# Impact of Macroeconomic Variables on Stock Market Performance: Evidence from Sri Lanka

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## Abstract

The aim of the paper is to explore the influence of macroeconomic variables on stock market performance in Sri Lanka. The proxy for the stock market performance is all share price index (ASPI) whereas Gross domestic product (GDP), inflation rate, interest rate, exchange rate and money supply are considered as macroeconomic variables. The population of the study consists of all companies listed in Colombo Stock Exchange. The data was gathered from the secondary sources and the annual time series data was employed from 1995 to 2019. The techniques of Pearson's correlation and multiple regressions were employed for the data analysis and hypothesis testing. Furthermore, Variance inflation factor (VIF) for Multicollinearity, Augmented Dicky–Fuller (ADF) test and Breusch-Pagan-Godfrey test were used. The findings demonstrate that GDP and money supply positively influence the stock market performance. Interest rate and exchange rate negatively influence the stock market performance while inflation rate has failed to prove the significant impact on stock market performance. The study will support to investors, academics and researchers in the fields of economics and finance in understanding how macroeconomic variables affect the stock market performance. It also provides insight into society and researchers since it integrates a number of macroeconomic variables and their interaction with the stock market.

*Keywords*-: Gross domestic product, Exchange rate, Interest rate, Money supply, Stock market performance

## 1. INTRODUCTION

Share markets play a vital role on economic development and promote the prospects of the nation. An efficiently functioning share market is one of the prominent facets for the long-term development of the country. The researchers widely consider the association amid macroeconomic variables and stock market performance (SMP) in developed nations as well as developing nations (Lee et al, 2017). Share market is crucial in the international economy as the emerging economy is affected by the growth of the industries. Because of that the movement of the share market is concerned by the government, industry and Central bank of the country. New securities

are issued to the public for the first time in the primary market while previously issued stocks are traded in the secondary market. Meanwhile, in over-the-counter market, the stock trading is performed directly between two parties without the oversight of an exchange.

CSE is the only stock market in Sri Lanka and operates for establishing a regulated environment in which individual and institutional investors may work together. According to Mishkin and Eakins (2011) common stocks of an institution are traded in a share market. SMP refers to the yields that the shareholders receive on their investment. The return may be in the form of profits through the trading activities or dividends provided by the organization to its investors from time to time. The strengths and weaknesses of the country are demonstrated by macroeconomic variables. Alan and Rashid (2014) explore that GDP, inflation (INF) rate, money supply (MS), interest rate (IR), exchange rate (ER), foreign direct investment (FDI), industrial production index and unemployment rate are most essential macroeconomic variables. Academician, regulators, scholars, stockholders, and government are more interested to analyse the effects of macroeconomic variables on share market. Stock market which is a prominent indicator of an economy reflects the level of economic well-being in nations (Menike, 2006).

Share market plays an energetic role in an emerging economy. Therefore, more researchers and policy makers have paid their attention on studies related to stock markets. The extant studies have shown the influence of macroeconomic variables on SMP in different angles (Khrawish et al., 2010). Few researchers implied that some macroeconomic variables have positive impact on SMP. Although some researchers like Pal and Mittal (2011), Menike (2006) and Gunasekarage et al. (2002) represent contradictory idea which was some macroeconomic variables and SMP has significant negative relationship. But, few studies have not shown any association between some macroeconomic factors and share market variables (Ali, 2011 and Bhattacharya & Mukherjee, 2002). These contradictory ideas make confuse the policymaker's mind.

Although most of the studies have been conducted on investigating the association between macroeconomic variables and SMP in developed nations such as Japan, United States and Turkey (Patro, Wald & Wu, 2014, Chen et al., 2021), there is a dearth of the studies in developing nations. Hence, it is inspired to study on the stock market trend of Sri Lanka as there are very limited sources or studies that have been conducted on it.

Sri Lankan market performance fluctuated substantially in recent years. The market performance of CSE in 2018 shows a sharp contrast to the positive performance recorded in 2017 as market capitalization

decreased by 17.85%. There is a fluctuation and downward trend in the stock market performance due to the lack of consistency in economic policies and political instability of the government. In Sri Lanka, prominent macroeconomic variables have shown substantial fluctuations over time. Based on the research problem, the research question is identified: "How far do the macroeconomic variables influence on the SMP?"

Few studies were conducted on analysing the impacts of macroeconomic variables on the SMP in Sri Lankan context (Gunasekarage, Pisedtasalasai & Power, 2004; Menike, 2006; Wickremasinghe, 2011; Shafana, 2014; Amarasinghe, 2015, Francis et al., 2021). So there is a dearth of the study on macroeconomic variables and SMP in emerging markets. The Colombo Stock Exchange is chosen because it operates the only share market in Sri Lanka. The purpose of the research is to investigate the influence of macroeconomic variables on SMP for the period of 1995 to 2019.

From the previous literature, it appears that there is no common consensus on the influence of macroeconomic variables on SMP. Therefore, the present study provides the contributions to the extant literature in several ways. This study extends the existing literature by analysing the association between macroeconomic variables on SMP in an emerging economy. It supports to improve a better understanding of the effects of macroeconomic factors on

developing markets which have different institutions, structure and organizations compared to the developed markets. It provides a considerable practical significance since its econometric findings assist the application of proper regulatory, financial and economic policies. The findings of the study will be used by the financial analysts, owners and other stakeholders for their better decision making. The outcome of the research and subsequent policy recommendations may serve as a valuable reference for policy makers to prudently manage the macroeconomic forces to enhance the SMP of Sri Lanka in order to formulate of economic targets and policies.

## 2. LITERATURE REVIEW

Several studies have been conducted globally about various macroeconomic variables and capital markets but the findings are inconsistent because of the different economic environment. The study viewed the stock market performance from different perspectives in addition to different theoretical frameworks.

### 2.1 Theoretical review
### 2.1.1 Efficient Market Hypothesis

The Efficient Market Hypothesis (EMH) was first developed by Fama (1970). In the share market, this investment theory described as share prices fully reflect all accessible information. Moreover, the important way investors receive higher yields through investing in high-risk securities, and it ought to be challenging to outperform the

general market through expert in trading stocks.

### 2.1.2 Capital Assets Pricing Model

Capital Assets Pricing Model (CAPM) was developed by Sharpe (1964), Black (1972) and Lintner (1965). This model describes the association between systematic risk and expected return for the assets. It is widely used for assessing the cost of capital and also evaluating the performance of a portfolio. According to Hur and Chung (2017), in view of Korea's lead rising of stock market and discovered empirical evidence to bolster these theoretical implications. The CAPM will influence the linkage among macroeconomics variables and SMP.

### 2.1.3 Arbitrage Pricing Theory

The Arbitrage Pricing Theory (APT) was presented by Ross (1976). It predicts the return using the association between macroeconomic variables and expected return. This theory is an extension of the CAPM which is based on one aspect demonstrating that there is only one independent variable which is the risk premium of the market. CAPM and APT have the identical assumptions such as homogenous expectations, perfectly competitive markets, and frictionless capital markets. However, Ross (1976) suggests a multifactor method to elucidating asset pricing through the APT.

### 2.2 Empirical Review

Share market is the place where stocks are traded. Ordinary share is representing an ownership in a company. It provides the capital for a company. Year by year stock market becomes more institutionalizing (Campbell et al., 1997). Number of organizations and individuals are arranging large investments funds in stock market. Make money directly is the main purpose of investing in stocks. Few studies demonstrate the crucial role of macroeconomic variables such as INF, industrial production index, IR, and foreign ER in elucidating the SMP (Kandir, 2008 and Muhammad et al., 2009).

Aurangzeb (2012) reveals that stock price movements are directly linked to company performance, movement of macroeconomic variables or government actions. Thus, investor must have good knowledge about right time to make right decision whenever these fundamentals produce something different. Several research studies reveal that stock market returns are positively associated with economic growth of the country.

### 2.2.1 Gross Domestic Product

The various studies have been conducted on GDP and share price. Few studies reveal that GDP and stock market index are positively associated (Nijam et al, 2015; Sireesha, 2013). But, Hunjra et al. (2014) explored that GDP has no association with stock price index in Pakistan. In Taiwan, GDP has great effect on stock market return which is revealed by Singh et al. (2011). Further Momani and Alsharari (2012) found there is significant statistical impact on share price with national production through their study. At the same time, EI-Nader and Alrainmony (2013) reveals that stock market development is

negatively affected by nominal GDP in Jordan stock market. Ademola (2014) cited in Osamwonyi and Evbayiro-Osagie (2012) found that GDP growth rate increases, Stock prices also will rise. Jayasundara et al. (2019) indicated that real GDP influences positively on the ASPI (All Share Price Index) in emerging market. Marques et al. (2013) also indicated that the growth of the economy is influenced by the growth of the stock market whereas Kapaya (2020) revealed unidirectional linkage between stock market and GDP. Gurloveleen and Bhatia (2015) analysed the influence on BSE 500 manufacturing companies from 2006 to 2015 and identified no association during that period. Tiryaki et al. (2019) revealed that stock market return has a positive association with industrial production. Francis et al. (2021) identified that industrial production is positively associated with share price in Sri Lankan context in long run. Therefore, the following hypothesis is developed.

$H_1$: Gross domestic product positively influences on SMP.

## 2.2.2 Interest Rate

The impact of Treasury bill rate has positive but week effect on the SMP concluded in their research study by Kyereboah and Agyire-Tetty (2008). Chen et al. (2012) suggested that, there is strong co-relation between macroeconomic variables such as IR on the stock price as well as volume indices. Aurangzeb (2012) found that IR exerts significant negative relationship with share price through his study. Jayasundara et al. (2019) found that IR shows a negative

impact towards the ASPI. But few studies demonstrate that IR is positively correlated with share price (Nijam et al., 2015; Khrawish et al., 2010). Amarasinghe (2015) reveals that the association between IR and stock prices is dynamic and revealed an inverse impact of IR on stock prices in Sri Lanka for the period of 2007 t0 2003. Ajaz et al. (2017) found that because of changing IR, there was an asymmetric effect in stock market for the period of 1991 to 2015. Chang and Rajput (2018) investigated impact of IR on stock prices in Pakistan and found that IR has an inverse association. Furthermore, macroeconomic factors have symmetric association in the long term whereas asymmetric in short term. Lee and Brahmasrene (2018) didn't identify any effect of IR in short run in Korea. Anwer et al. found that there was no or little impact of policy rate of monetary authority on developing countries due to inefficient policy method. Hence, the following hypothesis is constructed,

$H_2$: Interest rate negatively influences on SMP.

## 2.2.3 Inflation

Inflation is a macro-economic variable that directly influence on the stock market fluctuations which was found by Chen et al. (2012) in their study. At the same time Zohaib et al. (2012) through their study reveals that inflation has insignificant impact on stock returns of Kenya Stock Exchange. Kyereboah and Agyire (2008) demonstrate that inflation was found to be adverse effect on the SMP. Pal and Mittal (2011) revealed

that inflation and market performance are negatively correlated in India. Moreover, Aurangzeb (2012) on Ghana Stock Market found out that inflation has negative impact on SMP. Ho (2017) analysed SMP in Malaysia and found that inflation has an inverse effect, and Lee and Brahmasrene (2018) indicated that an inverse effect of inflation rate in short term in Korea. Few studies found that inflation and share price are positively associated in Sri Lanka (Chang & Rajput, 2018; Hemamala & Jameel, 2016; Shafana, 2014; Balagobei, 2017). Controversy few studies found that INF has no significant relationship with market return (Perera, 2015; Wickramasinghe, 2011 and Lakmali & Madhusanka, 2015). Furthermore, Megaravalli and Sampagnaro (2018) showed that inflation and SMP are not associated in long term in China, Japan and India. Using Granger causality test, they found that inflation rate and SMP cannot be predicted in Japanese and Indian stock market. Therefore, the hypothesis is developed as,

$H_3$: Inflation rate negatively influences on SMP.

## 2.2.4 Exchange rate

ER is one of the most prominent factors in economy. Through exchange rate nations currency explain by another currency. It clearly demonstrates that stock market capitalization, stock price and stock return are significantly influence by the ER, which discover by Mazuruse (2014) throughout his research. Shafana (2014) revealed that ER is negatively correlated with stock prices in Colombo Stock Exchange for the period of 2008-2011. But Balagobei (2017) indicated that ER positively influences stock market return in Sri Lanka and Francis et al. (2021) also found that ER positively affects the share price in CSE in the long term. Moreover, Wong (2017) examined the relationship between the share market and real ER, and revealed that stock market is negatively correlated with real ER in Asia and Europe countries. Liang, Lin and Hsu (2013) demonstrated the ER inversely influences the stock market from 2008 to 2011 using monthly secondary data for the countries of Indonesia, Thailand, Philippines, Malaysia and Singapore. Dahir et al. (2018) analysed about ER in the countries of BRICS and concluded that Brazil and Russia have favourable effect in medium and long term whereas India has an inverse association. Megaravalli and Sampagnaro (2018) investigated the association between short term and long term using only 107 observations, and found that ER has a positive relationship with share market of Japan, India, and China from 2008 to 2016. Effiong and Bassey (2018) studied the ER on share market in Nigeria. Therefore, the hypothesis is developed as follows,

$H_4$: Exchange rate negatively influences on SMP.

## 2.2.5 Money Supply

Zoa et al. (2014) revealed that MS theoretically has a favourable effect on share prices. Moreover, growth of money supply will influence growth in money and growth in an

economic activity which leads to increase the share price. Wickramasinghe (2011) showed that ASPI has a bi-directional causal association ASPI and MS (M1), and MS has a vital role in demonstrating the estimate variance in share prices. Balagobei (2017) revealed that MS has not shown any influence on SMP in Sri Lanka. But, Francis et al. (2021) found that there was no impact of MS on stock price in CSE in long term. Moreover, Leenee and Taylor (2014) identified that MS positively influences stock prices in Malaysia. Tiryaki et al. (2019) investigated effects of MS on the share prices in Turkey and revealed that contractionary monetary tools influence mainly SMP as compared to expansionary monetary tools. Etale and Eze (2019) examined the influence in long term as well short term on Nigeria concerning broad MS and indicated that it influences favourably. Based on the prior evidences, the hypothesis is constructed as follows,

$H_5$: Money supply positively influences on SMP.

The findings of impact of macroeconomic variables on SMP were mixed in the previous studies. So, the study is conducted to generalize the findings.

## 3. METHODS

Research Methodology consists of techniques and procedures to be employed to carry out the research. It focuses on research design, approach, sample, data source and analysis methods. In this study, the data was collected from the secondary data sources. ASPI data was gathered using annual reports of CSE whereas the macro economic data was derived from Central bank's annual reports, Securities and Exchange Commission (SEC) and Department of Census and Statistics in Sri Lanka.

The population of the study consists of all listed companies in CSE from 1995 to 2019. The CSE is the main stock exchange and responsible for the activities of the share market in Sri Lanka. It covered 286 firms under 20 business sectors in 2019. Method of data analysis represents the descriptive statistics as well as inferential statistics. Descriptive statistics describe the characteristics of the variables of the study. Inferential statistics consist of Pearson's correlation and multiple regression analysis.

The study employs the multiple linear regression model which involves in examining the impact of selected macroeconomic variables on SMP.

$$ASPI = \beta_0 + \beta_1 GDP + \beta_2 IR + \beta_3 INF + \beta_4 ER + \beta_5 MS + \varepsilon$$

Where:
ASPI – All Share Price Index
$\beta_1, \beta_2 \beta_3, \beta_4, \beta_5$– Regression coefficient
GDP – Gross Domestic Product
IR – Interest Rate
INF – Inflation Rate
ER – Exchange Rate
MS – Money supply
$\varepsilon$ – Error term

Five variables have been considered as macroeconomic variables such as GDP (log of GDP), IR (annual rate

for 364 days' treasury bill); INF (annual inflation rate); ER (ER between Sri Lankan rupee and US dollar); and MS (Broad money supply (M2b)) whereas ASPI is utilized as the proxy for SMP.

## 4. RESULTS AND DISCUSSION

### 4.1 Descriptive Statistics

It is used to describe the basic features of the data gathered for this study. The usual descriptive statistics includes maximum, minimum, mean, and standard deviation.

As seen in table 1 the average GDP is 5.08% with minimum value -1.5% and maximum value 9.1%. IR has a mean value 11.57% with the standard deviation (SD) of 4.156. Further the average INF is 8.20 with a SD of 4.837 and ER has an average value Rs.107.34. The average of MS is Rs.2304.34 billion with SD 2279.56. In the case of dependent variables, ASPI shows a mean performance of 3316.19 with SD of 2622.76 and has a wide range from 447.60 to 7299.

### 4.2 Correlation Analysis

The study uses a Pearson's correlation analysis to discover the association and direction of the macroeconomic variables and SMP.

Table 2 represents that correlation coefficient between GDP and ASPI is 0.173 which is not significant at 0.05 level (p=0.406>0.05) and it indicates that GDP isn't associated with ASPI. Other macroeconomic variables such as IR, INF have a significant negative association with SMP while ER and MS have a

positive significant association with SMP at 0.05 levels.

### 4.3 Multicollinearity and Homoscedasticity

Multicollinearity refers to the situation where two or more explanatory variables are highly related with one other. It refers to "the successive inclusion of additional variables that lift the collinearity of the full set of explanatory variables to a 'harmful' level" (Lauridsen & Mur, 2006).

Variance inflation factor (VIF) is a statistical tool employed to recognize the issue of multicollinearity. If the VIF is greater than 10, there is a multicollinearity problem (Hair et al., 1995). In this study there was the absence of multicollinearity problem among the macroeconomic variables as all VIFs are less than 10.

As seen in table 4, there is no heteroscedasticity in the model (p>0.05) which means that errors are spread out consistently between the variables.

### 4.4 Unit Root Test

Economic and financial variables usually exhibit trending behaviour. This study uses the Augmented Dickey Fuller (ADF) test to detect the presence of unit root in the variables.

Table 5 shows that three macroeconomic variables such as GDP, IR and INF are stationary at level. The series of ER, MS and ASPI consist of unit root and are therefore non-stationary processes,

but the first difference of the time series turns out to be stationary.

## 4.5 Multiple Regression Analysis

Multiple regression analysis is performed to examine the impact of macroeconomic variables on SMP in Sri Lanka. As seen in table 6, the adjusted R-squared value is 0.919 which represents 91.9% of observed variation of ASPI is explained by the changes in the independent variables namely GDP, IR, INF, ER and MS. Remaining part 8.1% of the variation is related to the other factors which are not shown in this model. Moreover, the model is significant and more appropriate to this study (F=53.289, p < 0.01).

As seen in table 6, the SMP is significantly affected by only four macro-economic variables namely GDP, IR, ER and MS. The table shows that GDP has a significant positive influence on SMP in Sri Lanka (ß=2702.804, p<0.05). $H_1$ states that GDP positively influences on SMP. Hence, this hypothesis has been supported. The finding collaborates with previous empirical studies of Marques et al. (2013) Nijam et al. (2015), Sireesha, (2013), Ademola (2014) and Jayasundara et al. (2019). Moreover, the coefficient of IR indicates that IR has a negative significant influence on SMP in Sri Lanka (ß=-284.90, p<0.05). $H_2$ states that IR negatively influences on SMP. Hence, this hypothesis has been supported. The negative association between IR and ASPI is demonstrated in the studies of Aurangzeb (2012), Jayasundara et al. (2019), Amarasinghe (2015), and Chang and Rajput (2018).

The table 6 shows that INF has not significant influences on SMP (ß = -1151.690, p>0.05) in Sri Lanka. $H_3$ states that IF negatively influences on SMP. Hence, this hypothesis has not been supported. The finding collaborates with extant studies such as Zohaib et al. (2012), Perera (2015), Lakmali and Madhusanka (2015) and Wickramasinghe (2011).

The table 6 displays that ER has a significant negative influence on SMP (ß=-17724.98, p<0.01) in Sri Lanka. $H_4$ states that ER negatively influences on SMP. Therefore, this hypothesis has been supported. The finding collaborates with previous studies of Shafana (2014), Wong (2017), and Liang et al. (2013). According to the table 6, MS has a significant positive influence on SMP in Sri Lanka (ß =10073.43, p<0.05). $H_5$ states that MS positively influences on SMP. Hence, this hypothesis has been supported. The positive association between MS and ASPI collaborates with prior studies (Francis et al., 2021; Leenee & Taylor, 2014; Etale & Eze, 2019).

## 5. CONCLUSION

The aim of this study is to examine the influence of macroeconomic variables on SMP in Sri Lanka. Whole listed companies in Colombo stock exchange have been considered in this study. It can be concluded that out of five macro-economic variables only four macro-economic variables have a significant influence on SMP. GDP and MS have a positive influence on SMP whereas IR and ER have a negative influence on SMP in Sri

Lanka. But SMP is not affected by INF in the economy.

Based on the analysis, IR has a negative influence on the ASPI. Investors prefer to make the investment in the financial assets such as treasury bills and bonds than investing to common stock as the return rate on the financial assets is higher than the common stocks. Their policy IR is changed by Central bank time to time. The policy makers should maintain the IR at lower level to keep price higher for the shares which would attract more investment.

Furthermore, the findings reveal that the INF doesn't have any significant influence on ASPI. However, to achieve the stable low-level inflation rate, currently Central bank has moved their view towards an INF targeting monetary policy. Moreover, findings reveal that exchange rate affects negatively on the ASPI. Presently, a Sri Lankan rupee has continuously depreciated against the dollars which would create an unfavourable effect on ASPI. Moreover, the study shows that MS has a positive influence on the ASPI.

The recommendations are discussed in this study. As GDP is positively associated with SMP, an economy should focus on manufacturing, industrial and service sectors to develop their operations. Prudent macroeconomic and fiscal policy management should support to mitigate the fluctuations in IR and ER. Stability in these variables has significant implications for SMP. The government must formulate strategies to reduce the adverse consequences of the macroeconomic variables that have a negative effect. Future researchers will be stimulated to do the research wider into the influence of the macro-economic factors on SMP of several emerging economies rather than concentrate on one economy for comparison purpose between the nations. Hence, future researchers could support to produce more information on the SMP and trend of few nations at once which bring ease for others parties like policymakers, investors and future researchers as a reference purposes.

Future researchers will be motivated to make the selection on the variables with higher frequency data available to enhance the accuracy of the result to be generated in the data analysis part. Further, future researchers are suggested to generate the result by employing more type of data analysis to enhance the comprehensive association between the variables. For example, Co-integration test, granger causality test and VECM test may be employed to boost the understanding about the variables.

**APPENDIX**

**Table 1. Descriptive Statistics**

| Variables | Minimum | Maximum | Mean | Std. Deviation (SD) |
|---|---|---|---|---|
| GDP | -1.50 | 9.10 | 5.08 | 2.20 |
| IR | 6.01 | 19.96 | 11.57 | 4.15 |
| INF | 0.90 | 22.60 | 8.20 | 4.83 |
| ER | 51.25 | 178.78 | 107.34 | 33.57 |
| MS | 228.50 | 7627.28 | 2304.34 | 2279.56 |
| ASPI | 447.60 | 7299.00 | 3316.19 | 2622.76 |

Source: Survey data

**Table 2.  Correlation Analysis**

| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| GDP (1) | 1.000 | | | | | |
| IR (2) | 0.027 0.894 | 1.000 | | | | |
| ER (3) | -0.072 0.728 | -0.520 0.007 | 1.000 | | | |
| INF (4) | 0.020 0.923 | 0.665 0.000 | -0.356 0.080 | 1.000 | | |
| MS (5) | -0.024 0.906 | -0.509 0.009 | 0.966 0.000 | -0.424 0.034 | 1.000 | |
| ASPI (6) | 0.173 0.406 | -0.569 0.003 | 0.873 0.000 | -0.442 0.026 | 0.937 0.000 | 1.000 |

(Source: Survey Data)

**Table 3: Multicollinearity**

| Variables | VIF |
|---|---|
| GDP | 1.129 |
| IR | 2.605 |
| INF | 2.128 |
| ER | 8.252 |
| MS | 8.316 |

(Source: Survey data)

**Table 4: Heteroskedasticity test: Breusch-Pagan-Godfrey**

| | | | |
|---|---|---|---|
| F-statistic | 1.138 | Prob. F(5,19) | 0.374 |
| Obs- R-squared | 5.762 | Prob. chi-Square | 0.330 |
| Scaled explained SS | 1.900 | Prob. chi-Square | 0.862 |

(Source: Survey data)

**Table 5: Augmented Dickey Fuller (ADF) test for 1995 - 2019**

| Macroeconomic Variables | Level | | First differences | |
|---|---|---|---|---|
| | t-statistic | Prob.* | t-statistic | Prob.* |
| GDP | -3.543 | 0.015 | - | - |
| IR | -3.224 | 0.031 | - | - |
| ER | 0.898 | 0.993 | -4.240 | 0.014 |
| INF | -3.267 | 0.028 | - | - |
| MS | -1.333 | 0.596 | -2.403 | 0.018 |
| ASPI | -0.419 | 0.889 | -5.345 | 0.000 |

(Source: Survey data)

**Table 6. Multiple Regression for ASPI**

| Variables | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 6654.44 | 5019.75 | 1.32 | 0.20 |
| GDP | 2702.80 | 1133.72 | 2.38 | 0.02 |
| IR | -284.90 | 803.37 | -0.35 | 0.02 |
| ER | -17724.98 | 4446.43 | -3.98 | 0.00 |
| INF | -1151.69 | 696.09 | -1.65 | 0.11 |
| MS | 10073.43 | 1418.89 | 7.09 | 0.00 |
| R-squared | 0.936 | Durbin-Watson stat | | 1.655 |
| Adj. R-squared | 0.919 | | | |
| F-statistic | 53.289 | | | |
| Prob (F-statistic) | 0.000 | | | |

(Source: Survey Data)

# REFERENCES

Ademola, A. M. B. (2014). Understanding the relationship between some macro-economic variables and movement of stock prices of selected banks in Nigeria, *International Journal of Management Sciences and Humanities*, *2*(2), 208-233.

Ajaz, T., Nain, M.Z., Kamaiah, B. and Sharma, N.K. (2017). Stock prices, exchange rate

and interest rate: evidence beyond symmetry, *Journal of Financial Economic Policy, 9*(1)*, 1-18.

Alam, Z., and Rashid, K. (2014). Time Series Analysis of the Relationship between Macroeconomic Factors and the Stock Market Returns in Pakistan. *Journal of Yasar University*, *9*(36).

Ali, M. B. (2011). Impact of micro and macroeconomic variables on emerging stock market return: A case on Dhaka stock exchange (DSE). *Interdisciplinary Journal of Research in Business*, *1*(5), 8-16.

Altin, H. (2015). Efficient market hypothesis, abnormal return and election periods. *European Scientific Journal*, *11*(34), 169-178.

Amarasinghe, A. (2015). Dynamic relationship between interest rate and stock price: Empirical evidence from Colombo stock exchange. *International Journal of Business and Social Science*, *6*(4), 92-97.

Anwer, Z., Azmi, W. and Ramadili Mohd, S. M. (2019), How do Islamic equities respond to monetary actions?, *International Journal of Emerging Markets, 14* (4), 503-522.

Aurangzeb, D. (2012). Factors affecting performance of stock market: Evidence from south Asian countries. *International journal of academic research in business and social sciences*, *2*(9), 1-15.

Balagobei, S. (2017). Macroeconomic Variables and Stock Market Returns in Sri Lanka. *Asian Journal of Finance & Accounting, 9*(2), 206-218.

Bhattacharya, B., and Mukherjee, J. (2002). The nature of the causal relationship between stock market and macroeconomic aggregates in India: An empirical analysis. In *4th annual conference on money and finance, Mumbai*, 401-426.

Campbell, J. Y., Champbell, J. J., Campbell, J. W., Lo, A. W., Lo, A. W., and MacKinlay, A. C. (1997). *The econometrics of financial markets*. Princeton University press.

Chang, B.H. and Rajput, S.K.O. (2018). Do the changes in macroeconomic variables have a symmetric or asymmetric effect on stock prices? Evidence from Pakistan, *South Asian Journal of Business Studies,7*(3), 312-331

Chen, M. H., Agrusa, J., Krumwiede, D., and Lu, H. J. (2012). Macroeconomic influences on Japanese hotel stock returns. *Journal of Hospitality Marketing & Management*, *21*(1), 81-99.

Dahir, A.M., Mahat, F., Ab Razak, N.H. and Bany-Ariffin, A.N. (2018). Revisiting the dynamic relationship between exchange rates and stock prices in BRICS countries: a wavelet analysis, *Borsa Istanbul Review*, *18*(2), 101-113.

Effiong, E.L. and Bassey, G.E. (2018). Stock prices and exchange rate dynamics in Nigeria: an asymmetric perspective, *Journal of International Trade and Economic Development*, *28*(3), 299-316.

EI-Nader, H. M., and Alrainmony, A. D. (2013). The Macroeconomic Determinants of Stock Market Development in Jordan, *International Journal of Economics and Finance*, *5*(6), 91-103.

Eita, J. H. (2012). Modelling macroeconomic determinants of stock market prices: Evidence from Namibia, *Journal of Applied Business Research (JABR)*, *28*(5), 871-884.

Etale, L.M. and Eze, G.P. (2019). Analysing stock market reaction to macroeconomic variables: evidence from Nigerian stock exchange (NSE), *Global Journal of Arts, Humanities and Social Sciences*,*7*(3), 14-28.

Fama, E. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work, *Journal of Finance, 25*, 383-417.

Francis, S. J., Ravinthirakumaran, N., and Ganeshamoorthy, M. (2021). The impact of macroeconomic variables on stock prices in Sri Lanka: a bounds testing approach, *International Journal of Accounting & Business Finance*, *7*(Special), 68 – 91.

Gunasekarage, A., and Colombage, S. R. N. (2002). The Behaviour of Share Prices in Emerging Markets: Evidence from the Colombo Stock Exchange. *Vidyoday: Journal of Management Science*, *1*(1 & 2) 2002: 94-116.

Gunasekarage, A., Pisedtasalasai, A., and Power, D. M. (2004). Macroeconomic influence on the stock market: evidence from an emerging market in South Asia, *Journal of Emerging Market Finance*, *3*(3), 285-304.

Gurloveleen, K. and Bhatia, B.S. (2015). An impact of macroeconomic variables on the functioning of Indian stock market: a study of manufacturing firms of BSE 500, *Journal of Stock and Forex Trading, 5*(1), 1-7.

Hatemi-J, A. (2002). Money supply and the informational efficiency of the stock market in Korea: evidence from an alternative methodology. *Journal of Economic Integration*, *17*(3), 517-526.

Hemamala, R. K. K., and Jameel, A. L. M. (2016). Relationship between inflation and stock market return: special reference to the Colombo stock exchange (CSE), *5th Annual International Research Conference-2016 Faculty of Management and Commerce- SEUSL,* 40-48.

Ho, S. Y. (2017). The macroeconomic determinants of stock market development: evidence from Malaysia, *Munich Personal RePEc Archive*, *5*(6), 2-28.

Hunjra, A. I., Chani, D., Irfan, M., Ijaz, M. S., and Farooq, M. (2014). The impact of macroeconomic variables on stock prices in Pakistan, *International Journal of Economics and Empirical Research*, *2*(1), 13-21.

Hur, S. K., and Chung, C. Y. (2017). Revisiting CAPM betas in an incomplete market: Evidence from the Korean stock market. *Finance research letters*, *21*, 241-248.

Jayasundara, J. M. D. P., Rathnayake, R. M. A. K., and Fernando, P. J. S. (2019). Impact of macroeconomic variables on Stock Market Performance s: Evidence from Sri Lanka. *Sri Lanka Journal of Business Economics*, *8*(1), 67-89.

Kapaya, S.M. (2020). Stock market development and economic growth in Tanzania: an ARDL and bound testing approach, *Review of Economics and Political Science*, 187-206.

Kandir, S. Y. (2008). Macroeconomic variables, firm characteristics and stock returns: Evidence from Turkey. *International research journal of finance and economics*, *16*(1), 35-45.

Khrawish, H. A., Siam, W. Z., and Jaradat, M. (2010). The relationships between stock market capitalization rate and interest rate: Evidence

from Jordan, *Business and Economic Horizons (BEH)*, *2*(1232-2016-101136), 60-66.

Kyereboah-Coleman, A., and Agyire-Tettey, K. F. (2008). Impact of macroeconomic indicators on Stock Market Performance, *The Journal of Risk Finance*, *9*(4), 365-378.

Lakmali, A., and Madhusanka, K. J. S. (2015). The Effect of Macro-Economic Variables on Stock Prices in Sri Lankan Stock Market, *International Research Symposium Rajarata University of Sri Lanka*, 86-93.

Lee, Y. K., Ng, Y. L., Soon, C. Y., and Thou, L. Y. (2017). *The Relationship between Macroeconomic Variables and Stock Market Performance in Thailand* (Doctoral dissertation, UTAR).

Lee, J.W and Brahmasrene, T. (2018). An exploration of dynamical relationships between macroeconomic variables and stock prices in Korea, *The Journal of Asian Finance, Economics and Business,5*(3), 7-17.

Leenee, A., and Taylor, C. (2014). Impacts of Crude Oil Price & Money Supply on Stock Price: The Case of Malaysia. https://doi.org/10.13140/2.1.3305.6000.

Liang, C. C., Lin, J. B., and Hsu, H. C. (2013). Re-examining the Relationships between Stock Prices and Exchange Rates in ASEAN-5 using Panel Granger Causality Approach, *Economic Modelling*, 32, 560-563.

Lintner, J. (1965). The valuation of risk assets on the selection of risky investments in stock portfolios and capital budgets, *Review of Economics and Statistics, 47*(1),13-37.

Marques, L.M., Fuinhas, J.A. and Marques, A.C. (2013). Does the stock market cause economic growth? Portuguese evidence of economic regime change, *Economic Modelling, Elsevier B.V, 32*(1), 316-324.

Mazuruse, P. (2014). Canonical correlation analysis, *Journal of Financial Economic Policy*, *6*(2), 179-196.

Megaravalli, A.V. and Sampagnaro, G. (2018). Macroeconomic indicators and their impact on stock markets in ASIAN 3: a pooled mean group approach, *Cogent Economics and Finance*, *6*(1),1-14.

Menike, L. M. C. S. (2006). The effect of macroeconomic variables on stock prices in emerging Sri Lankan stock market. *Sabaragamuwa University Journal*, *6*(1), 50-67.

Mishkin, F., and Eakins, S. (2011). Financial institutions and the markets, *Pearson Education, Inc*.

Momani, G. F., and Alsharari, M. A. (2012). Impact of economic factors on the stock prices at Amman stock market (1992-2010). *International Journal of Economics and Finance*, *4*(1), 151-159.

Muhammad, S. D., Hussain, A., Ali, A., and Jalil, M. A. (2009). Impact of macroeconomics variables on stock prices: Empirical evidence in case of KSE, *European Journal of Scientific Research*, *38*(1), 96-103.

Nijam, H. M., Ismail, S. M. M., and Musthafa, A. M. M. (2015). The impact of macro-economic variables on Stock Market Performance; evidence from Sri Lanka, *Journal of Emerging Trends in Economics and Management Sciences*, *6*(2), 151-157.

Osamwonyi, I. O., and Evbayiro-Osagie, E. I. (2012). The relationship between macroeconomic variables and stock market index in Nigeria, *Journal of Economics*, *3*(1), 55-63.

Pal, K., and Mittal, R. (2011). Impact of macroeconomic indicators on Indian capital markets, *The Journal of Risk Finance*, *12*(2), 84-97.

Patro, D. K., Wald, J. K., and Wu, Y. (2014). Currency devaluation and stock market response: An empirical analysis, *Journal of International Money and Finance*, *40*, 79-94.

Perera, P. R. M. R. (2015). Macroeconomic variables effect on All share price index in Colombo stock exchange of Sri Lanka, *International Journal of Scientific & Engineering Research,* *6*(6), 960–961.

Perold, A. F. (2004). The capital asset pricing model, *Journal of economic perspectives*, *18*(3), 3-24.

Shafana, M. A. C. N. (2014). Macroeconomic variables effect on financial sector performance in Emerging Sri Lankan Stock Market, *International Journal of Science and Research*, *3*(10), 227-231.

Sharpe, W.F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk, *Journal of Finance, 19*(3), 425-442.

Singh, T., Mehta, S., and Varsha, M. S. (2011). Macroeconomic factors and stock returns: Evidence from Taiwan. *Journal of economics and international finance*, *3*(4), 217-227.

Sireesha, P. (2013). Effect of select macro-economic variables on stock returns in India. *International Journal of Marketing, Financial Services & Management Research*, *2*(6), 197-209.

Tiryaki, A., Ceylan, R. and Erdogan, L. (2019). Asymmetric effects of industrial production, money supply and exchange rate changes on stock returns in Turkey, *Applied Economics*, *51*(20), 2143-2154.

Wickremasinghe, G. (2011). The Sri Lankan stock market and the macro economy: an empirical investigation, *Studies in Economics and Finance*, *28*(3), 179-195.

Wong, H. T. (2017). Real Exchange Rate Returns and Real Stock Price Return, *International Review of Economics & Finance, 49*, 340-352.

Zoa, C. H., Chet, F. W., Sheng, H. Y., Lin, W. H., and Shen, Y. J. (2014). The Impact of Macroeconomic Variables on the Stock Market Performance in Japan, *Thesis, Faculty of Banking and Finance (FBF), Universiti Tunku Abdul Rahman (UTAR).*

Zohaib Khan, S. K. (2012). Impact of Interest rate, Exchange rate and Inflation, *Int. J. Eco. Res*, 315, 142-155.