

# **SRI LANKA ECONOMIC JOURNAL**

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# IMPACT OF MACROECONOMIC VARIABLES ON COLOMBO STOCK EXCHANGE: THE SRI LANKAN EXPERIENCE

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## Abstract

The main attempt of this study is to examine short and long run relationships between selected macroeconomic indicators such as, Real Gross Domestic Product (GDP), Consolidated Broad Money (M2b), Reserve Money, Petroleum Crude Oil Imports, Average Exchange Rates, Index of Real Effective Exchange Rate (REER), Government one-year Treasury Bills Rate (as a measure of interest rates), Gold Prices, and the All Share Price Index (ASPI). Johansen Co-integration, Vector Autoregressive Regression (VAR) and Vector Error Correlation Methodology (VECM) are mainly used to examine the long term and short term relationships with references to the Colombo Stock Exchange (CSE), Sri Lanka, from monthly data during the period of 2010 to 2016. The results show the relationships in the long run from independent variables to the dependent variable ASPI. Furthermore, Wald statistical results detected that, as the Colombo Stock Market, CSE is more sensitive to external factors such as changes in Broad Money and Month-end Government Securities. The analysis presented in this study relies on data from CSE, Sri Lanka only. The contribution of this research is related to the analysis from a theoretical and empirical perspective of both domestic and international, and policy makers to make better investment decisions.

**Keywords:** Macroeconomic Variables; Johansen co-integration; Vector Autoregressive Regression; Colombo Stock Exchange

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## 1. Introduction

The main player of the financial sector is the capital market which offers a path to the users (borrowers) and suppliers (investors) of financial resources for investment purposes. It enables the country to achieve economic growth as capital formation is promoted and takes place through the capital market. In practice, the macroeconomic stability of the economy motivated the foreign investors in the form of Foreign Direct Investments (FDI) and Foreign Portfolio Investments (FPI), in order to meet the increasing capital requirement for rapid economic growth (R. K. T. Rathnayaka, Seneviratna, Jianguo, & Arumawadu, 2015). Literature reveals that several factors have been directly influencing stock market fluctuations (Anderson, Hoffman, & Rasche, 2002; R. K. T. Rathnayaka et al., 2015). Among these the changing pace/rate of inflation is significant. When inflation has been running under low levels, the exchange rates have been increasing at a significantly lower level relative to other countries. As a result, its goods and services have been in high demands (Azeez & Yonezawa, 2006). Current account balance of the country is another significant factor, as it highly affects stock market variations. It reflects the balance of trade and earnings on foreign investments. Political stability along with economic stability is also significant factor which directly affects stock market indices. A country which is stable with strong economic performance has received the attraction of foreign investors (Jayathileke & Rathnayake, 2013).

Goswami (2013) conducted a study to examine the short term and long term equilibrium relationships between the selected macro-economic variables with respect to the stock indices in Korea, using Vector error correction methodology (VECM). Their result reveals that, Korean Stock Exchange is strongly co-integrated with economic variables. Azeez and Yonezawa (2006) have carried out a similar type of study to measure the exchange rate volatility with respect to the real exchange rate, GDP per capita, trade openness and foreign direct investment in SAARC countries. This included Pakistan, India and Sri Lanka and the study revealed a negative relationship between exchange rate volatility and FDI.

## 2. Overview of the Sri Lankan Equity Market

The Colombo Stock Exchange (hereinafter referred to as CSE) is a company limited by guarantee, established under the Companies Act No. 17 of 1982 and licensed by the Securities & Exchange Commission of Sri Lanka (hereinafter referred to as SEC) (D. Chen & Seneviratna, 2014; Seneviratna & Shuhua, 2013; Seneviratne & Jianguo, 2013). In 1985, the Colombo Brokers Association and the Stock Brokers Association were amalgamated along with trading floors to constitute the Colombo Securities Exchange. The name changed from the Colombo Securities Exchange (GTE) Limited to the CSE in 1990. Automation of the Clearing House of the CSE with the establishment of the

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Central Depository System has been upgraded in 1991. The CSE is admitted as the 52nd member of the World Federation of Stock Exchanges in 1998. Automated market surveillance system has been introduced to the CSE in 2008 (Samaratunga, 2009). In 2019 June, there are 291 listed companies. Market Capitalization increased up to Rs 2,523.4 billion which amounts to 23.2 per cent of GDP of the country (Seneviratna & Shuhua, 2013).

Although the beginning of the Sri Lanka equity market dates back to 1896, it did not attract widespread attention of the world until the mid 1980's. In fact in 1990, the CSE was the second best performer in the world after Venezuela. Liberal economic policies that contained reduction of import restrictions and price controls, aggressive privatization programmes, abolishment of a 100 per cent tax on foreign investment in Sri Lankan equities, relaxing regulation of overseas remittances allowing foreign investors to remit their proceeds from sale of securities out of Sri Lanka etc., have immensely contributed for a remarkable upturn of the stock market, namely CSE.

However, even with the recent surge in trading volume and market capitalization, the CSE is still a small and "thinly/sparsely" populated market compared to the giants such as US and other developed markets in the world.

Sri Lankan stock market has been noted as appealing for international investors due to the political stability in post-war economy following the end of a 30 year armed conflict, restoring the investor confidence. Finally, Sri Lanka has been enjoying integration with universal stock markets.

The performance of the global capital market has not been healthy due to China's economic slowdown and a depreciating currency, and slumping world oil prices during early 2016 (January). In the second half of the year, the global stock market has recovered after the changes effected by external shocks.

Both the ASPI and Standard and Poor Sri Lanka 20 indices have closed out/ended 2017 in positive territory, switching course from a declining trend in 2015/2016. The daily average turnover increased to Rs.915 million in 2017 from Rs.737million in 2016. The investors have responded positively making a 24% improvement in trading activity year on year. The development in foreign purchases basically indicates the strong trust foreign investors have placed in the Sri Lankan Stock Market/ CSE, throughout the year. The ASPI continued to outperform major global indices and regional indices. Sri Lankan stock market is still recognized as a frontier market in the world. The CSE enjoys a monopoly, as the sole stock exchange/share market in Sri Lanka and therefore has no local competition. However, as an evolving market in the global environment, CSE has to compete with the emerging markets as well as evolving frontiers. As such, findings of this study would be useful to a greater extent in terms of decision making pertaining to performance of the CSE and also to gain valuable insights into the recent trends.

The capital market including the CSE is regulated by the SEC of Sri Lanka, which has introduced the following main changes this year onwards, namely strengthening regulatory and governance environment, increasing accountability and market oversight and rising standards and competencies of capital market participants. The process of demutualization of the CSE would enhance its efficiency and in addition, the global acceptability. These initiatives would lay a foundation for an efficient, systematic and a fair capital market which is both competitive and sustainable. These changes are highly significant to the Sri Lankan stock market, as CSE is currently on its way to move into a list of emerging stock markets.

The relationship between macroeconomic variables and the movement of indices have been well documented in the literature over last decades. It is often claimed that stock prices are determined by some fundamental macroeconomic variables. Consequently, macroeconomic variables can impact investment decisions and encourage many researchers to examine the relationship between stock market prices and macroeconomic variables.

This study attempts to recognize the relationship between the behaviors of selected macroeconomic indicators with regard to the performance of stock market. As such, the selected macroeconomic variables are considered as independent variables which have an impact on the dependent variable ASPI, that has been considered as the indicator of the performance of the CSE. The main objective of this study is to examine the relationship between macroeconomic variables and ASPI for a period of seven years (from 2010 - 2016) and to compute the level of interaction.

### **3. Methodology**

#### *3.1 The Unit Root and Co-integration and VAR Methodology*

The current study mainly deals with the empirical methodology which consists of Johansen co-integration, VAR and VECM, to explain the long term and short term predictability and profitability. The co-integration test methods were formed to determine the long – run relationships in order to capture the linear interdependencies among long –run or transitory aspects (R. Rathnayaka & Seneviratna, 2014; R. Rathnayaka, Seneviratne, & Wang, 2014; R. K. T. Rathnayaka, Jianguo, & Seneviratna, 2014; R. K. T. Rathnayaka et al., 2015).

The VAR methodology can be generalized as the univariate auto-regression model which is used in forecasting systems of interrelated time series, to analyze the dynamic impact of random disturbances on the systems of variables. The model explains the evolution of a set of  $p$  endogenous variables over the time period  $t$  where,  $t = 1, \dots, T$ . The variables are collected in a  $p \times 1$  vector  $y_t$  (C. J. Granger, 1986; Jayathileke & Rathnayake, 2013).



$$y_t = c + A_1 y_{t-1} + A_2 y_{t-2} + \dots + A_p y_{t-p} + \epsilon_t \quad (1)$$

Where  $y_t$  is a non-stationary vector ( $p \times 1$ ) with the  $I(1)$  lag of  $y$ . Intercept  $c$  is a  $k \times 1$  vector of constant to be estimated and  $A_i$  is a time-invariant  $p \times p$  matrix and  $\epsilon_t$  is a  $p \times 1$  vector of error term that may be contemporaneously correlated, but are uncorrelated with their own lagged values. In 1987, Engle and Granger pointed out that, the time series was said to be co-integrated if a non-stationary linear combination exists (Engle & Granger, 1987). On the other hand, if the series indicate a stationary linear combination, it is interpreted as a long-run and short-run equilibrium relationship among the variables (C. J. Granger, 1986; C. W. J. Granger, 1986).

### 3.2 Sources of Data

Data were obtained from annual reports of the CBSL, monthly trading reports from the CSE, various types of background readings and other relevant sources. Monthly data for the seven year period from January 2010 to December 2016 were extracted and tabulated. Selected macroeconomic variables are presented in Table 1.

**Table 1: Definition of Variables**

Variables	Definition of Variables
$ASPI_t$	All share Price Index of market-ended closing prices
$GDP_t$	Month-end per capita real Gross domestic product
$M2b_t$	Month-end per Broad money (M2b)
$RM_t$	Month-end Reserve Money
$PCI_t$	Month-end Petroleum - Crude oil imports
$MAER_t$	Monthly Average Exchange Rates
$REER_t$	Month-end Real Effective Exchange Rate Index
$GSP_t$	Month-end Government Securities(Per cent per annum)
$GP_t$	Month-end Gold Price
$CCPI_t$	Month-end Colombo Consumer Price Index

## 4. Data Analysis

### 4.1 Brief Description of Variables

The following researchers Samarakoon (1996); Gunasekarage, Pisedtasalasai, and Power (2004) and Nimal (1997) investigated performances related to the CSE during the time period from 1996 to 2006. As such, selecting the same independent variables in the abovementioned study, this research

examines/investigates the performance of the CSE, during the period from 2010 to 2016.

#### *4.2 All Share Price Index (ASPI)*

Indices are used as a gauge to measure the performance of the stock market as a whole. Rafique, Amara, and Sultana (2014) identified that the stock market performance is measured through associations in the index. The variation in the index is disturbed by macroeconomic, social, political, international variables and the firm's specific variables. A market index is a measure of the price level of a market at a specific point in time. ASPI functions as the market index as well as the dependent variable which measures the performance or returns, integrating the movement of all stocks in the stock market. Its base year is 1985 and corresponded to 100 points. ASPI is a valuable tool used by the investors and fund managers alike, to forecast the performance of the market. ASPI is the value-weighted price index where each stock is assigned a weight equal to its size, relative to the size of the market; size is measured by the market capitalization; change in index shows the weighted average change in prices.

According to leading/prominent literature, the following variables are selected as independent variables.

#### *4.3 Per Capita Real Gross Domestic Product (GDP)*

A stock market predominantly/largely promotes efficient mobilization of savings towards investments and thereby generates economic growth. It is in this light that the stock market acts as a barometer for economic development. The stock market affects GDP primarily by influencing financial conditions and consumer confidence. When stocks are in a bull market, there tends to be a great deal of optimism surrounding the economy. This confidence spills over into consumption, which leads to increased sales and earnings for corporates, boosting GDP. In former studies, researchers/scholars namely Geetha, Mohidin, Chandran, and Chong (2011), Singh, Mehta, and Varsha (2011) and Pal and Mittal (2011) among others, widely used GDP as one of their macroeconomic independent variables in their studies.

#### *4.4 Reserve Money and Consolidated Broad Money (M2b)*

Reserve Money and Consolidated Broad Money (M2b) as components of supply of money are used as proxies. As monetary instruments, these are variables used by the Central Bank of Sri Lanka (CBSL) to control the overall economy. Increase of money supply leads to increase in liquidity that eventually lead to consequences in upward movement of nominal share prices. It is therefore hypothesized that an increase in money supply is positively related to share

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market returns. In similar studies previously conducted, the following researchers such as Bilson, Brailsford, and Hooper (2001), Wongbangpo and Sharma (2002), Ibrahim and Aziz (2003) and Büyükşalvarcı (2010) among others, extensively used the supply of money as a macroeconomic variable.

#### *4.5 Petroleum - Crude oil imports*

Petroleum - Crude oil imports have been used as a proxy for oil imports. Increase in oil imports increases the cost of production. , Due to decrease in profit margins or decrease in demand of products, the earnings of the corporate sector also decreases. Thus, according to Büyükşalvarcı (2010), petroleum - crude oil imports are negatively related to share prices.

#### *4.6 Average Exchange Rates (Monthly) and Real Effective Exchange Rate Index (Month-end)*

Exchange rate is the price of a currency in a given/respective country, in terms of another currency that is generally one of the main international currencies (e.g. US\$, GBP etc) perceived as strong/stable. This study employs both variables Average Exchange Rates and Real Effective Exchange Rate Index. The foreign exchange rate estimates an average and an end of month US \$ /LKR's exchange rate (closing), each month. The changes in exchange rate affect the import demand, competitiveness and profitability of companies through changes in cost of production as well as in expected cash flow. Where the economy is import-driven, a depreciation of Sri Lankan Rupee increases cost of production which reduces future cash flows and profits. Consequently, a negative relationship between exchange rate and stock market performance can be assumed. The researchers such as Bhattacharya and Mookherjee (2001), Wongbangpo and Sharma (2002), Ibrahim and Aziz (2003) and Büyükşalvarcı (2010) among others, broadly used exchange rate as a macroeconomic variable.

#### *4.7 One year Treasury Bills Rates (Per cent per annum)*

As a proxy of interest rate, a 365-days maturity Sri Lankan government Treasury Bills Rate (Per cent per annum) was used in this study. The return to the investor is the difference between the par value and the purchase price of a treasury bill. Treasury Bills are short- term risk –free securities. Increase in interest rate leads to an increase in the discount rate. It finally results in an increase in the present value of future cash flows which represents a fair intrinsic value of shares. Similarly, high lending rates which increase the cost of borrowing (of loans) of listed companies, exert a discouraging effect on corporate profits and dividends. Therefore, it is generally expected that an increase in interest rate will negatively affect the share market returns. The following authors/scholars,

Wongbangpo and Sharma (2002), Maysami, Howe, and Rahmat (2005), Kurihara (2006) and Büyükşalvarcı (2010) mostly used interest rate as a macroeconomic variables in their researches.

#### *4.8 Gold Price (Month-end)*

Gold Price is used as an independent variable. Gold has been considered as a temporary investment against stocks. Due to lack of awareness of investment in stocks /shares in underdeveloped economies, particularly in line with the Asian culture, most of the savings are invested in Gold by small investors. Hassan and Sangmi (2013) incorporated gold price as one of the macroeconomic variables in their study. Umer (2016) explained the situation about the increase in gold prices will transform/change the investment from stocks to Gold, which affect the stock prices depicting a negative correlation. Gold may also be used as hedge against inflation.

#### *4.9 Inflation (Colombo Consumer Price Index (CCPI))*

The next independent variable that is extensively used in literature is inflation. The Colombo Consumer Price Index (CCPI) is used as the proxy of Consumer Price Index (CPI) in this study. According to literature, it can be argued that Consumer Price Index (CPI) is the main measure of inflation. The effect of inflation on stock price is empirically mixed. Fama (1981), N. F. Chen, Roll, and Ross (1986) and Pal and Mittal (2011) identified a negative correlation between inflation and stock price. Talla (2013) also used consumer price index as a proxy for inflation. He argued that inflation can affect stock market either positively or negatively. Further, Talla (2013) added that unexpected and expected inflation regulates the direction of the relationship between stock market and inflation.

#### *4.10 Correlation and Granger Causality*

According to the Correlation and Granger Causality results in Table 2 and Table 3, GDP, CCPI, M2B, GSP and REER are highly correlated. As such, GDP, CCPI, M2B, GSP and REER are appropriate to be considered for further studies.

**Table 2: Correlation Results**

	<b>ASPI</b>	<b>CCPI</b>	<b>GDP</b>	<b>GP</b>	<b>M2B</b>	<b>GSP</b>	<b>MAER</b>	<b>PCI</b>	<b>REER</b>
ASPI	1.000	-0.0978	0.3118	-0.0864	0.4030	-0.6125	0.1615	0.1564	0.6101
CCPI	-0.0978	1.0000	-0.1068	0.0720	-0.1195	0.2013	-0.0680	0.2461	-0.0701
<b>GDP</b>	<b>0.3118</b>	-0.1068	1.0000	0.2151	0.8075	-0.1080	0.8015	-0.0114	0.3712
GP	-0.0864	0.0720	0.2151	1.0000	0.1423	0.6888	0.2639	-0.1446	-0.4634
<b>M2B</b>	<b>0.4030</b>	-0.1195	0.8075	0.1423	1.0000	-0.1627	0.9354	-0.0023	0.5296
<b>GSP</b>	<b>-0.6124</b>	0.2013	-0.1080	0.6888	-0.1627	1.0000	0.0860	-0.1844	-0.6964
MAER	0.1615	-0.0680	0.8015	0.2639	0.9354	0.0860	1.0000	-0.0718	0.2727
PCI	0.1564	0.2461	-0.0114	-0.1446	-0.0023	-0.1844	-0.0718	1.0000	0.2115
<b>REER</b>	<b>0.6101</b>	-0.0701	0.3713	-0.4634	0.5296	-0.6964	0.2727	0.2115	1.0000

**Table 3: Granger Causality Results**

<b>Null Hypothesis</b>	<b>F-Statistic</b>	<b>Prob.</b>
GSP does not Granger Cause ASPI	2.85190	0.043
MAER does not Granger Cause ASPI	2.72506	0.0502
CCPI does not Granger Cause GDP	3.22333	0.0274
GS does not Granger Cause CCPI	5.15978	0.0027
REER does not Granger Cause CCPI	6.18655	0.0008
CCPI does not Granger Cause REER	4.03341	0.0103
CCPI does not Granger Cause RM	2.22295	0.0426
GDP does not Granger Cause GS	5.59862	0.0016
GDP does not Granger Cause GSP	2.38935	0.0756
M2B does not Granger Cause GDP	5.08448	0.003
GDP does not Granger Cause M2B	5.77675	0.0013
MAER does not Granger Cause GDP	4.01975	0.0105
GDP does not Granger Cause REER	3.49425	0.0197
RM does not Granger Cause GDP	2.36068	0.0783
GDP does not Granger Cause RM	7.66973	0.0002
GSP does not Granger Cause GS	3.59114	0.0175
GS does not Granger Cause GSP	2.87095	0.042
M2B does not Granger Cause GS	2.44077	0.071
REER does not Granger Cause GS	3.85266	0.0128

#### 4.11 Unit Root Test for Stationary Checking

At the initial stage, stationary and non-stationary conditions were measured using two different Unit root approaches namely Augmented Dickey-Fuller test statistic (ADF) and Phillips-Perron test statistic (PP). According to Table 2, all variables are integrated simultaneously in their initial differences.

**Table 4: Results of ADF and PP Tests**

<i>Variable</i>	<i>Significance Results</i>		<i>Variable</i>	<i>Significance Results</i>	
	<i>Level data</i>			<i>1<sup>st</sup> Difference</i>	
	<i>(P-value)</i>			<i>(P-value)</i>	
	<i>ADF Test</i>	<i>PP Test</i>		<i>ADF Test</i>	<i>PP Test</i>
<b>ASPI</b>	0.0386	0.0376	<b>D(ASPI)</b>	0.0000	0.0000
<b>GDP</b>	0.0765	0.2578	<b>D(GDP)</b>	0.1147	0.0001
<b>M2b</b>	1.0000	1.0000	<b>D(M2b)</b>	0.0000	0.0000
<b>GSP</b>	0.2101	0.4321	<b>D(GSP)</b>	0.0001	0.0001
<b>REER</b>	0.1554	0.3021	<b>D(REER)</b>	0.0000	0.0000
<b>CCPI</b>	0.0000	0.0000	<b>D(CCPI)</b>	0.0000	0.0000

In the next stage, maximum likelihood method based on VAR test is set up deployed to investigate these causality relations between dependent and independent variables. Theoretically, when the variables are co-integrated in the same order, maximum likelihood method based on VAR test can be conducted/carried out to find out the causality between the underline variables. Table 5 shows the values of co-integrating vectors for selected variables.

**Table 5: Results of Vector Autoregression Estimates**

	<b>ASPI</b>	<b>GDP</b>	<b>M2B</b>	<b>GSP</b>	<b>REER</b>
ASPI(-1)	0.893407 (0.11926) [ 7.49121]	-3.077119 (2.34119) [-1.31434]	-13.37411 (9.02540) [-1.48183]	-0.000302 (0.00016) [-1.82886]	-0.001140 (0.00047) [-2.42105]
ASPI(-2)	-0.027524 (0.11992) [-0.22951]	5.228845 (2.35421) [ 2.22107]	16.53993 (9.07558) [ 1.82246]	5.96E-05 (0.00017) [ 0.35956]	0.000824 (0.00047) [ 1.74047]
GDP(-1)	-0.003554 (0.00586) [-0.60638]	1.107085 (0.11505) [ 9.62257]	-0.538791 (0.44353) [-1.21479]	2.07E-05 (8.1E-06) [ 2.55458]	-4.06E-06 (2.3E-05) [-0.17543]
GDP(-2)	0.001603 (0.00559) [ 0.28681]	-0.291161 (0.10973) [-2.65343]	0.317183 (0.42302) [ 0.74981]	-1.38E-05 (7.7E-06) [-1.78688]	-2.15E-07 (2.2E-05) [-0.00973]
M2B(-1)	-0.000500 (0.00167)	0.022957 (0.03285)	1.080690 (0.12663)	3.46E-06 (2.3E-06)	4.10E-06 (6.6E-06)

	<b>ASPI</b>	<b>GDP</b>	<b>M2B</b>	<b>GSP</b>	<b>REER</b>
	[-0.29892]	[ 0.69891]	[ 8.53441]	[ 1.49460]	[ 0.62104]
M2B(-2)	0.000428 (0.00172)	-0.022458 (0.03376)	-0.048630 (0.13015)	-3.06E-06 (2.4E-06)	-1.67E-06 (6.8E-06)
	[ 0.24864]	[-0.66519]	[-0.37363]	[-1.28796]	[-0.24608]
GSP(-1)	64.02583 (87.5461)	2311.864 (1718.60)	4313.299 (6625.31)	0.883402 (0.12110)	-0.185538 (0.34575)
	[ 0.73134]	[ 1.34520]	[ 0.65103]	[ 7.29485]	[-0.53662]
GSP(-2)	-88.55690 (90.9396)	508.9184 (1785.22)	2241.880 (6882.12)	-0.035727 (0.12579)	0.489934 (0.35915)
	[-0.97380]	[ 0.28507]	[ 0.32575]	[-0.28401]	[ 1.36414]
REER(-1)	-50.69281 (29.4545)	-391.0988 (578.216)	319.7152 (2229.05)	0.064528 (0.04074)	1.280683 (0.11633)
	[-1.72106]	[-0.67639]	[ 0.14343]	[ 1.58377]	[ 11.0094]
REER(-2)	57.69219 (29.2607)	287.4997 (574.412)	-1935.604 (2214.39)	-0.099687 (0.04048)	-0.476293 (0.11556)
	[ 1.97166]	[ 0.50051]	[-0.87410]	[-2.46292]	[-4.12159]
R-squared	0.999911	0.941994	0.999511	0.936076	0.990583

**Table 6: Co-Integrated Results**

	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
C(1)	-0.893407	0.119261	7.491212	0.0000
C(2)	-0.027524	0.119924	-0.229511	0.0026
C(3)	-0.003554	0.005861	-0.606383	0.5446
C(4)	0.001603	0.005590	0.286809	0.7744
C(5)	-0.000500	0.001673	-0.298922	0.7652
C(6)	0.000428	0.001720	0.248642	0.8038
C(7)	64.02590	87.54608	0.731339	0.4651
C(8)	-88.55699	90.93965	-0.973800	0.3308
C(9)	-50.69282	29.45447	-1.721057	0.0061
C(10)	57.69222	29.26065	1.971666	0.0494
C(11)	783.7905	1372.238	0.571177	0.5682

Equation:  $ASPI = C(1)*ASPI(-1) + C(2)*ASPI(-2) + C(3)*GDP(-1) + C(4)*GDP(-2) + C(5)*M2B(-1) + C(6)*M2B(-2) + C(7)*GSP(-1) + C(8)*GSP(-2) + C(9)*REER(-1) + C(10)*REER(-2) + C(11)$

According to the result in Table 6, the coefficient of co-integrated is significant at the 0.05 level of significance ( $p < 0.05$ ) with negative sign (-0.89407). It means that, there is causality which generally shows the short run relationships between independent variables to dependent variable ASPI. (>mention about the significance of P value).

**Table 7: WALD Test Results**

ASPI	GDP	M2b	GSP	REER	CCPI
Chi-Square	1.2473	60.187	1.0481	3.5614	1.0082
Probability	0.0000	0.0000	0.0031	0.0552	0.0023

The short-run adjustments along the co-integrating equilibrium relationships were developed to test/determine whether any short run causality exists between independent and dependent variables. The Wald statistic results in Table 7 reveal that, short run causality running from M2b ( $0.0000 < 0.05$ ), GDP ( $0.0000 < 0.05$ ) and GSP ( $0.0031 < 0.05$ ) to ASPI.

## 5. Conclusion and Policy Implication

This study sheds light on the setup of the stock market in Sri Lanka and explains the long term and short term predictability of technical trading strategies in the CSE, during the seven year period from 2010 January to 2016 December.

The results detected that, the Colombo Stock Market is more sensitive to external factors such as changes in Broad Money and Month-end Government Securities (Per cent per annum). We strongly believe that these findings will be useful to investors, both domestic and international, and policy makers to make better investment decisions based on the long-run equilibrium and long-periodic co-movements.

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