

# Impact of National Election on Stock Market Performance: An Analysis on Dhaka Stock Exchange (DSE)

Dr. Gazi Mohammad Hasan Jamil\*  
Imran Mahmud\*\*

**Abstract:** *The performance of stock market has always been affected by various political events i.e. parliamentary election. This study covers five elections for the period 1996-2018. The study adopted event study method using secondary data. Though AAR shows an insignificant impact on the stock market's performance except for the election of 1996, Cumulative Abnormal Return (CAR), more convincing measure, shows that every election had a significant impact on the stock market's performance. This study also looks into the volatility of stock market during pre-election and post-election period. It has been found that low volatility during pre-election with high volatility during post-election period has been exhibited for 1996 election. For 2001, 2008, 2014 and 2018 election, volatility remain the same for both pre-elections and post-election periods. The study also shows that Uncertainty Information Hypothesis is present in the election of 2001, 2008 and 2014.*

**Keywords:** *Event study method, AAR, CAR, Uncertainty Information Hypothesis, pre-election and post-election volatility.*

## 1. Introduction

It is evidential that a stock market's performance is adversely affected by the unforeseen electoral outcomes or changes in government structures (Kim et al, 2001). Over the year evidence have been found that factors like political turmoil, weather conditions, technological innovations, inflation, deflation, changes in consumer's buying power etc. have shifted the tide in stock market (Ch. Balaji1 et al, 2018). Amongst these news political news such as regulatory promulgation, law amendments, strikes, budget declaration, national election etc. can have severe impact on stock market. A country's economic performance can often be measured using stock markets as a proxy (Chuang and Huang, 2009). A market's performance is likely to be negatively affected by the unanticipated electoral outcomes or changes in government structures (Kim et al, 2001). The relationship between financial markets and elections has been well documented in several past studies such as Hibbs (1977), Alesina, Roubin and Cohen (1997) and Ferri

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\* Associate Professor, Department of Finance, University of Dhaka, Dhaka-1000.

\*\* Student of the MBA Program, Department of Finance, University of Dhaka, Dhaka-1000.

(2008). Examining the behavior of market indices around the election period, abnormal returns are found during the period. A positive abnormal return reflects a country's degree of political freedom, economic freedom, press freedom, function of election timing as well as the success of incumbent party to re-elect (Pantzalis et al, 2000).

Examining the presidential election uncertainty and stock returns in the United States, it has been found that there is a substantial evidence of the impact of political outcomes on business cycle and stock markets (Li and Born, 2006). After investigating whether Republicans or Democrats are better for stock market by looking at presidential election cycles and the stock market (Herbst and Slinkman et al, 1984), it has been found that the result is in line with a previous study (Huang, 1985) which had also observed the stock returns related to the 4-year U.S Presidential Cycle and found evidence to support presidential election cycle theory. On top of that, another study (Forester et al, 1997) showed that stock returns exhibit a presidential cycle during the four years of a president's term regardless of whether they are a Democratic or Republican.

Via examining the effect of the delay in the announcement of election results during the U.S presidential election in year 2000, significant evidence was found showing the presence of initial negative reaction towards stock markets at the delay of the election results (Nippani and Medlin, 2002). Moreover, after examining the impact of political landscape and monetary conditions on the performance of security markets, it was established that Federal Reserve System policy had dominated political decisions that determined the return of the security while political deadlock had no advantages for security market performance (Beyer et al, 2004). The relationship was further extended internationally by examining the co-movement of equity markets in New York, London, Toronto and Tokyo around U.S presidential elections which found no significant evidence in the relationship between S&P500 and foreign equity market index (Dobson and Dufrene, 1993). The reason for this result was that the election period provided no new information.

There is a close relationship between opinion polls and FTSE-100 Index for 1987 and 1992 elections respectively (Gemmill et al, 1994). This shows consistency with a study which examines the impact of political uncertainty in U.K stock market by observing the share price of British Telecom over a period of 3 years and found significant proof that the share price respond strongly towards voters' opinion polls (Manning, 1989). Through investigation of market reactions towards election news events, it was evident that U.K stock markets did respond to the evolving pattern of results (Steeley, 2003).

Evidences were found in United States, Japan, Britain and France that political changes are negatively related to their stock returns (Chuang and Wang, 2009). A study groping the impact of political events on market instability and return by using a component-jump filter, found out those changes in the government administration will affect stock markets

(Kim and Mei, 2001). It further explained that changes in government will lead to new economic policies implemented, which gives confidence to the rouse of uncertainties. The rising uncertainties caused the investors to become more conservative and dispirit investors from taking risks, which leads to negative stock return.

The impact of Belgian elections and government policies on the performance of Brussels Stock Market shows statistical evidence in the relationship between elections and government policies (Vuchelen, 2003). The study explained the effect of political events and stock markets which shows the importance of expected changes in economic policy because stock prices anticipate and capitalize on policy changes. The influence of political party on DJIA from 1896 to 2001 showed that political party with the majority in congress was significantly related to the return of the index (Keef and Roush, 2004). The political crisis in Taiwan has a significant negative relationship with the stock market performance (Huang et al, 2011). However, that elections in Taiwan does not exhibits a long term influence on the stock market as Taiwan stock market manage to recover back after the crisis end.

Until now, most researchers have proven the significant effect of elections and political-linked events on the performance of stock market. However, there are researches that yield different results. The interaction between stock market movement and politics in Germany and could not find any evidence that the market returns are higher during liberal than conservative governments (Dopke and Pierdzioch, 2004). On the other hand, the authors could not find any evidence for an election cycle for German stock market returns. The relationship of U.S presidential elections and the monthly stock market return, showed no evidence to support the interaction between the elections and monthly stock market return (Jones and Bonning, 2009). This showed that there are no significant differences in the monthly stock market return regardless of the outcomes of the presidential election in United States.

Market response towards politics in Brazilian stock market by observing on the rise of Lula (former President of Brazil, from 2003 to 2011) and the decline of Brazilian stock market showed no evidence that rise of Lula had any statistical impact on the mean return of Brazilian stock market (Jensen and Schmith, 2005)

The relationship between Greek political elections and the Athens Stock Exchange between year 1996 and 2002, using daily data, it was revealed that on average, two months before an election in Greece, stock index performances would increase and the mean daily fluctuation would decrease (Floros, 2008). However, one month before the elections, stock index performances decreased and the daily fluctuations increased on average. The study only managed to find considerable increase in the index after a 3-month post-election period. Therefore, concluding the studied research that elections in

Greece significantly affect the market volatility but do not significantly affect Athens Stock Exchange.

From the beginning of Bangladesh, various political events have rummaged the whole economic sphere. Due to political volatility, military took over of the country in 2007. During this regime, investments in real sector and FDI declined where as foreign remittances inflow rose. Investors thus started looking for investment opportunity for their savings and opted for stock market (Khaled, 2011). Again, with the aim to grow the Bangladesh economy at the rate of 7%-8%, Bangladesh Bank adopted accommodative monetary policy during the high inflation periods to support investment. BB has also pegged money during this period. As, BDT was undervalued, the money supply grew drastically. This in terms created excess liquidity in the economy. Without finding any other place to invest the money all this went to the stock market. This inflated the prices of the small number of securities available in the market. This ended up building up a bubble. Bangladesh government fueled the situation further, via taking up steps to turn black money into white. These all in all lead to the stock market crash on 2010 (Rahman, 2011). The study has been mainly conducted to determine that whether the market crash of 2010-11 was an isolated event or the political events have always been affected the overall performance of stock market constantly.

This study analyses the relationship between the return on stock market and the announcement of national parliamentary election. The two research questions the study seeking to address are whether there is a relationship between parliamentary election and stock market performance at Dhaka Stock Exchange and whether there is any relationship between Pre-election long term volatility with post-election short term, mid-term and long term volatility.

There have been plenty studies to uncover the connection between the stock market performance and the announcement of national election on developed markets. But few of such studies have been done on emerging markets. Stock market performance of DSE under different governmental period in Bangladesh was examined from 1991 to 2013 by analyzing the average market return, volatility and risk for each governmental period individually (Md. Afzalur Rahaman et al, 2013). But in this study, an event study approached is taken using the Abnormal Return and Cumulative Abnormal Return measures to identify if any seasonality and pattern exists during this political election period.

The remainder of the paper is organized in the following manner. In section 2, we describe the data and methodology. In section 3, we provide the descriptive statistics for the five elections of 1996, 2001, 2008, 2014 and 2018. In section 4, we show the data analysis and interpretation about the results of the hypothesis testing. Section 5 disclose

the relationship of national parliamentary election with the stock market comparing our results with previous works done.

## 2. Data & Methodology

To conduct the research, we have collected sample data from secondary source i.e. Dhaka Stock Exchange Library. The DSE All-Share Price Index (DSI) and DSEX Index was used as a proxy of the whole stock market performance. To analyze the impact of National Parliamentary Election (NPE) on stock market we have chosen five NPE from 7<sup>th</sup> NPE to 11<sup>th</sup> NPE. The collected data was thereafter entered and analyzed through Microsoft Excel 2016. For testing the significance, 60 days, 120 days and 180 days pre and post event window were taken to test the significance but 120 days' event window with 210 days of estimation window showed more consistent result than any other event window (Table 1).

**Table 1: Sampling Period**

<b>Election date</b>	<b>Estimation Window (210 days)</b>	<b>Pre-Event Window(120 days)</b>	<b>Post- Event window (120 days)</b>
7 <sup>th</sup> NPE (12 <sup>th</sup> June 1996)	26 February 1995 to 21 November 1995	22 <sup>nd</sup> November 1995 to 11 <sup>th</sup> June 1996	16 <sup>th</sup> June 1996 to 10 <sup>th</sup> November 1996
8 <sup>th</sup> NPE (1 <sup>st</sup> October 2001)	7 <sup>th</sup> October 2000 to 3 <sup>rd</sup> May 2001	4 <sup>th</sup> May 2001 to 30 <sup>th</sup> September 2001	3 <sup>rd</sup> October 2001 to 30 <sup>th</sup> May 2002
9 <sup>th</sup> NPE (29 <sup>th</sup> December 2008)	30 <sup>th</sup> July 2007 to 18 <sup>th</sup> June 2008	19 <sup>th</sup> June 2008 to 28 <sup>th</sup> December 2008	1 January 2009 to 23 <sup>rd</sup> June 2009
10 <sup>th</sup> NPE (5 <sup>th</sup> January 2014)	5 <sup>th</sup> August 2012 to 26 <sup>th</sup> June 2013	27 <sup>th</sup> June 2013 to 2 <sup>nd</sup> January 2014	7 <sup>th</sup> January 2014 to 2 <sup>nd</sup> July 2014
11 <sup>th</sup> NPE (30 <sup>th</sup> December 2018)	22 <sup>nd</sup> August 2017 to 28 <sup>th</sup> June 2018	2 <sup>nd</sup> July 2018 to 27 <sup>th</sup> December 2018	2 <sup>nd</sup> January 2019 to 19 <sup>th</sup> February 2019*

Note: The table shows the estimation windows of 210 days for the five election period along the pre-election and post-election 120 days' period taken as the sampling period after testing the significance for 60 days and 180 days. \*only 35 days were taken as post event window for 11<sup>th</sup> NPE as the study is conducted after one month of the election.

## Methodology

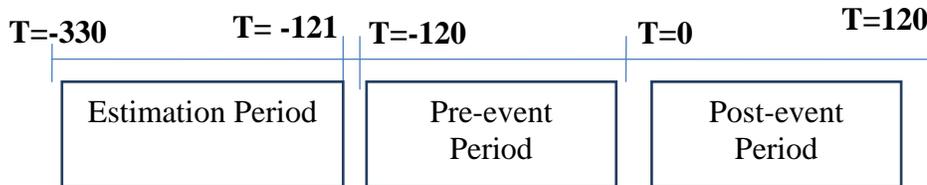
Event study methodology is used to conduct the research. The basic concept is to find the abnormal return attributable to the event being studied by adjusting for the return that stems from the price fluctuation of the market as a whole (Gilson and Black, 1995). The study used the following Market Model (MM) steps as outlined by (mackinlay, 1997):

**Step 1:** Specifying the event to be analyzed

The event is the NPE and the event date is the date when the result of general election got in the stock market. The event date is taken as  $t=0$  which is the immediate next day after election when the DSE market was open to absorb the news of election result.

**Step 2:** Identifying the estimation window and event window

Estimation window is the period during which the normal return is expected to be found out which is expected to be out of the effect of National Election period. Event window is the period before and after the event date (election in this case) to gather the impact of NPE on stock market fluctuation. The estimation window is 210 days and the event window is divided into pre-election 120 days and post-election 120 days.

**Step 3:** Selection of the sample for analysis

The sample for our analysis is collected in an orderly basis from the election of 7<sup>th</sup> NPE to 11<sup>th</sup> NPE. DSEX stock index value was taken as the proxy for performance.

**Step 4:** Determination of the normal return in absence of the influence of the event

The study first calculated the actual return from the Index price.

$$\text{Actual Index return, } R_t = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Here,  $P_t$  = Index closing price at time  $t$ ;  $P_{t-1}$  = Index closing price at time  $t-1$

Then, the study calculated the average of the actual return to determine the benchmark Normal Return during the estimation window.

$$NR = \frac{\sum R_t}{n}$$

Here,  $n$  = number of total observation between  $t = -330$  to  $t = -121$

**Step 5:** Estimation of the “abnormal” return within the event window

For this, the normal return from the estimation period was subtracted from the actual return from index during the event window.

**Abnormal Return,  $AR_t$  = Actual Return during the event at time  $t$  – Normal Return**

The study then determines the Average Abnormal Return for different event window considering pre-event and post-event AR.

$$\text{Average Abnormal Return, } AAR = \frac{\sum AR_t}{n}$$

Here, n= summation of the number of total observation during the event window

The research then calculated the Cumulative Abnormal Return by adding up the abnormal returns during the event period.

$$\text{Cumulative Abnormal Return, } CAR_t = AR_{t-1} + AR_t$$

The study afterwards determines the Cumulative Average Abnormal Return for different event window considering pre-event and post-event AR.

$$\text{Cumulative Average Abnormal Return, } CAAR_t = \frac{\sum CAR_t}{n}$$

**Step 6:** Testing the significance of abnormal return and Cumulative Abnormal Return

The concluding step is to test the statistical significance. To test the statistical significance, we have used different tests like **ANOVA and Student's t test** to determine the statistical relation between NEP and stock market fluctuations.

### 3. Descriptive Statistical Analysis

This section of the study will cover the descriptive statistical analysis of the stock market performance for different election period.

#### 7th National Parliamentary Election

During the sampling period, the mean, median, maximum and minimum index value went up and the volatility went up on an average shown by the Coefficient of variances.

**Table 2: Descriptive Statistics for DSEX Index price during 7th National Election period**

Particulars	Pre-election		Post-election	
	120 days-60 days	60-0 days	0-60 days	61-120 days
Mean	811.89	847.33	1064.62	1996.71
Median	823.47	848.70	1095.99	1789.93
Maximum	867.96	904.30	1193.85	3648.75
Minimum	751.41	789.29	915.82	1196.35
Standard Deviation	29.80	32.42	83.21	630.99
Kurtosis	-1.29	-1.30	-1.24	0.70
CV	0.04	0.04	0.08	0.32

Note: The table shows descriptive statistics on the pre-election and post-election index movement. The mean, median, maximum and minimum Index value decreases from the

period 120 days until 60 days' prior the election. From the last 60 days to the election date, the uncertainty was lowering its scale and it raises the index value. After the election, the index value was rising up showing an upward trend. Source: Author's Calculation

### 8<sup>th</sup> National Parliamentary Election

The mean, median, maximum and minimum showed a declining trend during the pre-election period and an upward trend was following just after the election throughout the 120 days' post-election period illustrated in table 3. The variation from the mean index value also went up in the pre-election period where the post-election period showed less variation.

**Table 3: Descriptive Statistics for DSEX Index price during 8th National Election period**

Particulars	Pre-election		Post-election	
	120-60 days	61-0 days	0-60 days	61-120 days
Mean	693.11	647.51	702.25	818.86
Median	698.15	647.63	675.88	818.91
Maximum	720.60	685.98	817.64	819.40
Minimum	641.04	618.24	615.48	817.49
Standard Deviation	18.32	16.91	76.69	0.50
Kurtosis	0.53	-0.60	-1.20	1.75
CV	0.03	0.03	0.11	0.00

Note: The table shows descriptive statistics on the pre-election and post-election index movement for 8th NPE. The mean, median, maximum and minimum value had a down trend before election and an uptrend after the election. The coefficient of variance also went down during the post-election period. Source: Author's Calculation

### 9<sup>th</sup> National Parliamentary Election

The 9<sup>th</sup> election showed a different situation where the mean, median, maximum and minimum index value went falling down during the pre-election period and during the 120 days' post-election period according to table 4. The variance and standard deviation also fluctuated in a random way during the election period showing volatility of the stock return due to election result.

**Table 4: Descriptive Statistics for DSEX Index price during 9th National Election period**

Particulars	Pre-election		Post-election	
	120-60 days	61-0 days	0-60 days	61-120 days
Mean	2434.62	2255.97	2185.48	2157.31
Median	2413.80	2229.92	2187.50	2133.43
Maximum	2602.83	2498.45	2350.20	2403.96
Minimum	2215.48	2035.42	2013.61	2001.88
Standard Deviation	106.99	131.90	64.81	106.80
Kurtosis	-1.06	-1.23	0.91	-0.38
CV	0.04	0.06	0.03	0.05

Note: The table shows descriptive statistics on the pre-election and post-election index movement for 9th NPE. The mean, median, maximum and minimum index value went down during the sampling period. The CV went down after the election for the first 60 days. Source: Author's Calculation

#### 10<sup>th</sup> National Parliamentary Election

Table 5 shows that during the pre-election period, the mean, median, maximum and minimum index value went down from -120 days to -60 days. From -60days to 0 days, the index value went up just like the 1996 election period. During the post-election period, from 0 days to 60 days, the index value went up but from 61 days to 120 days post-election, there was a downward trend in the market.

**Table 5: Descriptive Statistics for DSEX Index price during 10th National Election period**

Particulars	Pre-election		Post-election	
	120-61 days	60-0 days	0-60 days	61-120 days
Mean	4092.89	4141.51	4641.90	4479.60
Median	4086.97	4220.81	4684.07	4448.02
Maximum	4345.46	4439.60	4845.09	4702.45
Minimum	3833.53	3763.89	4296.34	4322.26
Standard Deviation	118.77	191.07	133.31	106.65
Kurtosis	-0.49	-0.98	-0.42	-1.10
CV	0.0290	0.0461	0.0287	0.0238

Note: The table shows descriptive statistics on the pre-election and post-election index movement for 10th NPE. The mean, median, maximum and minimum index value went up on an average

during the sampling period. The standard deviation and CV were less volatile on an average compared to other period. Source: Author's Calculation

### 11<sup>th</sup> National Parliamentary Election

According to Table 6, during the pre-election period, the mean, median, maximum and minimum Index value went down which clearly went up during the post-election period for the first 35 days. The Coefficient of variance went down during the pre-election period but went up during the post-election period.

**Table 6: Descriptive Statistics for DSEX Index price during 11th National Election period**

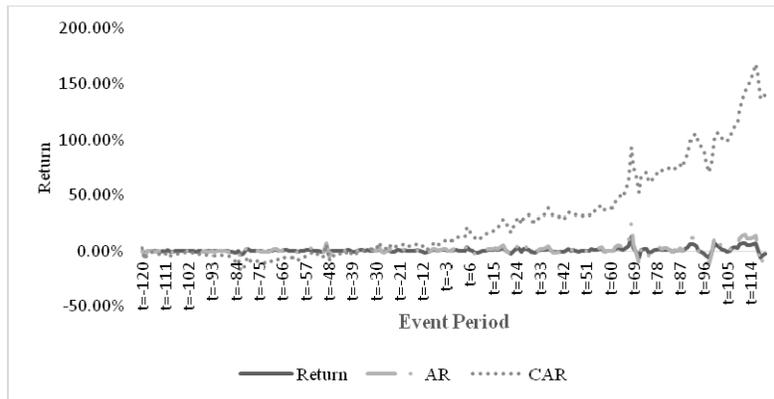
Particulars	Pre-election		Post-election
	120-61 days	60-0 days	First 35 days
Mean	5421.45	5305.87	5789.96
Median	5384.39	5283.08	5800.79
Maximum	5619.42	5455.81	5950.01
Minimum	5262.91	5204.36	5465.25
Standard Deviation	100.81	68.29	110.08
Kurtosis	-1.01	-0.55	2.01
CV	0.019	0.013	0.011

Note: The table shows descriptive statistics on the pre-election and post-election index movement for 11th NPE. The mean, median, maximum and minimum index value went up during the period. The CV went down from 0.019 to 0.011 during the election sampling period. Source: Author's Calculation

Overall, the coefficient of variation of stock index value for different election period shows different patterns. During 1996 election, CV was lower before election which increased significantly after the election. During 2001 election, it slightly increased after election but only for a short period of 60 days. During the election of 2008, CV of stock market index showed no concrete patterns but it was less volatile after election. During the election of 2014 and 2018, the CV was going down after the election which was higher before the election.

#### 4. Data Analysis and Interpretation

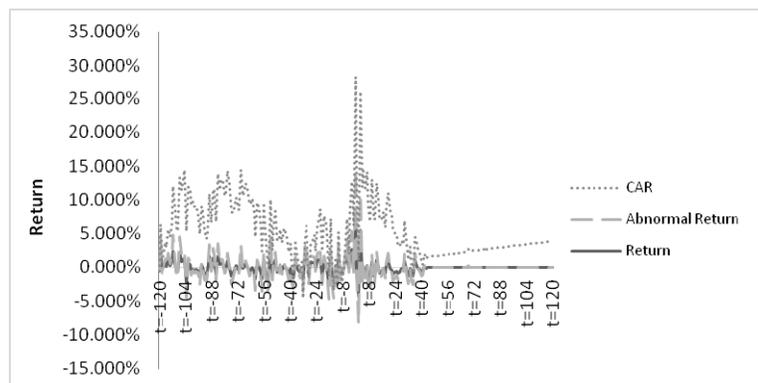
**Figure 1: Return, Abnormal return and Cumulative Abnormal Return for 7<sup>th</sup> National Election 1996**



**Note:** The figure illustrates the daily Return, Abnormal Return and Cumulative Abnormal Return for 7<sup>th</sup> National Parliamentary Election. T=-120 days to T=120 days is the total sampling event period. Throughout the period, Return and Abnormal Return was close to 0 but Cumulative Abnormal Return went up to 150%. Source: Author's Calculation.

The figure 1 shows that during the pre-election and post-election period, the return and abnormal return (AR) moved in the same direction. In the pre-election period the cumulative abnormal return (CAR) was around zero percent but after the election CAR moved up high abnormally for the event period. The reason for the abnormal CAR could be the emergence of positive news in the market just after the prior market crash on November 1996.

**Figure 2: Return, Abnormal return and Cumulative Abnormal Return for 8<sup>th</sup> National Election 2001**

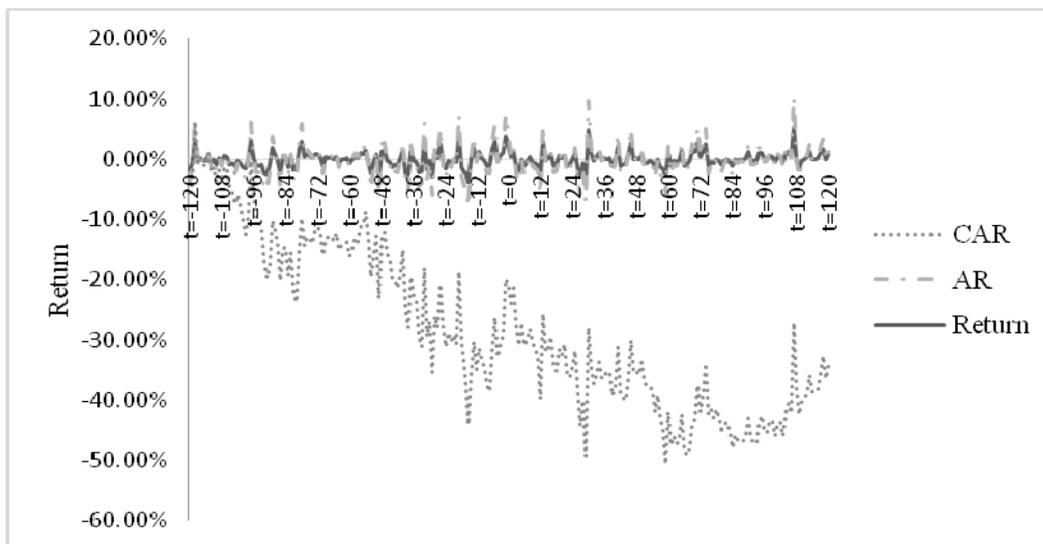


**Note:** The figure illustrates the daily Return, Abnormal Return and Cumulative Abnormal Return for 8<sup>th</sup> National Parliamentary Election. T=-120 days to T=120 days is the total sampling event

period. The Return and Abnormal Return were around -5% to 5% on average and CAR was positive during the period. Source: Author's Calculation.

Figure 2 shows that the return and abnormal return showed a synchronize pattern during the event period for the election of 2001. Prior the election the return and AR showed little fluctuations but for the period just before 10 days of the election and after the election the return and AR were around 10%. CAR was abnormally high before the election but it went down after 40 days of the election for the rest of the event period.

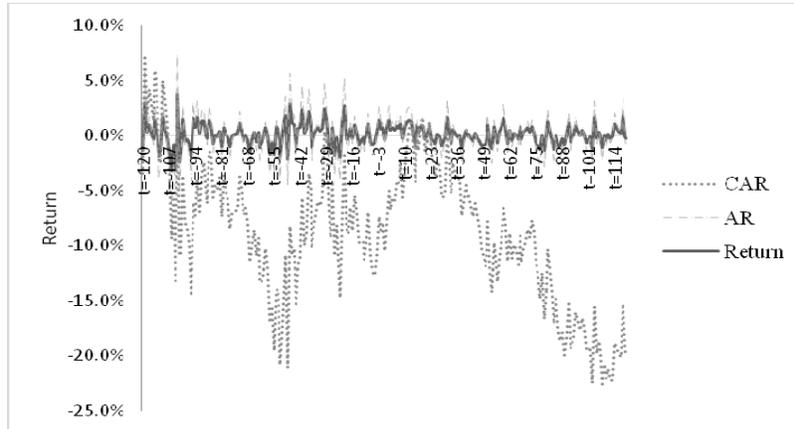
**Figure 3: Return, Abnormal return and Cumulative Abnormal Return for 9<sup>th</sup> National Election 2008**



**Note:** The figure illustrates the daily Return, Abnormal Return and Cumulative Abnormal Return for 9<sup>th</sup> National Parliamentary Election. T=-120 days to T=120 days is the total sampling event period. The Return and Abnormal Return were around 0% but CAR was negative during the period. Source: Author's Calculation.

From figure 3, it is visible that the CAR followed the negative pattern in the pre-election and post-election period but the return and AR on an average move in tandem in the event period for 9<sup>th</sup> National election.

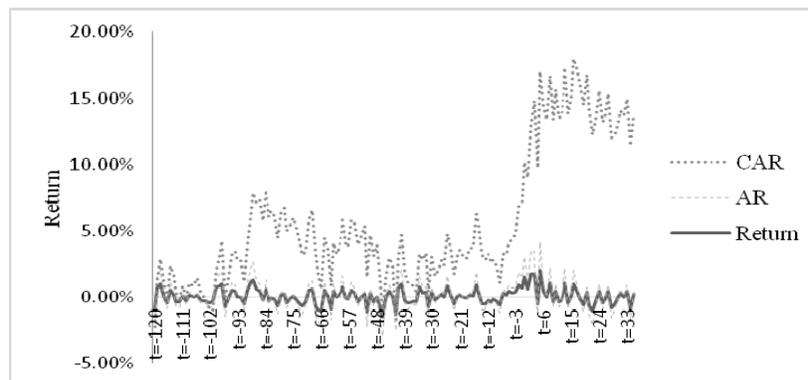
**Figure 4: Return, Abnormal return and Cumulative Abnormal Return for 10<sup>th</sup> National Election 2014**



**Note:** The figure illustrates the daily Return, Abnormal Return and Cumulative Abnormal Return for 10<sup>th</sup> National Parliamentary Election. T=-120 days to T=120 days is the total sampling event period. The return and AR were in the range -5% to 5% while CAR was negative. Source: Author's Calculation

From figure 4, Prior to the 2014 Election, index return and abnormal return fluctuated up to 1000 basis point. But after election index return and abnormal return went down on an average to zero basis point. The fluctuation rectified itself after the election. The CAR was significantly negative during the whole period. It was approaching to zero basis point prior to the election and again started to decline after election.

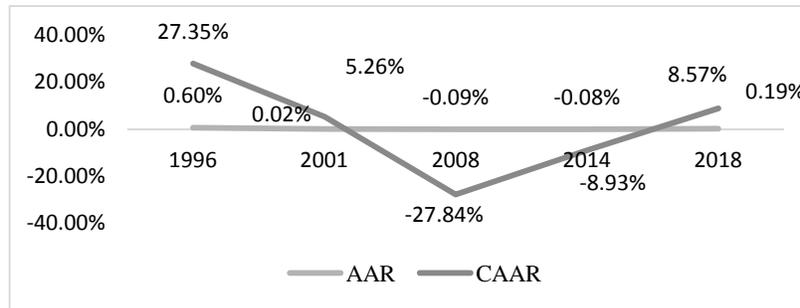
**Figure 5: Return, Abnormal return and Cumulative Abnormal Return for 11<sup>th</sup> National Election 2018**



**Note:** The figure illustrates the daily Return, Abnormal Return and Cumulative Abnormal Return for 11<sup>th</sup> National Parliamentary Election. T=-120 days to T=120 days is the total sampling event period. More volatility in CAR is shown during the period. Source: Author's Calculation

From figure 5, it is quite visible that the CAR was positive before the election period and it remained close to 500 basis points but after the election it increased over 1500 basis points. The return and abnormal return showed a synchronize pattern.

**Figure 6: Abnormal return and Cumulative Abnormal Return for 7<sup>th</sup>- 11<sup>th</sup> National Election**



**Note:** This figure illustrates the average Abnormal Return and average Cumulative Abnormal Return for the election of 1996, 2001, 2008, 2014 and 2018. CAAR was highest 27.35% in 1996 and lowest in 2008. AAR was 0.60% in 1996 with highest value. Source: Author's Calculation.

From figure 6, it is quite visible that Average Abnormal Return is always close to zero but the Cumulative Average Abnormal Return declined from 1996 to 2008 but began to increase for the election of 2014 and 2018 showing an upward slope.

### Hypothesis testing & interpretation

The t-statistic test shows that for all the four national parliamentary election namely 2001, 2008, 2014 and 2018 the AAR are insignificant except 1996 where the AAR is statistically significant. The CAAR for the five election period were found to be statistically significant at 5% level of significance. These are represented in the figures below:

**Table 7: t-test on Average Abnormal Return (AAR) and Cumulative Average Abnormal Return (CAAR)**

Election Year	AAR	t value of AAR	CAAR	t value of CAR
1996	0.60%	4.506	27.35%	10.606
2001	0.02%	0.237	5.26%	22.541
2008	-0.09%	-1.707	-27.84%	-31.704
2014	-0.08%	-1.260	-8.93%	-23.847
2018	0.19%	1.776	8.57%	14.095

**Note:** The table illustrates the Average Abnormal Return, Cumulative Average Abnormal Return and their corresponding t values for the five election period at 5% level of significance bounded by critical value of t from -1.96 to +1.96, Source: Author's Calculation

The second research question addresses the difference in the volatility when comparing all the post elections periods with long term pre elections period for DSE. The Uncertainty Information Hypothesis (UIH) suggested that before an event with uncertainty the volatility remains higher but after the event has passed, the uncertainty fade away and volatility fades away too. From the following table 8, it is clear to say that, from the sample period chosen, UIH phenomena is present in 2001, 2008 and 2014 election.

**Table 8: Pre-election(X3) and post-election average variance of different NPE period**

Year	X3 (Long term Pre-election)	Y1 (Short term post-election)	Y2 (Midterm post-election)	Y3 (Long term post-election)
1996	0.007%	0.014%	0.037%	0.072%
2001	0.012%	0.016%	0.008%	0.006%
2008	0.020%	0.020%	0.016%	0.016%
2014	0.015%	0.005%	0.005%	0.005%
2018	0.002%	0.008%	0.007%	0.006%

Note: The X and Y represents the variance of index value where X3 is the long term pre-election variance (120 days) and Y1, Y2and Y3 are the short term (45 days), mid-term (90 days) and long term (120 days) post-election variance. Here, \*10 days, \*\*20 days, \*\*\*35 days. Source: Author's Calculation

This table illustrates that during the national parliamentary election of 1996, pre-election variance was .007% which was less than that of the post-election. For the election of 2001, pre-election variance was .012% which increased during first 45 days of post-election but decreased afterwards. In 2008, pre-election variance and the first 45 days' post-election variance were .020% that decreased for the mid-term (Y2) and long term period (Y3). During pre-election (2014) long term period's variance was .015% which decreased after post-election and remained stable for short term, mid-term and long term period. In 2018, when the study was conducted index price was available only for 35 days of the post-election period. For that reason, the short term, mid-term and long term period was taken as 10, 20 and 35 days respectively. A completely different situation had been observed in 2018. Long term pre-election's variance was less than post-election's variance. For post-election period short term variance grew up to .008% which gradually decreased for mid-term and long-term period.

**Table 9: ANOVA results for pre-election and post-election's variance**

Source of Variation	1996 P-value	2001 P-value	2008 P-value	2014 P-value	2018 P-value
X3 (Pre 120 days) & Y1 (Post 45 days)	0.0108	0.09	0.84	0.44	0.006*
X3 & Y2 (Post 90 days)	0.0004	0.2	0.98	0.89	0.078
X3 & Y3 (Post 120 days)	0.0001	0.24	0.41	0.97	0.675

Note: This table shows the p value from the test of ANOVA for the five election terms at 5% significance level. \*1% significance level. Source: Author's Calculation

From the test of ANOVA for 1996, the study found that the pre-election long term variance and post-election short term, mid-term and long term variances are not same since the result shows that the p value is less than the 5% significance level. So, the null hypothesis is rejected. The result of ANOVA for 2001 national parliamentary election is different from that of 1996. The pre-election long term variance and post-election short term, mid-term and long term variances are statistically not different since the result shows that the p value is greater than the 5% significance level. So, the null hypothesis is not rejected. The result of ANOVA for 2008 and 2014 national parliamentary election is similar to the result found for 2001 election. The pre-election long term variance and post-election short term, mid-term and long term variances are statistically not different as the result shows that the p value is greater than the 5% significance level. So, the null hypothesis is not rejected. \*For 2018 NPE, the p value for X3(Pre 120 days) & Y1 (post 10 days) variance is less than 5% significance level but greater than 1% significance level. So, the null hypothesis cannot be rejected at 1% significance level for that period. The p value for X3& Y2 (post 20 days) variance is greater than the 5% significance level. So, the null hypothesis is not rejected. The same scenario is observed for the variance of X3 & Y3 (post 35 days).

## 5. Findings & Conclusions

The study finds that DSEX all share index has exhibited seasonality during the election period for the 5 National Parliamentary Election from 1996-2018. For all the five election, the Return and Abnormal Return shows uniformity and synchronicity. The t-statistic test shows that for the election of 1996 Abnormal Return was statistically significant. But for the elections of 2001, 2008, 2014 and 2018 the t-statistic shows that the AR were statistically insignificant. The t-statistic for the elections of 1996, 2001, 2008, 2014 and 2018 Cumulative Abnormal Return were statistically significant and deviates from the average CAR at 5% level of significance.

James Ndungu Kabiru et al, 2015, conducted similar kind of study showing the Effect of General Elections on Stock Returns at the Nairobi Securities Exchange (NSE). The t-statistic test showed that for the four general elections namely the 1997, 2002, 2007 and 2013, AR were statistically insignificant. The t-statistic test for the 1997 and 2007 national parliamentary election CAR were statistically significant but the CAR for the 2002 and 2013 national elections were statistically insignificant at 5% level of significance. From that they implied that Nairobi Stock Exchange viewed the 2002 and 2013 elections as inconsequential and hence rebounded and stabilized immediately. The finding suggested that the NSE 20 Share Index as well as the individual stock returns for the 1997 and 2007 general elections differ significantly from their means while those for 2002 and 2013 elections showed no significant deviations from their means.

The ANOVA test to identify the relationship of long term variance with short term, mid-term and long term variance shows that for 1996, there is significant difference between pre-election long term variance with post period variances. But for 2001, 2008, 2014 and 2018, there is no significant difference between the pre-election return variance and post-election short term, mid-term and long term return variance.

The results imply that the stock market react to the election negatively or positively depending on the available positive or negative news coming during that period. The average AR remained close to zero for the five election period but it was negative for the election of 2008 and 2014 while for 1996, 2001 and 2018, it showed a positive trend. The average CAR were also negative for the election of 2008 and 2014 remaining positive for the election of 1996, 2001 and 2018. The negative AR and CAR could be explained by the negative news and tension resulting in political uncertainty during the period leading to lower confidence of market participants. The positive AR and CAR could be explained by the less uncertainty in political arena during that period implying some extent of consumer confidence.

A similar study was conducted on the impact of General Elections on Stock Markets in India. The results of F test on the variances of return reveal that short term and medium term period were more volatile than the long term period when compared to similar long term period before the election, in just one case, for the 2014 national election. But mainly for the election of 1998, 1999, 2004 and 2009 the result showed no significant difference on the variances of return between the long term pre-election and the short term, mid-term and long term post-election period's variances. So this proves that the null hypothesis was correct (Ch. Balaji et al, 2018).

All these results suggest that the investors should be more careful during this period. The governments and regulators should enact policies and implement them to prevent the market volatility from the political interference. The policies must encourage more local investors into the secondary market. The speculators can be making extra profits during the election period by making investment strategies.

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