A STUDY ON COLOMBO STOCK MARKET ANOMALIES DUE TO PRESIDENTIAL AND GENERAL ELECTIONS

Karunarathna, M.B. R.D.[1] and Wijayanayake, A.[2]

[1] *Cardiff School of Management, Cardiff Metropolitan University, UK*
[2] *Department of Industrial Management, Faculty of Science, University of Kelaniya, Sri Lanka*

Abstract

Over the years researchers are studying stock market anomalies to find ways to earn arbitrage profits. And the position of the government is an important factor when investing in stock market. Internationally extensive studies have been carried out to find whether there is a relationship between position of the government and the stock market anomalies. But there are no studies available for the Colombo Stock Exchange (CSE). Using daily market indices and election information from 1988 to 2015 this research examines the behavior of the CSE immediately before and after the presidential and general elections in Sri Lanka. Wilcoxon signed rank test and homogeneity tests were used in this analysis. Results show that share prices are continuously increasing before the election and decreasing after the polling date. There were few exceptions due to high political stability and instability in the pre-election period. Banks Finance & Insurance, Hotels & travels and Manufacturing are the three sectors dominantly increased in the pre-election period. And Beverage, Food & Tobacco, Construction & Engineering and Stores & Supplies have no anomalies during the election period.

Keywords: Elections, Colombo Stock Exchange, Wilcoxon signed rank test, Homogeneity tests

1   INTRODUCTION

An extensive literature discourses that the robustness of the stock market. Researches have attempted to prove that these anomalies can be pre-predicted statistically. Predictability and the outperforming margins provoke investors to invest in stock market rather than investing on bonds or real estate. Decisions made by public quoted companies and investors are the main reasons for the anomalies of the share prices.

CSE is a thin and narrow market where limited buyers and sellers exist. Therefore the assets are more volatile and less liquid. And it is negatively impacts to forecast market indices. Despite that fact, CSE ranked as the best performing stock market in world in the year 2010. And also it was named as "Most Sustainable Growth Exchange" in Asia for 2014 by Capital Finance International (CFI). But there are very few official papers available for the behavior analysis of CSE.

President and the parliament have a higher authority to influence the economy of the country than the provincial councils and local authorities. And presidential and general elections are the national level elections compared to other elections. Therefore only presidential and general elections have been considered in this analysis. Since 1947, thirteen general elections were held. President was nominated by Prime minister until 1972 under the republican constitution. Seven presidential elections were held since 1982.

1.2. ELECTIONS AND STOCK MARKET ANOMALIES

Efficient market hypothesis (EMH) stated that it's impossible to predict the future share prices by fundamental or technical analysis because all the shares are priced accurately and they reflect all the information available. And the only way to make profits is to purchase riskier investments. But due to human error and emotional decisions, investors read the information and respond differently (Shiller, 2003). Gilpin (2001) introduced political economy theoretical framework which clearly explain the interactive relationship between politics and the economy. It consists of politics, economies, law and social-economic systems developed by the institutions. Government influence on the economy has studied over a long period. Maynard (1964) stated in his Keynesian theory that government control the macro economy. Therefore presidential and general election cycles have a certain influence on the economy.

United National Party (UNP) and Sri Lanka Freedom Party (SLFP) are the two main parties who were able to grab the majority of the past elections. UNP has capital and liberal conservative political-economic agenda and SLFP has a socialist and liberal. Throughout the past few decades these political parties were able to take the majority from clearly disguisable regions based on economy and ethnicity. Many examples can be given for government influences over the economy. In 2000, Sri Lankan government signed a memorandum with EU to remove the restrictions on the textile garment exports quota (Dheerasinghe, 2002) and it had a direct impact on the textile industry.

Marshall (2004) has stated in his research article that investing in Wall Street 27 months before a U.S. presidential election is more profitable than investing during the 21 months after the elections. During a presidential cycle where nearly four years, bull markets averaged about three years, while bear markets averaged less than a year. In U.S presidential election cycle is a four year cycle and Ned Davis Research notes that weakest is the first year of the presidential cycle and the strongest in the pre-election year. (Shell, 2012)

The reminder of this paper consists of the research question and hypotheses, data, analysis, results and the conclusion.

2. RESEARCH QUESTION AND HYPOTHSES

During the 2015 presidential election, there were significant anomalies in the share prices which due for more than 3 months period. It was suspected that this anomaly was due to the political instability. ASPI was marked the peak for the 2015 first quarter with 7,497.6 on January 8th, Presidential Election Day. And it was started to drop since the Election Day. There is no study available for the relationship between elections and CSE share price anomalies. Therefore this research has focused on study the impact on CSE share price anomalies occurs due to presidential and the general elections and which industries have affected most. Based on the results investors can made their investing decisions more accurately during the election period.

Following hypothesis can be developed based on the research question, "Whether there is a relationship between national level elections and stock market anomalies in Sri Lanka and how those elections affect to the industry sectors during the election period."

Hypothesis a1: There is no homogeneity in share prices before and after one week from the polling date.

Hypothesis a2: Share price on the polling date is higher than the days in the week before the polling date.

$$\mu_{before} < \mu_{polling\ day}\ (1)$$

Hypothesis a3: Share prices will decrease immediately after the polling date.

$$\mu_{before} > \mu_{after}\ (2)$$

μ_{before} : Mean value of the indices in a day before the election

μ_{after} : Mean value of the indices in a day after the election

$\mu_{polling\ day}$: Mean value of the indices in the polling day

3. DATA

CSE is having nearly thirty-three years of brief history. And six presidential elections and five parliamentary elections were held in Sri Lanka since 1985. Therefore there is a limitation for the size of the population. S&P 20, diversified holdings, healthcare, information and technology, plantations, power & energy and telecommunications were not considered to the analysis due to limited historical data. One week period before and three weeks period after the major dates of elections have considered in this study. It's because of difficulty of isolating the cause of the anomalies. CSE share price information and the election dates information were used as the main source of data to analyze the relationship between the election and the share prices. CSE share market data was collected from the CSE historical data which was published in CSE data library disk. It is a compilation of various databases in Microsoft excel format. It includes data since 1985. Election information collected from the department of election official website (Parliament of Sri Lanka, 2015).

4. ANALYSIS

Main focus is to understand the relationship between election and the Colombo stock market share prices. Therefore election type, major events (days) of an election and the Election result were identified as the main factors. CSE market indices and the past elections information is the population of this study.

Data analysis methods

Homogeneity tests

Pettitt's, Standard normal homogeneity test (SNHT) and von Neumann's tests were used to find whether there are anomalies exist during the polling period or not.

Paired analysis

Wilcoxon signed rank test, a non-parametric test for two paired populations was used to compare the CSE indices. Directional test was able to use for the analysis because the sample size is greater than or equal to five. Differences of the indices were approximately symmetric and having the properties of equal interval scale. Therefore the pre assumptions were satisfied to use this test.

5. RESULTS

Homogeneity test

It was clearly observed that there were CSE share price anomalies during the week of elections held. Homogeneity tests for the presidential tests have being carried out for the ASPI values and p-values for both presidential and general the elections were in the 5% confidence level. Graphs are given in the figure 6.1 to 6.24. Eighth day of the graphs is the Election Day. (Source: CSE Data Library-CD)

Presidential Election

All Pettitt's, SNHT, Buishand's and von Neumann's tests given less than 0.05 probability values for 5% confidence level. When considering the differences of ASPI values in 1988, 1999, 2005 and 2010 years it was not in the 5% confidence level. In 1988, ASPI value was suddenly increased immediately after the election and then remained stable. In 1999 and 2005, it was suddenly decreased immediately after the elections and changing rate was stable. In 2010, ASPI was increased in three days before and after the election and it was stable in the remaining days. Therefore in 1988 and 2010, there was a positive influence on the CSE due to election. But in all other elections it was negatively impacted. And overall there exist CSE anomalies in all the presidential elections.

mu1: mean value before the election
mu2: mean value after the election
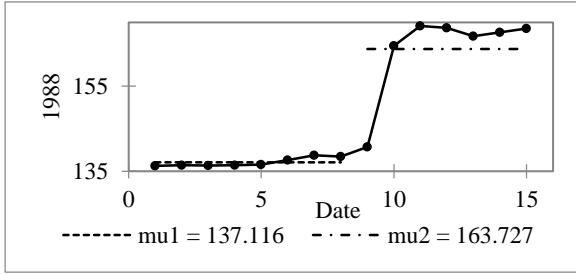
Figure 6.1. ASPI on 1988 Presidential
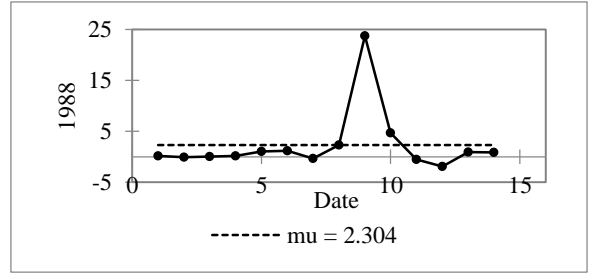
Figure 6.2. ASPI difference on 1988 Presidential
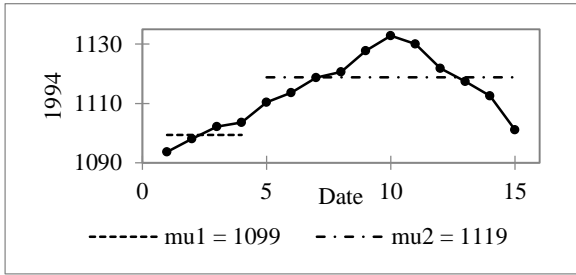
Figure 6.3. ASPI on 1994 Presidential
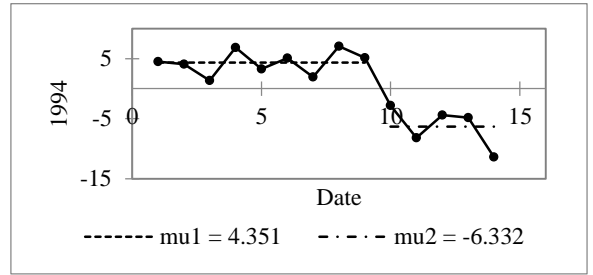
Figure 6.4. ASPI difference on 1994 Presidential
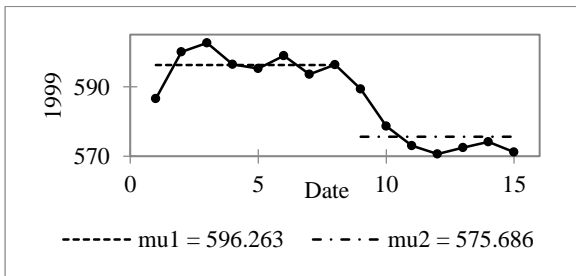

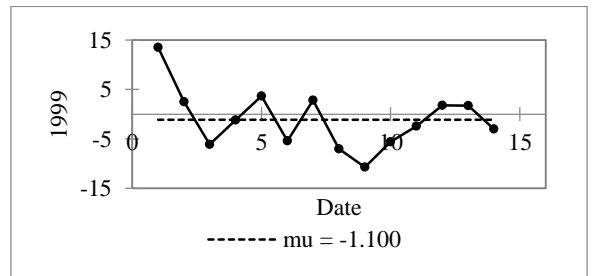**Figure 6.5. ASPI on 1999 Presidential**

Figure 6.6. ASPI difference on 1999 Presidential
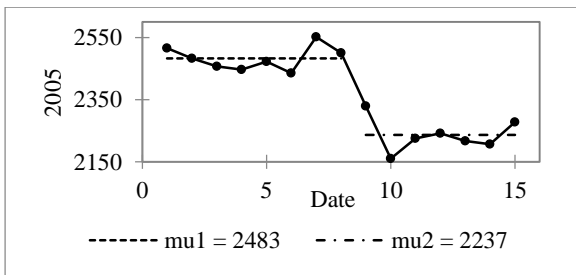

Figure 6.7. ASPI on 2005 Presidential

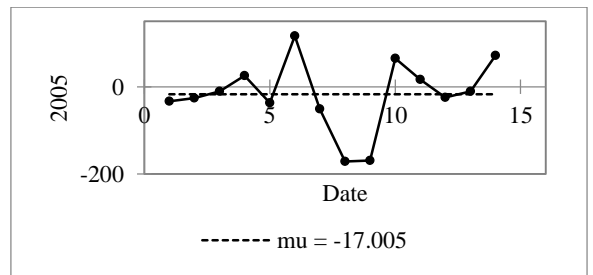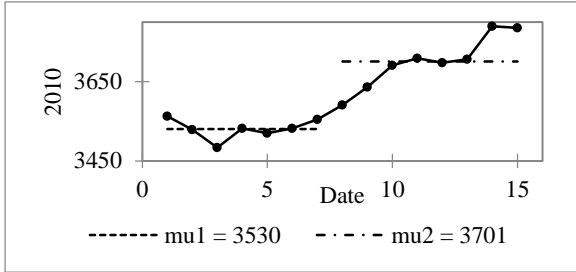**Figure 6.8. ASPI difference on 2005 Presidential**
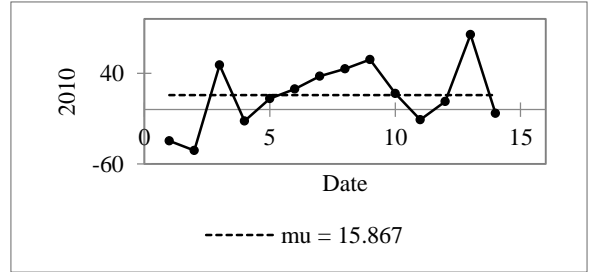
54

Figure 6.9. ASPI on 2010 Presidential

Figure 6.10. ASPI difference on 2010 Presidential
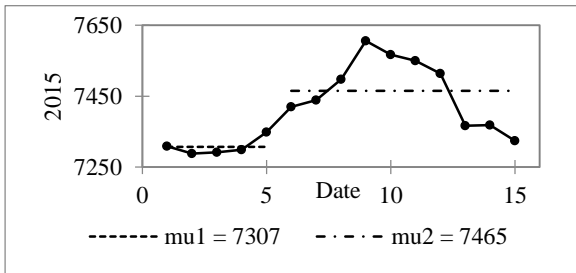
Figure 6.11. ASPI on 2015 Presidential
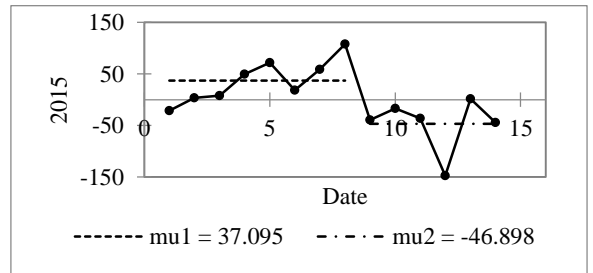
Figure 6.2. ASPI difference on 2015 Presidential

General Election

According to the Homogeneity tests, there was non-homogeneity in all the elections. But according to the homogeneity tests for the difference, only 1989 and 1994 have non-homogeneities. In 2000 and 2004, there is a significant step down anomaly and in 2001 there is a step up anomaly. In 2010 it was increased from a stable state during the election. Therefore CSE is having anomalies during all general elections.
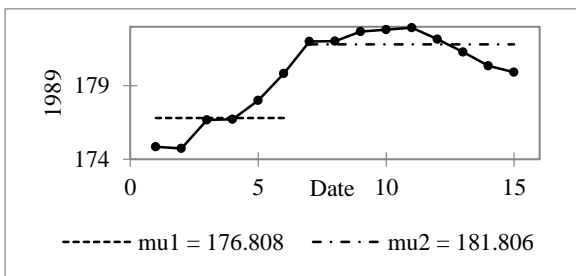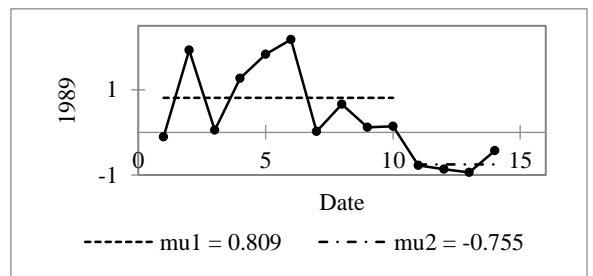

Figure 6.3. ASPI on 1989 General

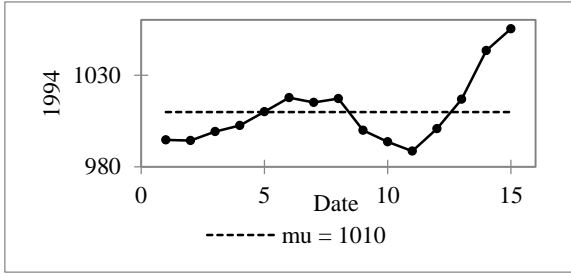
Figure 6.14. ASPI difference on 1989 General

55

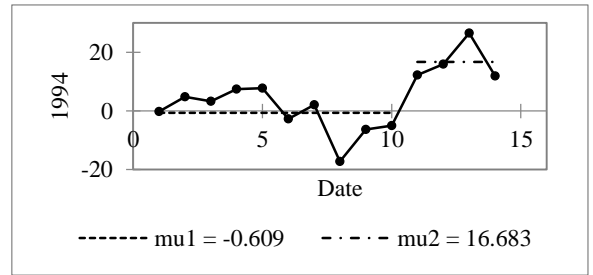**Figure 6.15. ASPI on 1994 General**

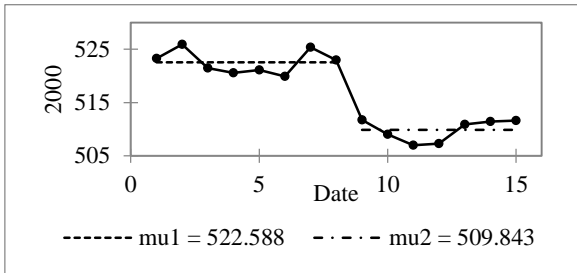**Figure 6.16. ASPI difference on 1994 General**

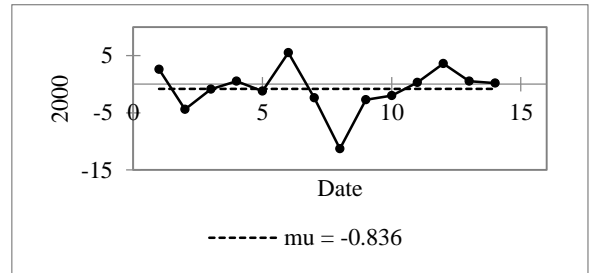**Figure 6.17. ASPI on 2000 General**

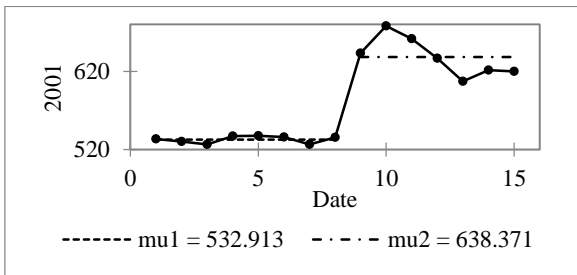**Figure 6.4. ASPI difference on 2000 General**

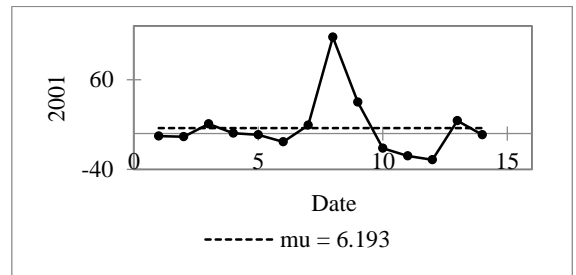

Figure 6.5. ASPI on 2001 General

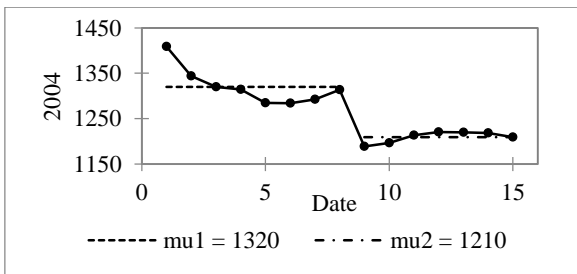**Figure 6.20. ASPI difference on 2001 General**
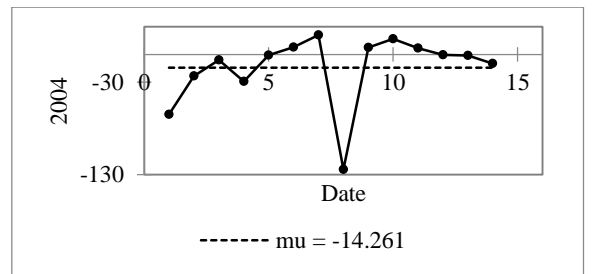

Figure 6.21. ASPI on 2004 General

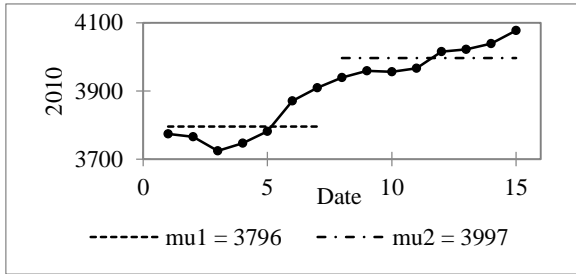**Figure 6.22. ASPI difference on 2004 General**
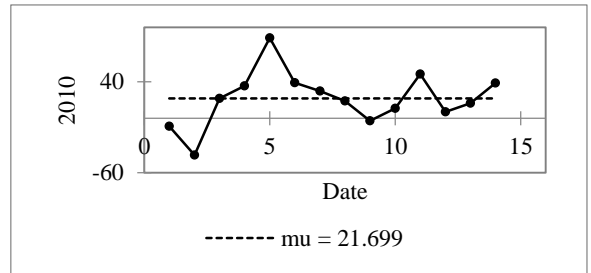
56

Figure 6.23. ASPI on 2010 General

Figure 6. 24. ASPI difference on 2010 General

Paired Test

Pre-Election

Wilcoxon signed rank one-tailed test was applied for the days of week before the election. "Respective" is exactly the day one week before the Election Day. P-values stated in the table are the paired comparison with the Election Day indices. P-value for the null hypothesis rejection is less than 0.05 for 5% confidence level.

Table 4. P-values for Wilcoxon Signed Rank test

Comparison with election Day	p-value (one-tailed, lower)
Last Monday	0.0115
Last Tuesday	0.0024
Last Wednesday	0.0024
Last Thursday	0.0140
Last Friday	0.0171
Last Respective day	0.0179

This has been done for the all the sectors and it has identified that banks, finance & insurance, hotels & travels and manufacturing are the three sectors increased in the pre-election period for both elections. And Beverage, Food & Tobacco, Construction & Engineering and Stores & Supplies have no impact in both types of elections.

Post-Election

Average of four days on the election polling day and the 4 days after the polling date has taken. Both elections in 1988, 2010 and general election in 2010 was given positive impacts. Therefore except for those elections Wilcoxon signed rank test rejects the null hypothesis with p-value of 0.05 for 5% confidence level.

Table 5. P-values for Wilcoxon signed rank test

For all Elections	0.3474
Except 1988, 2010 both elections and 2001 General elections	0.0059

Table 6. Post Analysis on all Elections

Year	Election Type	On the Election	After the Election	Change	Change %
1989	General	182.51	182.14	-0.37	-0.20%
1994	General	1003.54	1002.03	-1.51	-0.15%
2000	General	514.57	508.40	-6.17	-1.20%
2001	General	619.03	635.17	16.13	2.61%
2004	General	1232.97	1217.89	-15.08	-1.22%
2010	General	3951.41	4001.53	50.12	1.27%
1988	Presidential	147.90	168.20	20.30	13.73%
1994	Presidential	1127.05	1123.05	-4.00	-0.36%
1999	Presidential	588.17	572.10	-16.07	-2.73%
2005	Presidential	2329.68	2227.72	-101.95	-4.38%
2010	Presidential	3639.73	3704.55	64.82	1.78%
2015	Presidential	7556.70	7476.80	-79.90	-1.06%

6. CONCLUSION

According to the results achieved in this research, Market indices increase over the pre-election period and decrease during the post-election period. There were few exceptions due to state of the political stability in the pre-election period. If the politically stability of the country is high, share prices will increase rapidly and the decrease in the post-election period will not be significant. (Reference: 2010 elections) and If the country is politically unstable during the pre-election period it will increase slowly in the pre-election period and after the election it will start to increase. (Reference: 1988 presidential election and 2001 general election) With respect to the results obtained in this study it is recommend buying stocks before or after the election and selling the stocks on the election if the political stability in the pre-election period is normal. And it is recommend investing on Banks Finance & Insurance, Hotels & travels and Manufacturing sectors in the pre-election period.

REFERENCES

Dheerasinghe, R. (2002). Garment Industry in Sri Lanka Challenges, Prospects and Strategies. Staff Studies, 1(33), 33-72.

Gilpin, R. (2001). Global Political Economy: Understanding the International Economic Order (2nd Ed.). New Jersey: Princeton University Press.

Mark L. Berenson, D. M. (2011). Basic Business Statistics (12 Ed.). London: Pearson.

Maynard, K. J. (1964). General Theory of Employment, Interest and Money (2nd Ed.). Califonia: Harcourt, Inc.

Nickles, M. (2004). Presidential Elections and Stock Market Cycles. Graziadio Business Review, 7(3).

Parliament of Sri Lanka. (2015). Parliament of Sri lanka - Duration of Parliament. Retrieved 08 20, 2015, from http://www.parliament.lk/en/duration-of-parliament

Shell, A. (2012). History on how presidential elections affect stock markets - ABC News. Retrieved 08 28, 2015, from http://abcnews.go.com/Business/story?id=6185252

Shiller, R. J. (2003). From Efficient Market Theoy to Behavioral Finance. Journal of Economic Perspectives, 17(1), 83-104.