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Ballot Boxes and Stock Market: The Influence of Parliamentary Election Uncertainty on Dhaka Stock Exchange (DSE) Returns, Volatility, and Trading Volume

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Abstract: *Political factors, like other external variables, can create noises in the capital market. Elections, being a critical political factor, can instill uncertainty in investors regarding their two primary goals of achieving capital gains and dividends. This study aims to examine the impact of general elections on the Dhaka Stock Exchange's (DSE) return, volatility, and trade volume. The study utilizes daily return data from January 2, 2000, to November 30, 2020, specifically focusing on the four parliamentary elections held in 2001, 2008, 2014, and 2018. By employing the event window approach, the study finds that DSE generates positive abnormal returns during election periods. Additionally, using the GJR-GARCH (p, q) model, the study concludes that return volatility is significantly impacted during election time. Furthermore, the study observes that election has significantly positive impact on daily trade volume of DSE. In conclusion, this study establishes a strong correlation between parliamentary elections and abnormal returns, volatility, and trade volume in the DSE. The study's findings emphasize the need for policymakers to create stable political environments that can attract more investments, boost market confidence, and promote economic growth and development. Investors can use the results to make informed investment decisions during election periods.*

Keywords: *Abnormal Return; Event study; GARCH; Election effect; Dhaka Stock Exchange*

1. Introduction

The money market and the capital market are the means through which economies mobilize the resources that are crucial for economic growth and development. A developed financial system ensures efficient allocation of resources, transfers savings, and aids to diversify the risk (Mishkin, 2007). On the other hand, for developing economy like Bangladesh needs an efficient financial market which can pool all savings and transfer those savings as capital in the productive sector. The stock market plays a significant role in mobilizing

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and allocating financial resources in capital-intensive industries and accelerating economic growth. (Levine & Zervos, 1998) shows that long-run economic growth and stock market development are positively associated.

Since the 1980s, behavioral finance researchers raised questions about the Efficient Market Hypothesis (EMH) when many studies show investors' imperfect reactions, e.g., over or under response towards market information that is not expected in the light of EMH. Moreover, with the introduction of prospect theory, behavioral finance becomes one of the finance's center fields. Prospect theory demonstrates that investors rationalize loss and gain in a different way. They never consider perceived losses but rather consider perceived gains while investing (Hassan & Kayser, 2019). In most cases, for investment decisions investors depend on the behavioral, and psychological factors, e.g., loss aversion, overconfidence, mental accounting, and herding factors affect instead of financial theories' assumptions (ibid).

Which factors instigate the rise of the volatility of the stock market? It may be due to the sluggish growth of the business. But the correlation between volatility and business crashes is not lucid (Pindyck, 1990; Romer, 1990). Volatility may create recessions; recession may create volatility, or both might be the consequences of exogenous factors. Political uncertainty is one of the exogenous factors (Bittlingmayer, 1998). Investors invest in the stock market for both dividend and capital gain. By any chance, when they think one of these two factors may outperform in a short or long period, they become watchful. This watchfulness provides signals to the market through more investment or less investment in the market, consequences the volatility in the stock market. If any uncertainty comes into risk lovers' minds, they try to grasp it by investing more in the market. On the contrary, a risk-averse investor avoids investing in such uncertain circumstances. Abnormal return is observed in several stock markets due to Political news and event (Beaulieu et al., 2005). Political good news carries the signal of stability of the economy, which is reflected in the stock market. Thus, good news has a more positive impact in return, and it decreases volatility. But bad news has a negative effect on the return and increases volatility (Nurlita & Naomi, 2019; Suleman, 2012).

Sometimes investors try to anticipate which party is going to be elected. Because they thought the new government would take new policies that will be pleasant for businesses. In the U.S. if investors assume the chances of winning of democratic party, stock volatility declines (Leblang & Mukherjee, 2004). Many studies were directed to determine the presidency cycles' impact on the stock return and volatility. (Wong & McAleer, 2009) found an election cycle that affects the U.S. stock market in the last ten presidential elections over the four decades. The stock price decreased in the first half of four years of the presidency cycle but started to increase from the second half and peaked during the third and fourth years.

Through the mass media and other communication channels, political information spreads into the stock market during election time. Consequences are

visible in abnormality of return and volatility. The application of the event window method (Imelda et al., 2015; Koulakiotis et al., 2016; Ramesh, 2015) shows that abnormal return and cumulative return prevail during election days. (Jiun, 2019; Koulakiotis et al., 2016; Li & Born, 2006; Siokis & Kapopoulos, 2007) reported a presence of volatility in return during the election period.

Fifty years since the independence Bangladesh is revolving in military rule and electoral democracy. Moreover, in electoral democracy, several times, she shifts from parliamentary to the presidential system of government. This is happening due to frequent changes in the country's constitutions with the ruling party's evolution (Jahan, 2015). Since independence, there have been three presidential elections and eleven parliamentary elections. Bangladesh Awami League, Bangladesh Nationalist Party, and Jatiya Party are the major political parties participating in general elections. It is worth mentioning that during our sample period from 2 January 2000 to 30 November 2020, only four parliamentary elections were held in 2001, 2008, 2014, and 2018. Due to information asymmetry, developing countries' stock markets seem less efficient than developed countries in terms of EMH (Ciner & Karagozoglu, 2008; Henry, 2000). So, this study tries to explore the connotation of market return, volatility, and trade volume with elections.

The rest of the paper is structured as follows. Section 2 introduces the existing literature regarding election and stock market behavior. Section 3 discusses the data set used in the study. In section 4, this paper explains the event study methodology that is used to detect the abnormality trend in return series during the elections. Moreover, section 3 illustrates the GARCH family modeling methodology used to determine the volatility of return in DSE. Furthermore, an OLS regression model is employed to detect the election effect on trade volume. Section 4 discussed the empirical results. And section 5 concludes the research: Political uncertainty like election events leads to the volatility of the stock market. It is very much valid for a country like Bangladesh.

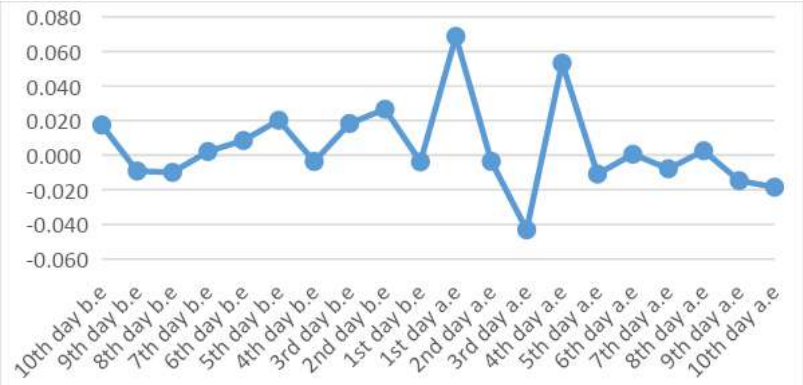

Figure 1: DSE Return Around 20 Days Of 2001 Election

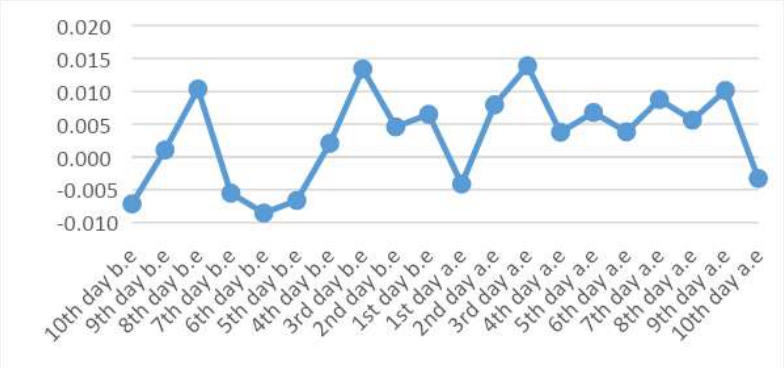

Figure 2: DSE Return Around 20 Days Of 2014 Election

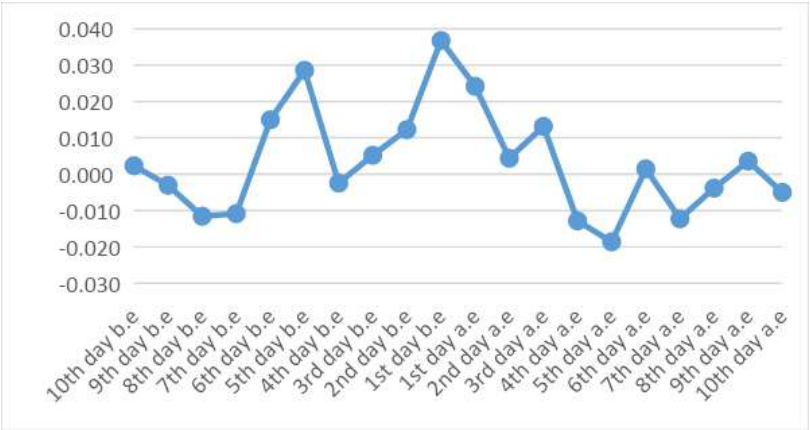

Figure 3: DSE Return Around 20 Days Of 2008 Election

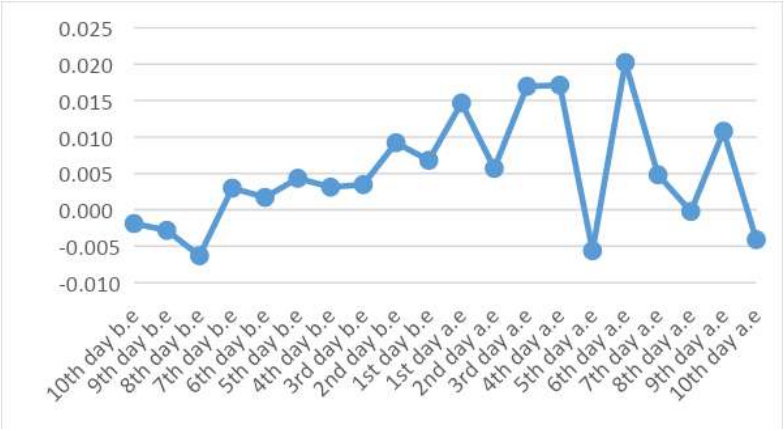

Figure 4: DSE Return Around 20 Days Of 2018 Election

In the upper mentioned four figures, the study shows the return series before and after ten days of four general elections, e.g., 2001, 2008, 2014, and 2018. During 2nd day before of election, returns of DSE were increased in all cases except the 2014 election. On the contrary, the returns decreased on the 2nd day after the election except 2014 election. On the 1st day before the election, returns were increased in the 2008 and 2014 elections and decreased in the 2001 and 2018 election. The inverse result is obtained after the 1st day of election: returns were increased in both 2001 and 2018election and decreased in both 2008 and 2014 election. In all election, returns were increased on the 3rd day after the election except 2001.

2. Literature Review

Beyond the economic and financial factors, several factors create noises in stock market returns and volatility. Some elements are social; some are behavioral; some are seasonal; even political. Different markets got different forms of efficiency with these factors, e.g., strong, semi-strong, and weak. A market is only efficient whenever it provides the right signals through information to investors, either to invest or not to invest, and asset prices reflect that information (Malkiel & Fama, 1970). Several researchers found the seasonal effect in the distinct stock market, e.g., the Holiday effect (Ariel, 1990), day-of-the-week effect (Cross, 1973; Gibbons & Hess, 1981; (Hassan & Khan, 2019), January effect (Tinic & West, 1984). Ramadan effect in DSE trade volume is present in DSE from 2002 to 2018 (Hassan & Kayser, 2019); & (Zhu 2015) reported Ramadan had a negative effect on EIIB stock return and volatility.

Several researchers first did studies of political risk in the stock market during the 1970s. (Nordhaus, 1975) provided the presence of political events in the economic cycle during the U.S. election. The effect of political uncertainty on the stock market is validated by (Arin *et al.*, 2013; Bittlingmayer, 1998; Mei & Guo, 2004; Wang & Lin, 2009). (Nazir *et al.*, 2014) studied the impact of political events on the Pakistani stock market from 1999 to 2011 and found the reflection of political events on KSE. But all abnormality is absorbed by KSE after 15 days of the event. Although specific nine major political events of Pakistan which had changed policy affected returns of KSE, events that had not changed policy refrain from to affect stock return; But none of the event's effects lasts more than two days (Murtaza & Ali, 2015). Recently (Wisniewski, 2009) showed that stock prices are significantly linked with political factors, but the traditional standard, present value model, can't determine. The present value model never considers non-fundamental elements, e.g., election cycle, political orientation, and military conflicts (ibid).

Another wave studied the risk of the stock market due to political news. Stock market react quickly to that information which has the probability to change the policy within or beyond the country. (Suleman, 2012) found that the stock market responds positively to returns and negatively to volatility of in the KSE100 index with good political news. Opposite result is found in Indonesian Stock Exchange

by (Nurlita & Naomi, 2019):Presidential election's good news has more influence on return volatility than negative news. Moreover, the study concluded that the influence of negative political news is double that of good news. (Beaulieu *et al*., 2005) showed that the news of Quebec's possible independence from the Canadian federation significantly affects the volatility of stock return of Quebec-based firms. After the declaration of the political system's structural change on 2 February 1990, South Africa got the All-Share Index's volatility effect (Brooks *et al*., 1997).

The stock market consists of several types of investors, e.g., risk-lover and risk-averse. So before investing, investors consider the political uncertainty. Risk-lover investors typically entertain the apprehension. On the contrary, risk-averse investors try to refrain from any upcoming uncertainty. During the election period, before and after the election, a high abnormality of return is observed (Chen *et al.*, 2005; Imelda *et al*., 2015). (Ramesh, 2015) applied event window methodology to justify the cumulative average abnormal return in selected 30 BSE SENSEX companies in the 2014 general elections. Using different symmetric and asymmetric windows, the author concluded that there is a high cumulative average abnormal return during 15 days before and after the election. (Koulakiotis *et al*., 2016) and (Oehler *et al*., 2012) found a similar result in Athens, but a negative return in the U.S. stock market on election day.

A group of researchers studied the election cycle in the stock market. (Goodell & Vähämaa, 2013; Gärtner & Wellershoff, 1995; Vojtko & Cisár, 2020) studied on U.S. presidential election in the different time frames. (Vojtko & Cisár, 2020) found a pattern in the U.S. stock market concluded that a positive return of around 2.5% is enjoyed by investors from the 5th day before the election and ends after the 1st day of election. Nevertheless, due to political uncertainty and the election's closeness in the last year, the market moves bigger. A partially different result is found by (Gärtner & Wellershoff, 1995); during the first half of the presidency, the return falls, but stock return rises in the second half. (Goodell & Vähämaa, 2013) studied five general US elections. The author observed an election cycle in the stock market and noted that the presidential election creates noises and makes market anxiety because investors expect to change policy with government change.

High Stock return and volatility are detected in several studies. (Bialkowski *et al*., 2009) conducted research on 27 OECD countries and showed that a week around election day stock return volatility doubled. These sort of election shocks happen due to several reasons, e.g., margin of victory, failure to form a coalition and orientation of new government, etc. (Jayasinghe, 2014) applying the GARCH model in the Colombo Stock exchange from January 1985 to September 2009 found high volatility around the parliamentary and presidential elections. (Li & Born, 2006) stated that when there is no indication or dominant lead on the next president in the U.S., stock return and volatility is increased.

Besides, some of the researchers found no election effect; some got a negative or low effect on the stock market. (Hashim & El Mosallamy, 2020) studied and

compared the U.S. and Egyptian stock market. Applying the mean-adjusted return model, the study concluded markets automatically absorbed the election shocks. Overall, neither of these two markets have a momentous election influence on the stock market. From January 1994 to December 2015, (Jiun, 2019) studying the Malaysian stock market found that most of the leading sectoral indices' stock volatility is lower before and after the election from the subsample 1994 to 2005. On the contrary, stock returns have significantly negative volatility before and after elections due to political turmoil during 2006 to 2015. In the overall period, investors enjoyed abnormal returns. A similar result was also found in Taiwan from 1984 to 2004 (Wang & Lin, 2009). (Jens, 2017) stated that overall investment decreased by 5% and 15% percent chronologically before and after the gubernatorial election in the U.S.

Any uncertainty affects the stock market, and several researchers provide sufficient findings with positive, negative, or no impact on stock market abnormal return, return volatility, and volume volatility during the election cycle in the various context in the different time frames. Moreover, several behavioral finance patterns are found in Dhaka Stock Exchange, but no study was found regarding the election effect on stock return, volatility, and volume. This study assumes that there might have an election effect in DSE return and volatility based on the prior study.

Objectives of the Study

- To investigate the abnormality of return around the election days in DSE using traditional event study methodology.
- To detect volatility in return employing the GARCH model,
- To identify election impact on trade volume applying the OLS model.

3. Data and Methodology

The study concentrates on the effect of parliamentary elections on stock return, volatility, and trade volume of DSE. This study focuses on only four parliamentary elections of Bangladesh held from October 2001 to 30 December 2018. From 2 January 2000 to 30 November 2020 daily closing returns of DSEX index (overall market index), a data set of 5179 trading days has been prepared for analysis purpose. Over the years, DSE has changed its overall market index name twice. Up to 23 November 2001, this broad index was known as DSI which was later changed to DGEN. Subsequently, DSE has replaced DGEN with a broad market index, DSEX designed by S & P, from 28 January 2013. As both DGEN and DSEX indices are almost 99 percent correlated over the inception of the first three months (Hassan & Kayser, 2019). To keep the harmony of the data series, this study ignored the changes of indices name.

Event Study Methodology

To identify the short-term influence of election, this study used the traditional event study method (Koulakiotis et al., 2016). For this reason, it is required to define event day, estimation period and event window period. Then the abnormal return for the model is calculated.

Election day is considered as event day. Elections were taken place 1st October 2001, 29th December 2008, 5th January 2014, and 30th December 2018. The estimate period is 200 trading days before event day, but it does not double up with event window period. The period where abnormal return is calculated is considered as event window period. For symmetric event window period, (- 30, +30); (-15, +15); (-20, +20); (-10, +10); (-5, +5); (-2, +2) trading days before and after event day was taken as event window period to estimate the effect of election both before and after. Secondly, for asymmetric events window (-30, -15); (+15, +30); (-30, - 20); (+20, +30); (-10, - 1); (+10, +1) trading days were used to identify either only before or only after election effect. For every set of event window period, abnormal returns are calculated using mean adjusted algorithmic function of traditional event study method in Microsoft excel .

Calculation of abnormal returns:

Return of the DSEX.

$$Ret_t = ln\ (DSEX_t / DSEX_{t-1})$$

Here, Ret_t is actual return. $DSEX_t$ is the closing value of DSEX on t-th day and $DSEX_{t-1}$ is the closing value of previous (t-1) day.

$$ABRet_{jt} = Ret_{jt} - \overline{Ret_{jt}}$$

Abnormal return of t-th day is calculated as the subtraction of average return of 200 trading days before event day from return of t-th day. Average return of 200 trading days before event day is calculated as:

$$\overline{Ret_{jt}} = \frac{\Sigma_{j=1}^{N} Ret_{jt}}{N}$$

Where, N= 200 trading days before event day.

$$AABRet_{jt} = \frac{\sum_{j=1}^{n} ABRet_{jt}}{N}$$

Here, $AABRet_{jt}$ is the average abnormal return of event window periods of all eclectics. N= number of elections (4).

Arch Type Family Modeling Methodology

This paper used the GARCH model in Eviews to examine the election effects on daily returns and volatility of DSE. Augmented Dickey-Fuller (ADF) confirms the stationarity in return series. Again, the return series got autocorrelation and partial autocorrelation. Furthermore, Jarque-Bera statistics confirm the non-normality in the return series. Therefore, in equation no (1) to detect election effect, the dummy variable (Elec_dum) takes the value of 1 if the trading day is within the election period; otherwise, it takes 0. Where, six months before and six months after election day is considered as the election period. For example, 1 April 2001 to 31 March 2002, 29 June 2008 to 28 June 2009, 5 July 2013 to 4 July 2014, and 30 June 2018 to 29 June 2019 is considered as election period for 2001, 2008, 2014, and 2018 election respectively. The lag return variable

captures the autoregressive (AR) effect and lagged error values capture the moving average (MA) effect. To eliminate the residuals of autocorrelation k order is included in AR and MA terms. Lijung-Box test statistics is used to evaluate the order of ARMA components. Therefore, the ARMA model is as follows:

$$Ret_t = \mu_0 + \alpha_1 Elec\_dum + \sum_{i=1}^{k} \emptyset_i Ret_{t-1} + \sum_{j=1}^{k} \theta_j \varepsilon_{t-j} + \varepsilon_t \quad (1)$$

The ARCH-LM test shows that there is an autocorrelation in the sequence of squared residuals(ε_t^2) which indicates that the model error sequence has autoregressive conditional heteroscedasticity, also known as the ARCH effect (table 1 in annexure). So, it is appropriate to use ARCH family models. In view of Akaike Information Criterion (AIC) and maximum probability insights, GJR-GARCH model is chosen(table 2 in annexure) to gauge the time-varying volatility of return. The GJR-GARCH (p,q) procedure to evaluate the constraints of the variance is in the equation (2)

$$\sigma_t^2 = V_0 + \beta_t Elec\_dum + \sum_{i=1}^{p} (\alpha_i + \gamma_i I_{t-i}) \varepsilon_{t-i}^2 + \sum_{j=1}^{q} \beta_j \sigma_{t-j}^2 \quad (2)$$

where,

$$I_{t-i} = \begin{cases} 1 \; if \; \varepsilon_{t-i} < 0 \\ 0 \; if \; \varepsilon_{t-i} \geq 0 \end{cases}$$

P and q are conditional variance orders in the linear function of past squared error and lagged variance. Both equations are jointly estimated to determine the election effect on return and volatility of DSE. V_0, α_i, Υ_i, and β_j are the GJR-GARCH (p,q) model parameters. P and q indicate the order of the process where, $p > 0$ and $q > 0$. β_t captures the election effect on the volatility of return.

Finally, to observe the election effect on DSE trade volume, the following OLS regression (equation 3) model is estimated using Eviews. Here, trade_volt is the number of trades that took place on the t-th date. $Elec\_dum_t$ is a dummy variable of the election. It takes the value of 1 if the trading day is within the election period (6 months before and 6 months after election day); otherwise, it takes 0. Due to some trade volume data unavailability, this study used trade volume data from 2 January 2002 to 30 November 2020, a sum of 4349 observations.

$$Trade\_vol_t = \beta_0 + \beta_1 Elec\_dum_t + \varepsilon_t \quad (3)$$

Here, β_0 is the intercept indicating the average daily transaction in a million other than the election period. β_1 is the coefficient of Election dummy, and ε_t is the error term.

4. Discussion of Empirical Results

Results and Analysis of Window Events

In Table 1 and 2, the result of event study output shows the abnormal return around the event period. High abnormal return is the signal of the market's inefficiency in terms of processing information. Investors capitalize the consequences of the late response of information through abnormal earnings. The following table shows the average abnormal returns around the event periods. t-test is run to show the significance of average abnormal returns and average returns around event periods. Investors receive the maximum average abnormal return (5.54%) two days prior and two days back of the election and significant at 1 percent. In table 1, for symmetric events, window mean average abnormal returns are positive and statistically significant at 1percent. On the contrary, in table 2, for asymmetric event window (+15, + 30) and (+20, +30), investors earned negative average abnormal returns. It means that the market has taken the news of the new government negatively and quickly reflected. All symmetric and asymmetric events window is statistically significant at 1%. Hence it indicates that there is an abnormality (positive) in return of DSE which is a similar previous study (Ramesh, 2015)

Table 1: For Symmetric Events Window: Average Abnormal Return Around Event Day

	Mean	**Std. Err.**	**Std. Dev.**	**t-test**	**P value**
(-30); (+30)	0.27	0.38	2.91	-7.10E+06	0.00**
(-20); (+20)	0.77	0.48	3.05	-5.20E+06	0.00**
(-15); (+15)	1.08	0.59	3.23	-4.00E+06	0.00**
(-10); (+10)	1.74	0.76	3.38	-2.80E+06	0.00**
(-5); (+5)	3.49	1.19	3.77	-1.40E+06	0.00**
(-2); (+2)	5.54	1.84	3.68	-6.20E+05	0.00**

Source: Authors' estimation.
Note 1: ** represents significant at 1%.

Table 2: For Asymmetric Events Window: Average Abnormal Return Around Event Day

	Mean	Std. Err.	Std. Dev.	t-test	P value
(-) 30; (-15)	0.04	0.64	2.58	-4.60E+06	0.00**
(+) 15; (+30)	-1.18	0.44	1.76	-7.10E+06	0.00**
(-)30; (-20)	0.44	0.72	2.39	-3.70E+06	0.00**
(+) 20; (+30)	-1.54	0.56	1.86	-5.50E+06	0.00**
(-) 10; (-1)	1.82	0.87	2.76	-2.40E+06	0.00**
(+) 10; (+1)	1.67	1.28	4.06	-1.80E+06	0.00**

Source: Authors' estimation.
Note 1: ** represents significant at 1%.

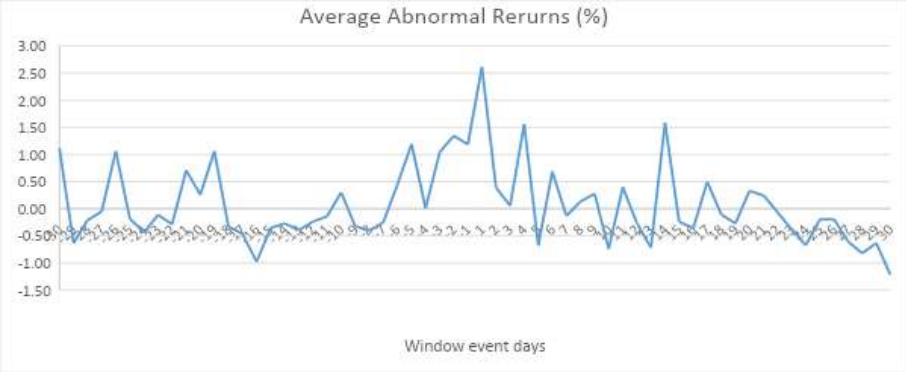

Figure 5: Average Abnormal Returns Around Event Window (-30, +30)

Figure 5 is highly conspicuous for extreme volatility in 30 days before and after elections. On the very first trading day after the election, investors earn maximum average abnormal returns (2.61%). On the contrary, the maximum negative average abnormal returns (-1.22%) were earned on the 30th day after the election. Therefore, there is a difference in return during election periods.

Empirical Results in Garch Model

Results of the election effect of DSE from 2000 to 2020 are presented in Table 3. As data series are not normally distributed, Gaussian normal error distribution is avoided. Therefore, Student's t distribution and GED is used for excess kurtosis in the DSE return series. Panel A represents the mean equation (equation 1) where the dummy variable of election coefficient is negative and statistically significant at 5% in Student's error distribution but statistically insignificant in GED. The finding is consistent with the previous study (Koulakiotis et al., 2016; Pantzalis et al., 2000). Moreover, both AR and MA components along with constant term are found significant at 1%.

Table 3: Calculation of Returns and Conditional Variance GJR-GARCH (1,1) Model With ARMA (1,1) And Election Dummy Variables

Panel A: Mean Equation						
DV: Daily Return	**Student's t Error Distribution**			**Generalized Error Distribution**		
Variables	**Coefficient**	**Standard Error**	**Probability**	**Coefficient**	**Standard Error**	**Probability**
Constant	0.000294	0.000119	0.0133*	0.000356	0.000104	0.0006**
Election Dummy	-0.000695	0.000311	0.0254*	-0.000458	0.000281	0.10310
AR(1)	-0.314725	0.067994	0.000**	-0.322392	0.067026	0.000**
MA(1)	0.484283	0.0626701	0.000**	0.47901	0.062096	0.000**
Panel B: Variance Equation						
Constant	0.00000265	0.000000422	0.000**	0.00000306	0.000000563	0.000**
Election Dummy	0.00000207	0.00000103	0.0446*	0.00000475	0.00000115	0.000**
ARCH Term	0.212454	0.019505	0.000**	0.230288	0.024119	0.000**
ARCH Term *Dummy for negative lagged residual	0.127079	0.027801	0.000**	0.170818	0.034777	0.000**

DV: Daily Return	Student's t Error Distribution			Generalized Error Distribution		
Variables	Coefficient	Standard Error	Probability	Coefficient	Standard Error	Probability
GARCH Term	0.742922	0.013461	0.000**	0.726366	0.016107	0.000**
	Model Statistics			Model Statistics		
Log-likelihood	16961.32			16837.81		
AIC	-6.548703			-6.500989		
SC	-6.536047			-6.488333		

Source: Authors' estimation.
Note 1: *, ** represents significant at 5% and 1%, respectively.

In panel B, the dummy election variable's coefficient during the election period found positive volatility, which is statistically significant at a 5% level similar to Jayasinghe, 2014. The results signify that previous periods' volatility has explanatory power of predicting current volatility as the ARCH coefficient is statistically significant at 1%. In the same way, there is lagged conditional variance as the GARCH term is also statistically significant at 1%. The combined sum of ARCH and GARCH coefficient indicates the persistence volatility of DSE return is large. Thus, it is very well presumed that the today's shock prevails in the estimates of variance for some periods later on. And a major (minor) change of return leads to a major (minor) change in DSE volatility. Moreover, the leverage term in variance is statistically significant, indicating that leverage in bad news rise the volatility of DSE. The presence of a higher Impact of bad news (0.742922+ 0.127079= 0.870001) than good news (0.742922) is an indication of the asymmetric effect on volatility in DSE (Jiun, 2019; Siokis & Kapopoulos, 2007). Post model Diogenitic conforms that the GJR-GARCH model is free from the ARCH effect (table 3 in annexure) and no serial correlation problem(table 4 in annexure).

Regression Output

Table 4: OLS Regression of election dummy variable on trade volume.

Dependent Variable: Trade Volume in Million			
variable	coefficient	Standard Error	Probability
Constant	75.9668	1.4576	0.000
Election Dummy	9.2669	3.543	0.009**

Source: Authors' estimation.
Note 1: ** represents significant at 1%.

Table 4 represents OLS regression output to show whether there is any impact of election in trade volume of DSE. Output indicates that election has a positive association with trade volume and that is statistically significant at 1 percent.

The above study of DSE daily return reported that investors enjoy abnormal return during the election periods, which is statistically significant. Moreover, return volatility is also significantly affected during the election period. Finally, trade volume is positively associated with the election and statistically significant.

5. Recommendations and Conclusion

Investors have a lot of data in regard to corporate profit, microeconomic factors, political occasions alongside election and election outcomes. This study attempts to examine the effect of parliamentary elections of 2001, 2008, 2014 and 2018 on DSE return, volatility and volume. During election period on an average investor render significant amount of positive average abnormal return and it is in the pick on the first day after election. GJR-GARCH (p, q) indicates that time varying volatility of market return is positively associated with election period and statistically significant. Furthermore, Trade volume during election period got positive association. Therefore, the study endeavors to show Dhaka stock market is significantly affected during Parliamentary elections in Bangladesh in terms of return, volatility and volume.

The study suggests that policymakers need to create stable political environments that can promote economic growth and development, while investors can use the findings to make more informed investment decisions during election periods. Moreover, the government can develop policies and interventions that promote market stability, such as tax breaks or subsidies for investors, and market intervention mechanisms to mitigate the impact of election uncertainty on the stock market. The implications emphasize the importance of understanding the relationship between political uncertainty and financial markets in Bangladesh and taking measures to promote market stability during election periods.

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Annexure

Table 1: Heteroskedasticity Test to ensure ARCH in the model

F-statistic	7.119535	Prob. F(10,5157)		0.0000
Obs*R-squared	70.37564	Prob. Chi-Square(10)		0.0000
Test Equation:				
Dependent Variable: RESID^2				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.000131	2.12E-05	6.181015	0.0000
RESID^2(-1)	0.065817	0.013924	4.727038	0.0000
RESID^2(-2)	0.039408	0.013949	2.825202	0.0047
RESID^2(-3)	0.024920	0.013953	1.786036	0.0742
RESID^2(-4)	0.010293	0.013950	0.737823	0.4607
RESID^2(-5)	0.017094	0.013947	1.225674	0.2204
RESID^2(-6)	0.023524	0.013947	1.686683	0.0917
RESID^2(-7)	0.031386	0.013950	2.249880	0.0245
RESID^2(-8)	0.031456	0.013953	2.254503	0.0242
RESID^2(-9)	0.026835	0.013949	1.923825	0.0544
RESID^2(-10)	0.015321	0.013924	1.100360	0.2712
R-squared	0.013618	Mean dependent var		0.000183
Adjusted R-squared	0.011705	S.D. dependent var		0.001450
S.E. of regression	0.001442	Akaike info criterion		-10.24406
Sum squared resid	0.010717	Schwarz criterion		-10.23012
Log likelihood	26481.65	Hannan-Quinn criter.		-10.23918
F-statistic	7.119535	Durbin-Watson stat		2.000454
Prob(F-statistic)	0.000000			

Source: Authors' estimation

Table 2: Model Specification

Model	Distribution criteria	Akaike Information Criterion (AIC
ARCH 1,0	Gausian	-5.99743
ARCH 1,0	Students t	-6.39775
ARCH 1,0	GED	-6.36675
ARCH 2, 0	Gausian	-6.19475
ARCH 2, 0	Students t	-6.46773
ARCH 2, 0	GED	-6.43619
GARCH 1,1	Gausian	-5.44636
GARCH 1,1	Students t	-6.53713
GARCH 1,1	GED	-5.44597
EGARCH 1,1	Gausian	-6.2241
EGARCH 1,2	Students t	-6.53415
EGARCH 1,3	GED	-6.48955
GJR-GARCH 1,1	Gausian	-6.22116
GJR-GARCH 1,1	Students t	-6.54201***
GJR-GARCH 1,1	GED	-6.49446

Source: Authors' estimation (*** Selected model for analysis)

Table 3: Heteroskedasticity Test: ARCH

F-statistic	**0.008239**	**Prob. F(36,5105)**		**1.0000**
Obs*R-squared	**0.298738**	**Prob. Chi-Square(36)**		**1.0000**
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	1.449768	0.347214	4.175425	0.0000
WGT_RESID^2(-1)	-0.001817	0.013996	-0.129811	0.8967
WGT_RESID^2(-2)	0.000742	0.013996	0.053010	0.9577
WGT_RESID^2(-3)	-0.001277	0.013996	-0.091224	0.9273
WGT_RESID^2(-4)	-0.001724	0.013996	-0.123210	0.9019
WGT_RESID^2(-5)	-0.001597	0.013996	-0.114132	0.9091
WGT_RESID^2(-6)	-0.001915	0.013996	-0.136831	0.8912
WGT_RESID^2(-7)	-0.001472	0.013996	-0.105142	0.9163
WGT_RESID^2(-8)	-0.001834	0.013996	-0.131005	0.8958
WGT_RESID^2(-9)	-0.001925	0.013996	-0.137543	0.8906
WGT_RESID^2(-10)	-0.001810	0.013996	-0.129320	0.8971
WGT_RESID^2(-11)	-0.000877	0.013996	-0.062653	0.9500
WGT_RESID^2(-12)	-0.000978	0.013996	-0.069868	0.9443
WGT_RESID^2(-13)	-0.000768	0.013996	-0.054907	0.9562
WGT_RESID^2(-14)	-0.001434	0.013996	-0.102448	0.9184
WGT_RESID^2(-15)	-0.000274	0.013996	-0.019583	0.9844
WGT_RESID^2(-16)	-0.000560	0.013996	-0.040044	0.9681
WGT_RESID^2(-17)	-0.000789	0.013996	-0.056402	0.9550
WGT_RESID^2(-18)	-0.001424	0.013996	-0.101709	0.9190
WGT_RESID^2(-19)	-0.001389	0.013996	-0.099226	0.9210
WGT_RESID^2(-20)	-0.001476	0.013996	-0.105489	0.9160
WGT_RESID^2(-21)	-0.000245	0.013996	-0.017494	0.9860
WGT_RESID^2(-22)	-0.001698	0.013996	-0.121294	0.9035
WGT_RESID^2(-23)	-0.000780	0.013996	-0.055716	0.9556
WGT_RESID^2(-24)	-0.000194	0.013996	-0.013869	0.9889
WGT_RESID^2(-25)	-0.001568	0.013996	-0.112023	0.9108
WGT_RESID^2(-26)	-0.001273	0.013996	-0.090926	0.9276
WGT_RESID^2(-27)	0.001575	0.013996	0.112523	0.9104
WGT_RESID^2(-28)	-0.001566	0.013996	-0.111911	0.9109
WGT_RESID^2(-29)	-0.000797	0.013996	-0.056937	0.9546
WGT_RESID^2(-30)	-0.000319	0.013996	-0.022808	0.9818
WGT_RESID^2(-31)	-0.001740	0.013996	-0.124297	0.9011
WGT_RESID^2(-32)	0.000569	0.013996	0.040649	0.9676
WGT_RESID^2(-33)	-0.000599	0.013996	-0.042791	0.9659
WGT_RESID^2(-34)	-0.001322	0.013996	-0.094482	0.9247
WGT_RESID^2(-35)	-0.000898	0.013996	-0.064162	0.9488
WGT_RESID^2(-36)	-0.001087	0.013996	-0.077645	0.9381
R-squared	0.000058	Mean dependent var		1.398678
Adjusted R-squared	-0.006993	S.D. dependent var		23.28923
S.E. of regression	23.37052	Akaike info criterion		9.147998
Sum squared resid	2788256.	Schwarz criterion		9.195095
Log likelihood	-23482.50	Hannan-Quinn criter.		9.164481
F-statistic	0.008239	Durbin-Watson stat		1.999995
Prob(F-statistic)	1.000000			

Source: Authors' estimation

Table 4: Autocorrelation

Q-statistic probabilities adjusted for 1 dynamic regressor

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
| |	| |	1	0.030	0.030	4.7403	0.029
| |	| |	2	-0.028	-0.029	8.8896	0.012
| |	| |	3	0.047	0.049	20.212	0.000
| |	| |	4	0.041	0.037	28.763	0.000
| |	| |	5	0.055	0.056	44.517	0.000
| |	| |	6	-0.001	-0.004	44.521	0.000
| |	| |	7	0.001	0.001	44.533	0.000
| |	| |	8	0.012	0.005	45.280	0.000
| |	| |	9	0.023	0.019	48.112	0.000
| |	| |	10	0.020	0.017	50.261	0.000
| |	| |	11	0.025	0.025	53.455	0.000
| |	| |	12	0.005	0.002	53.600	0.000
| |	| |	13	0.013	0.010	54.425	0.000
| |	| |	14	0.008	0.001	54.739	0.000
| |	| |	15	0.003	-0.000	54.798	0.000
| |	| |	16	0.003	-0.001	54.849	0.000
| |	| |	17	0.001	-0.001	54.855	0.000
| |	| |	18	0.008	0.006	55.213	0.000
| |	| |	19	0.020	0.018	57.282	0.000
| |	| |	20	-0.002	-0.004	57.304	0.000
| |	| |	21	0.012	0.011	58.022	0.000
| |	| |	22	0.019	0.015	59.852	0.000
| |	| |	23	0.022	0.019	62.275	0.000
| |	| |	24	0.011	0.007	62.855	0.000
| |	| |	25	-0.020	-0.021	64.880	0.000
| |	| |	26	-0.007	-0.010	65.163	0.000
| |	| |	27	0.024	0.019	68.188	0.000
| |	| |	28	0.009	0.006	68.626	0.000
| |	| |	29	-0.012	-0.010	69.347	0.000
| |	| |	30	0.011	0.011	69.958	0.000
| |	| |	31	-0.002	-0.006	69.971	0.000
| |	| |	32	-0.009	-0.013	70.416	0.000
| |	| |	33	-0.007	-0.010	70.708	0.000
| |	| |	34	0.004	0.004	70.795	0.000
| |	| |	35	-0.004	-0.005	70.887	0.000
| |	| |	36	-0.007	-0.005	71.170	0.000

Source: Authors estimation.
*Probabilities may not be valid for this equation specification.