order to achieve this following two objectives are formulated.

- To identify the relationship between GDP, exchange rate, and interest rate on stock prices within the current values and past values (proxies by S&P SL 20) over the period of 2012 July – 2017 June.
- To identify the long-term/ short-term impact on share prices incorporating macro-economic variables.

RESEARCH METHODOLOGY

Research Design

The study is based on time series data. The data was gathered from 2012 July- 2017 June monthly wise for the 60 month period from Central Bank monthly bulletins and Bloomberg. The data analysis was done by using Johnson Co - integration test, Vector Autoregressive Model (VAR), Variance Decomposition, Impulse Response, Granger Causality test and Wald test in order to identify the long run and short run relationship between the variables.

Johnsen co-integration test is used to identify whether there is any long run relationship between share price and macro-economic variables. VAR Model is used to understand the short run relationship between share price and other macro-economic variables for better forecasting as well as VAR system equation uses to test hypotheses statements.

Hypotheses Development

Due to the varied findings on the relationship between exchange rate, GDP and interest rate with stock price, the following tentative statements made are deemed relevant in this present study in order to test how these variables are interrelated in the case of Sri Lanka.

H_0 : There is no significant relationship between interest rate and share price.

H_1 : There is significant relationship between interest rate and share price.

H_0 : There is no significant relationship between Gross Domestic Product and share price.

H_1 : There is significant relationship between Gross Domestic Product and share price.

H_0 : There is no significant relationship between Exchange Rate and share price.

H_1 : There is significant relationship between Exchange Rate and share price.

Data analysis and model formulation

This study is used different statistical tests to examine the relationship between these multiple variables. First, Johansen co-integration test is used to identify whether there is any long run relationship between share price and macro-economic variables. Second, VAR Model is used to understand the short run relationship between share price and other macro variables for better forecasting as well as VAR system equation users to prove hypotheses statements.

The following equation will be tested separately by using the VAR system equation

$$y_t = \beta_0 + \beta_1(t+1) + \beta_2(t-1) + \beta_3(t-1) + \varepsilon(t-1)$$

$\beta_{1(t-1)}$ = Interest Rate lag 1

- $\beta_{2(t-1)}$ = GDP lag 1
- $\beta_{3(t-1)}$ = ER lag 1

Johansen co-integration Test

Johansen co-integration test is used to investigate the presence of any long – run relationship between share price and macro-economic variables. Co-integration means despite being individually non – stationery, a linear combination of two or more time series can be stationery. Co-integration of two or more time series suggests a long run or equilibrium relationship between them.

Johansen test is a procedure for testing co-integration of several time series. This test permits more than one co-integrating relationship and so is more generally applicable than the eagle granger test. Johansen developed two different likelihood ratios for testing the number of co-integrating vectors(r): the trace test formula given by:

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^g \ln(1 - \lambda_i) \dots$$

Maximum eigenvalue test statistics formula given by:

$$\lambda_{ax}(r, r+1) = T \ln(1 - \lambda_{i+1}) \dots$$

The null hypothesis of the trace statistics tests is no co-integration: $r=0$ against the alternative of more than 0 co-integration vector whereas the maximum Eigenvalue statistics test the null hypothesis of r co-integrating vectors against the alternative of $r+1$ co-integrating vector.

Vector Autoregressive Model (VAR)

A Vector Autoregressive Model (VAR) is an unrestricted VAR that is most successful in analyzing multivariate time

series models. It is a natural extension of the univariate autoregressive model to dynamic multivariate time series. VAR is very useful for describing dynamic behavior environments where the focus is on forecasting the data. The VAR (p) form is written as

$$Y_t = C + \alpha_1 Y_{t-1} + \alpha_2 Y_{t-2} + \dots + \alpha_p Y_{t-p} + E_t$$

Where Π_t are $(n \times n)$ coefficient matrices and E_t is an $(n \times 1)$ unobservable zero mean white noise vector process (serially uncorrelated or independent) with time invariant covariance matrix Σ . For example bivariate VAR (2) model equation has the form

$$y_{1t} = C_1 + \pi_{11}^1 y_{1t-1} + \pi_{12}^1 y_{2t-1} + \pi_{11}^2 y_{1t-2} + \pi_{12}^2 y_{2t-2} + \epsilon_{1t} \dots$$

$$y_{2t} = C_2 + \pi_{21}^1 y_{1t-1} + \pi_{22}^1 y_{2t-1} + \pi_{21}^2 y_{1t-2} + \pi_{22}^2 y_{2t-2} + \epsilon_{2t}$$

Where $\text{Cov}(\epsilon_{1t}, \epsilon_{2s}) = \sigma_{12}$ for $t=s$, 0 otherwise. Notice that each equation has the same repressors- lagged values of y_{1t} and y_{2t} .

Granger Causality Test

Granger Causality test is applied in the present work to check for the presence of any long run causal relationship between stock prices and macro-economic variables. A time series X is said to Granger cause Y if it can be shown, usually through a series of t – tests and F-tests on lagged values of X (lagged values of Y also included), that those X values provide statistically significant information about future values of Y.

The test is based on the following regressions:

$$Y_t = \beta_0 + \sum_{i=1}^N \beta_k Y_{t-k} + \sum_{j=1}^N \alpha_j X_{t-1} + U_t \dots$$

$$X_t = \gamma_0 + \sum_{i=1}^N \gamma_k X_{t-k} + \sum_{j=1}^N \delta_j Y_{t-1} + V_t \dots$$

Where, the two variables are Y_t and X_t . Error terms are U_t , V_t . “T” denote number of lags whereas time period is denoted by t. N is optimal number of lags. H_0 (X does not Granger cause Y) is $\alpha_1 = \Delta_1 = 0$ for all I’s versus the alternative hypothesis that $\alpha_1 \neq 0$ and $\delta_i \neq 0$ X granger cause Y) for at least some I’s.

Granger Causality test establishes short run causality if we take stationarity values. “Causality test by the level Vector Auto Regression (VAR) (non-stationery) can complement the result of the integration test in terms of long-run information”. So non-stationery level time series data of variables have been used to determine long run causality. Optimal lag length for conducting granger causality test has been determined as per the Akaike information criteria (AIC) within the VAR framework.

RESULTS AND DISCUSSION

Unit Root Test

Table 1: ADF Test Results at Intercept

Variable	P Value	T-Statistics	Critical Values	Null Hypothesis	Results
Price(S&P SL 20 Index)	0.1810	-2.282051	1%- -3.546099	Accept	S. Price is non-stationery
			5%- -2.911730		
			10%- -2.593551		
IR	0.2891	-1.992915	1%- -3.548208	Accept	IR is non-stationery
			5%- -2.912631		
			10%- -2.594027		
GDP	0.3941	-1.764822	1%- -3.546099	Accept	GDP is non-stationery
			5%- -2.911730		
			10%- -2.593551		
ER	0.9932	-0.795522	1%- -3.548208	Accept	ER is non stationery
			5%- -2.912631		
			10%- -2.594027		

ADF (Augmented Dickey Fuller Test) test runs at level with trend and intercept as summarized in table 1

Source: Author Compiled

The results Shows that p-values for all included variables are greater than the critical value (5%). Therefore, it is not possible to reject the null hypothesis, which means that the model is non-stationery and has a unit root. Therefore, price, IR, GDP and ER follow a random walk model with drift and

no time trend. This implied that the first difference has to be taken to all the variables.

Further, in terms of checking the stationarity t-statistic can be checked with critical values. In that, t-statistic should be higher than the critical values.

Table 2: ADF Test at 1st Difference

Null Hypothesis	P Value	T-Statistics	Critical Values	Null Hypothesis	Results
Price(S&P SL 20 Index)	0.0000	-8.805009	1%- -3.548208	Reject	Price is stationery
			5%- -2.912631		
			10%- -2.594027		
IR	0.0002	-4.882411	1%- -3.548208	Reject	IR is stationery
			5%- -2.912631		
			10%- -2.594027		
GDP	0.0000	-7.003245	1%- -3.552666	Reject	GDP is stationery
			5%- -2.914517		
			10%- -2.595033		
ER	0.0000	-5.582199	1%- -3.548208	Reject	ER is stationery
			5%- -2.912631		
			10%- -2.594027		

After taking the 1st difference of the data set, it emphasized that all variables are stationery and do not have unit root in the data set. So as a result, null hypothesis can be rejected as p values of all the variables are lower than 5%, as well

as t-statistics is higher than the critical values in all the variables. Finally, it shows that these variables do not have a trend in the data set.

Lag Order Selection Criteria

Table 3: Lag order selection

Lag	Log L	LR	FPE	AIC	SC	HQ
0	-10.31966	NA	2.00e-05	0.530358	0.677690*	0.587178
1	13.60246	43.41422*	1.49e-05*	0.236946*	0.973607	0.521047*
2	24.48374	18.13546	1.82e-05	0.426528	1.752517	0.937910
3	40.43936	24.22890	1.87e-05	0.428172	2.343490	1.166835
4	47.34376	9.461584	2.76e-05	0.765046	3.269693	1.730990
5	57.54115	12.46348	3.72e-05	0.979958	4.073933	12.173182

* indicates lag order selection by criteria

LR- sequential modified LR test statistic (each test at 5% level)

FPE- Final Prediction error

AIC –Akaike information Criteria

SC- Schwarz information criteria

HQ- Hannan-Quinn information criteria

Source: Author Compiled

In order to do the Johnson co-integration test and VAR/VECM model, lag length selection criteria has to be prepared. So according to the above results, lag one is the most preferred lag order selection for the model as * shows

the most suitable one. In the above table, it shows LR, FPE, AIC and HQ as lag one and SC lags zero. Therefore, lag one used for the research as many models mentioned lag one as the most suitable.

Johansen Co-integration Test

Table 4: Johansen Co-integration Test

Hypothesized no of CE(s)	Eigenvalue	Trace Statistic	0.05 critical Value	Prob***	Max Eigen statistics	0.05 Critical Value	Prob***
None	0.277800	40.86722	47.85613	0.1929	18.87625	27.58434	0.4241
At most 1*	0.188517	21.99097	29.79707	0.2990	12.11571	21.13162	0.5363
At most 2*	0.134174	9.875253	15.49471	0.2904	8.356112	14.26460	0.3437
At most 3*	0.025852	1.519141	3.841466	0.2177	1.519141	3.841466	0.2177

Source: Author Compiled

Johnson co-integration test is used to investigate the presence of any long run relationship between share price and macroeconomic variables. Co-integration of two or more time series suggest a long run or equilibrium relationship between them. Johnson test is a procedure for testing co-integration of several time series.

As per the above table 4, it shows that there is no co-integration in trace statistics and max Eigen statistics as the variable's percentage is above 5%. So at none, almost one, at almost 2, at almost 3 co-integrations cannot reject the null hypothesis and accept the alternative hypothesis which emphasizes that there is no co-integration between the

variables. Further, when it comes to trace statistics test and Max Eigen statistics test all the co-integrations have lower values comparison to 5% critical values, which emphasizes that there is no co-integration between the variables as well as no long run association between the variables which shows that variables are moving together in the long run.

Vector Auto Regressive (VAR) Model

VAR model is an unrestricted VAR designed for use with stationery data that are known to be non-co-integrated, so as the Johnson co-integration model shows that there are non-co-integrations it is suitable to use VAR model.

Table 5: VAR Regression Model Results

DPRICE = C(1)*DPRICE(-1) + C(2)*DIR(-1) + C(3)*DGDP(-1) + C(4)*DER(-1) + C(5)				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.205813	0.140047	-1.469598	0.1476
C(2)	5697.021	4666.576	1.220814	0.2276
C(3)	-216.1297	2416.054	-0.089456	0.9291
C(4)	-49.88615	18.8013	-2.653335	0.0105
C(5)	40.95161	20.45764	2.001776	0.0504
R ²	0.1465			
F-Statistic	0.0732			
Durbin-Watson	2.0783			

Source: Author Compiled

As per the above results, it shows that the R² has a lower value, which is 0.1465%. It means 14.65% variation in

the share price will be explained by the macro-economic variables. Furthermore, overall significance of the model is 7.32%, which is below 10%, which emphasize that model is significant. Durbin Watson statistics identifies the autocorrelation of the model. As per the theory if the value is closer to 2 there is no autocorrelation. This model does not have autocorrelation, as it is 2.07. As per the above tables, it shows that the current month price will be explained by exchange rate's previous month only because t-statistic is higher than two. Previous month of Price, GDP and Interest Rate failed to explain the price as the variables has not completed the sufficient t statistic value. As per the results it shows that the Price, IR and GDP are insignificant and ER has a significant negative impact to the share price as the probability is higher and lower than 5% respectively.

VARIANCE DECOMPOSITION

Table 6 :Variance Decomposition of DPRICE

Period	S.E	DPRICE	DIR	DGDP	DER
1	144.3754	100.0000	0.0000	0.0000	0.0000
2	155.0616	89.8536	0.2634	0.1425	9.7402
3	155.8594	89.5555	0.3607	0.4226	9.6610
4	156.1582	89.3013	0.3883	0.4260	9.8842
5	156.1791	89.2866	0.3958	0.4339	9.8836
6	156.1885	89.2785	0.3975	0.4341	9.8897
7	156.1892	89.2778	0.3979	0.4344	9.8898
8	156.1895	89.2776	0.3979	0.4344	9.8899
9	156.1895	89.2775	0.3980	0.4344	9.8899
10	156.1895	89.2775	0.3980	0.4344	9.8900

Source: Author Compiled

The results in table 6 show that shock to DPRICE can cause 89.85% fluctuation in the DPRICE (own shock) within a one period, which is short term mostly. In terms of long term, there is no huge variation on the DPRICE as the impact has a lesser variation.

Shock to DIR can cause 0.2634% fluctuations in the DPRICE in the 2nd period, which means there is a low impact from the shock towards the price in the short term. When it comes to the 3rd period, shock has been increased as well by 0.10%. In the long term, there is no high variation in terms of the shock from interest rate.

Shock to DGDP can cause 0.1425% fluctuations in the period 2 and shock to DGDP can cause 0.4226 % fluctuations in the period 3, which means there is a low increment in the shock of 0.2801%. In terms of the long term, it shows that there is no shock towards the price

Shock to DER can cause 9.74% fluctuations in the period 2 when there is no any shock in the period one. Therefore, it means that there is a huge increment in terms of shock to the price. In the long term, there is no high variation of shocks to the price from ER.

IMPULSE RESPONSE

Response to Cholesky One S.D. Innovations ± 2 S.E.

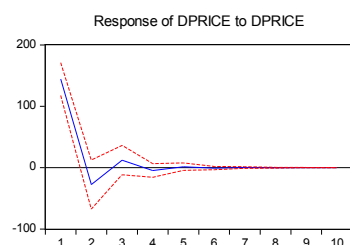


Fig. 1: Response of DPRICE to DPRICE

Response to Cholesky One S.D. Innovations ± 2 S.E.

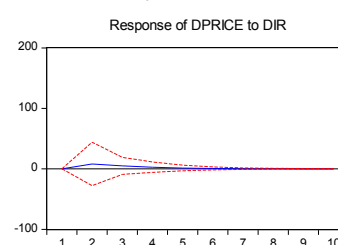


Fig. 2: Response of DPRICE to DIR

Response to Cholesky One S.D. Innovations ± 2 S.E.

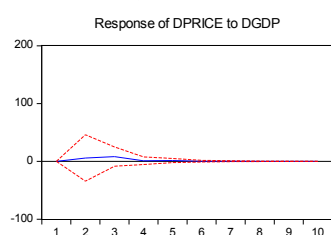


Fig. 3: Response of DPRICE to DGDP

Response to Cholesky One S.D. Innovations ± 2 S.E.

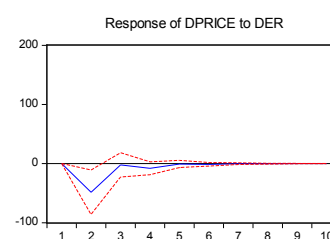


Fig. 4: Response of DPRICE to DER

Source: All figure are author compiled

As per all the figures, figure 1 and 4 have a high impact for the price from the error term of those respective variables.

Figure 1 shows that shock of the error term of DPRICE towards DPRICE. Initially it is gradually declining (positive to negative) and start to negative in the 2nd period. In that in the 3rd period it becomes positive and becomes zero in the future period. So that means error term of price difference has a declining shock for its own variable.

The figure 4 (DPRICE to DER) shows the shock of the error term of DER towards DPRICE. Price does have a negative shock towards the error term of the exchange rate but gradually it becomes zero in the future periods, which emphasizes that the shock does not have an impact on the price in the long term.

CONCLUSION

In the Sri Lankan context, there are two types of indexes. These are All Share price index (ASPI) and S&P SL 20 index. Most Sri Lankan researchers have done research related to ASPI share prices and various macroeconomic variables, which has conflicting results. So in order to provide a solution to the research gap researcher identified three macro-economic variables namely exchange rate,

interest rate and gross domestic product on S&P SL 20 index share prices. As per the literature review, many variables that have been used by various researchers are insignificant other than above three most of the time. This suggests that researcher should use the above three variables in research.

This study's, main objective is to identify the long term and short-term impact on share prices and identify the impact on share prices in terms of macro-economic variables on its past values and current values. For that purpose, the researcher has selected S&P SL 20 index using monthly data in terms of 2012 July-2017 June. The results are generated using statistical software Eviews 9. Vector Autoregressive (VAR) model used to identify the relationship between share price and other variables, as well as its own lags and other variables lags. Granger causality test used to identify the causality, Impulse Response had been used to identify the shock of the dependent variables error on the other variables and Variance decomposition have been used to identify how the shock of one variable has affected other variables.

Unit root test has been carried out to identify whether the variables in the models are stationery or not and statistical results confirmed that variables are non-stationery at level and stationery at first difference. Since the variables are stationery at the same level, a co-integration test was done

in order to decide either VAR or VECM. Optimal lag length criteria has decided the optimum lag length as one. As there is no co-integration, researcher has used the VAR model. In term of the co-integration test, all the co-integrations has accepted the null hypothesis as all the co-integrations are above 5%, which means there is no co-integration. Further, trace statistics and max eigen statistics are lower than 5% critical values which emphasized that there is no long-term relationship between the variables.

VAR long-term system equation identified the relationship between share price and independent variables. GDP (-1), exchange Rate (-1) have a negative impact towards share price with an insignificant and significant relationship respectively. Interest rate (-1) has a positive insignificant impact towards share price. As per the variance decomposition there is no higher variations other than exchange rate and price (own shock) as there is a significant amount of variation of 9.74% and 10.14% respectively in the short term. Therefore, price (own shock) and exchange rate have a high relation.

Impulse Response identified the responsiveness of the dependent variables (endogenous variable) in the VAR when there is a shock to the error term. The researcher indicated that the Shock has a lesser impact in the long term, which becomes zero when the period increases, but in the short term, there are positive and negative shocks towards share price from price and exchange rate respectively. Further, the researcher has identified Granger Causality test in order to identify causality between the variables. Exchange rate has granger cause share price but share price does not granger cause exchange rate. Thus, it is a unidirectional relationship. The findings of the study confirm that there is no relationship between independent variables and the dependent variable other than exchange rate's previous month, which has relationship with the price. It was proven further by the granger causality test that there is a short run relationship between exchange rate and share price (S&P SL 20 index)

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