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Impact of General Elections on Stock Markets in India

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ABSTRACT

Stock market fluctuation is based on news. The news which is related to economy, political events weather conditions and relationship between countries could impact on stock market fluctuations. The objectives of the study is to analyze the effect of general elections on both NSE and BSE returns in pre-elections and post-elections period and to analyze and compare the volatility i.e. variance of daily returns in the stock market for short term (10 days), medium term (20 days) & long term (30 days) in pre-elections and post- elections period.The analysis has been emphasizing to measure the volatility, average returns and impact of elections . For this analysis 5 election sessions were considered that is 1998 – 2014. To analyse the data t test, f test are used. The daily closing prices of NIFTY & SENSEX index have been collected from the yahoo finance website for a period from 1998 to 2014 which includes a total of 5 Lok Sabha. The time period of the study has been classified into pre-elections and post elections period. It is concluded that the Election has more effect in short term, less in medium term and it diminishes in the long term after the Election announcement.

Keywords: *Stock market, election, Nifty, Sensex, Lok Sabha, etc.*

INTRODUCTION

History has demonstrated that stock market (financial system) plays important role in economy for economic growth. Stock market is also reflects the country's status. Now a days,stock market has been impacted by many factors which are political, weather condition etc., we are in technological world where news could be spread all over the world within a short span of time. Because of this, every news could be reached to the public so that investors could analyse news which is related to stock market. So stock market fluctuation is based on news. The news which is related to economy, political events weather conditions and relationship between countries could impact on stock market fluctuations.

We have taken an event which has been an important reason of stock market fluctuations in India. The event is Lok Sabha Election in India 2014. Political events usually have great impact on the stock market. In many cases, the stock market fluctuates because of political announcements such as regulation promulgation, law amendments and national elections.This study discusses the impact of Lok Sabha elections on stock market. BSE and NSE Index have been taken for the analysis. Events study has been conducted in this paper. The events is 12thto 16thLok Sabha election and the previous elections result date is 16th may 2014.

The present study analyses the reaction of stock market on the announcement of elections. The previous researches suggest that immediate response can be considered important after the elections announcement and markets can also be given some time to digest the information. In the light of this effect, elections impact has been studied on 10 days (short term), 20 days (medium term) and 30 days (long term).

The study will help investors to invest cautiously and act as guidance on their investment decision around the elections pre and post period. The investors are able to understand volatility in the market due to announcement of elections in a particular financial year. It helps the investors to minimize their overall risk and maximize returns of their investment during this period.

REVIEW OF LITERATURE

Ling-Chun Hung (2011)

Has describedthat History has demonstrated the fact that politics and economyare intertwined. Presidential election is considered the mostpowerful political event. This study examines three Taiwanesepresidential elections after the year 2000 in order to investigatethe existence of short-term (bull-run election) and long-term(election cycle) effects as well as the myth regarding the marketfavouring a particular party(TheKuomintang). The findingsindicate that there is an election cycle in the Taiwanesepresidential election, but there is no proof for a bull-run electionand no evidence for the market's preference.

Pedro and Valcanov (2003)

Analysed the relation between presidential elections and the US stock market by sampling 684 monthly observations, 18 elections, 10 democratic and 8 Republican presidents. Their study was based on data from 1927. The study established that there exists volatility in the stock market around election periods. Further in their analysis, they found out that the stock market returns were higher under Democratic presidencies than under Republican Presidencies. Pedro and Valcanov however were not able to explain this variation in returns, which still remains a puzzle.

Goonatilake and Herath (2007)

conducted a study aimed at examining the relationship between stock market fluctuations and release of political news in three stock markets namely DJIA, NASDAQ and S&P 500. Their data was based on a ten week period beginning July to September 2006. To assess the effect of political news on stock volatility, the political news were categorized into three: good news, bad news and neutral news. To test for volatility, a chi- square test was conducted. The results showed 22 reduced, increased and unchanged stock market volatility respectively for the three types of political news.

Wing-Keung Wong and Michael McAleer (2007)

Analysed theimpact of Presidential elections on stock prices with reference tothe USA. Using spectral analysis and the EGARCH Interventionmodel, the results suggests that since 1965, the US stock markethas experienced several Presidential Election Cycles.

Ling-Fang Liu (2007)

Examines that stock market is fluctuatingby election results. In addition, there is positive reaction overthe stock exchange after 15 days and before 15 days which hasbeen proven by conducting event study. Moreover, otherfinancial and political factors have been found to play an important role in influencing the return pattern around

presidential elections.

Snowberg, Wolfers, and Zitzewitz (2007)

Observed the effect of presidential election on equity prices, oil prices, nominal and real interest rates and dollar values. Equity market changes reflect the policy changes in favor of certain businesses, also it effect of partisan on nominal bond yields was only because of real interest rates not because of expected inflation. Oil prices were increased by the Bush's reelection that reflected the higher demand due to economic expansion. This paper concludes that market changes mostly because of expectations of market traders rather than actual partisan effect.

Kaplan (2006)

Has concluded that political business cycles reveal that competitive elections within democracies lead to unfavourable economic outcomes, such as a post-election recession or inflation. According to this theory, incumbent politicians stimulate the economy prior to elections to secure re-election, causing a post-election economic slowdown. According to the literature of this article it has produced fairly robust evidence of a post-election rise in the inflation rate in developed count. The developing country literature exclusively examines fluctuations in macroeconomic policy levers, with little focus on their economic effect.

Khemani(2010)

Has introduced the concept the correlation between the public Infrastructures spending in various states with different voter turnout and good/bad governance. Targeted employment and welfare transfers can attract more voters, while delivery of infrastructure as public good can be uncertain in elections. There is a differential correlation of voter turnout with the budget composition in states considered to be having weaker governance. There is always a negative correlation between voter turnout and capital spending, as poor cast their vote even for a small directly transferred welfare to his family.

Research Gap

Various authors have studied different aspects of investor's reaction on stock market. Some researches try to establish day of the week and calendar effect on movements in stock market. Some studies have been made purely considering Nifty Index, Stock market capital or Sensex Index into consideration. This research theory is made with the aim of undertaking Sensex and Nifty index as key point of research. Both the aspect is analyzed before coming.

Research Questions

- How to analyze the effect of announcement of elections on both NSE and BSE returns in the pre-elections and post- elections period.
- How to analyze and compare the volatility i.e. variance of daily returns in the stock market for short term (10 days), medium term (20 days) & long term (30 days) in the pre-elections and post- elections period.

Objectives of the Study

The sub objectives of the study include the following:

- To analyze the effect of general elections on both NSE and BSE returns in pre-elections and post- elections period.
- To analyze and compare the volatility i.e. variance of daily returns in the stock market for short term (10 days), medium term (20 days) & long term (30 days) in pre-elections and post- elections period.

Hypothesis

The following hypotheses have been framed:

H0: There is no significant impact of elections on both NSE and BSE returns.

H1 : The difference in the volatility when comparing all the post elections periods with long term pre elections period for both NSE and BSE, is insignificant.

H2: Volatility in short term period (10 days) is more than medium (20 days) & long term period (30 days) during post-elections session.

Scope of the Study

The analysis has been emphasizing to measure the volatility,average returns and impact of elections. For this analysis 5 election sessions were considered that is 1998 – 2014.

Testing Tools

T-Test

Definition of 'T-Test' A statistical examination of two population means. A two-sample t-test examines whether two samples are different and is commonly used when the variances of two normal distributions are unknown and when an experiment uses a small sample size.

F- Test

An F-test is any statistical test in which the test statistic has an F-distribution under the null hypothesis. It is most often used when comparing statistical models that have been fitted to a data set, in order to identify the model that best fits the population from which the data were sampled. Exact "F-tests" mainly arise when the models have been fitted to the data using least squares

Research Methodology

The daily closing prices of NIFTY & SENSEX index have been collected from the yahoo finance website for a period from 1998 to 2014 which includes a total of 5 Lok Sabha. The time period of the study has been classified into pre-elections and post elections period. A total of 60 trading days' data around the Lok Sabha elections period has been taken. The event window is divided into short term (10 days), medium term (20 days), long term (30 days) before and after the declaration of the Lok Sabha elections.

The secondary data have been analysed using the following statistical tools:

- First, the logarithmic daily returns have been found over the previous day's closing value during the entire 5 year period.
- Second, the average returns in pre-elections and post-elections period, during the previous and the next 10, 20 and 30 days are calculated.

The Return is calculated using logarithmic method as follows.

Rt = log (Pt/ Pt-1)

Rt = Market return at the period t

Pt = Closing Price of index at day t

Pt-1 =Closing Price of index at day t-1

log = Natural log

- Third, the standard deviation and variances during the previous and next 10, 20,and 30 days of the elections is calculated.
- After this, the statistical tools, a paired T-test using SPSS have been applied on average returns.

- F-test has been applied over the variability of returns of SENSEX and NIFTY over different periods.

The test statistic F is calculated as follows:

F=σ(X1) 2 /σ(Y1) 2 ,

Where: σ(X1) ^2 = ∑(Rx1 – RX1) ^2 / (n1 -1)

Ϭ(Y1) ^2=∑(Ry1 – Ry1) ^2 / (n2-1)

Here, X1, Y1 are two sample time periods, and σ(X1)^2 and σ(Y1)^2 being the sample return variances and n1 and n2being their respective number of observations

Table 1 and Table 2 represent the average daily returns given by NIFTY, SENSEX and during various periods around the LokSabha Election. The estimates indicate that an individual Electionhas maximum impact (positive or negative) in the short-term (10 days post Election), which diminishes in the medium-term (20 days post Election) and further reduces in the long-term (30 days post Election) in comparison to the pre-Election period.

Data Analysis

Table1. *Daily Average Return in Nifty Index*

YEAR	Election Dates	X3 LAST 30 DAYS	X2 LAST 20 DAYS	X1 LAST 10 DAYS	Y1 NEXT 10 DAYS	Y2 NEST 20 DAYS	Y3 NEXT 30 DAYS
1998	Feb-March	0.023	0.022	0.013	0.036	0.026	0.026
1999	Sep- Oct	0.017	0.016	0.013	0.047	0.05	0.049
2004	Apr-May	0.018	0.023	0.015	0.345	0.187	0.136
2009	Aprl-May	0.048	0.035	0.024	0.341	0.182	0.137
2014	May	0.004	0.005	0.003	0.008	0.007	0.007

Table2. *Daily Average Return in Sensex Index*

Year	Election Month	X3 Last30 Days	X2 Last 20 Days	X1 Last 10 Days	Y1 Next 10 Days	Y2 Nest 20 Days	Y3 Next30 Days
1998	Feb-March	0.02	0.02	0.02	0.03	0.03	0.02
1999	Sep- Oct	0.02	0.01	0.02	0.01	0.03	0.04
2004	Apr-May	0.02	0.02	0.02	0.26	0.14	0.1
2009	Aprl-May	0.06	0.04	0.02	0.34	0.17	0.13
2014	May	0.005	0.004	0.005	0.009	0.007	0.007

Table3. *Shows Paired t-test for Nifty Index*

	X3 & Z	X2 & Z	X1 & Z	Y1&Z	Y2&Z	Y3&Z
ACTUAL	-1.213396	-1.216333	-1.228762	-0.949026	-1.081857755	-1.122480837
TABLE VALUE(5%)	2.78	2.78	2.78	2.78	2.78	2.78

Table4. *Shows Paired t-test for Sensex Index*

	X3 & Z	X2 & Z	X1 & Z	Y1&Z	Y2&Z	Y3&Z
ACTUAL	0.31780871	0.0272538	-0.641754651	0.582771517	1.003644083	1.237447649
TABLE VALUE(5%)	2.78	2.78	2.78	2.78	2.78	2.78

Table5. *Impact of Election on Nifty*

	SHORT TERM PERIOD			MEDIUM TERM PERIOD			LONG TERM PERIOD		
	X3 & Y1	X2 & Y1	X1 & Y1	X3 & Y2	X2 & Y2	X1 & Y2	X3 & Y3	X2 & Y3	X1 & Y3
ACTUAL	-1.842102204	-1.847632564	-1.907158177	-1.965095397	-1.983937608	-2.105461248	-2.100664601	-2.1298	-2.3036
TABLE VALUE(5%)	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78

Table6. *Impact of Election on SENSEX*

	SHORT TERM PERIOD			MEDIUM TERM PERIOD			LONG TERM PERIOD		
	X3 & Y1	X2 & Y1	X1 & Y1	X3 & Y2	X2 & Y2	X1 & Y2	X3 & Y3	X2 & Y3	X1 & Y3
ACTUAL	-0.670	-0.621	-1.261	-0.807	-0.788	-1.154	-0.854	-0.892	-1.151
TABLE VALUE(5%)	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78

30 Days

A paired sample t test has been conducted to evaluate whether a statistically significant difference exist between the returns of 30 days pre-Election and post-Election period. The result of the paired sample t test were not significant, indicating that there is a significant increase in the returns from the pre-Election period to the post-Election period. The research retained the null hypothesis. The analysis has accepted the null hypothesis H0, so there is no impact of Electionon the returns of long term period in CNX NIFTY and SENSEX.

20 DAYS

A paired sample t test has been conducted to evaluate whether a statistically significant difference exist between the returns of 20 days pre-Election and post-Election period. The result of the paired sample t test were not significant, indicating that there is a significant increase in the returns from the pre Election period to the post-Election period. The research retained the null hypothesis. There is no significant impact of Election on the returns of medium term period as the analysis has accepted the null hypothesis H0.

10 DAYS

A paired sample t test has been conducted to evaluate whether a statistically significant difference exist between the returns of 10 Days pre-Election and post-Election period in CNX NIFTY returns. The result of the paired sample t test were not significant, indicating that there is a significant increase in the returns from the pre-Election period to the post-Election period The research retained the null hypothesis. The null hypothesis H0 has been accepted by the research so there is no significant impact of Election on the returns in short term period of CNX NIFTY.

Table7. *variance of returns on nifty index*

YEAR	Election Dates	X3 LAST 30 DAYS	X2 LAST 20 DAYS	X1 LAST 10 DAYS	Y1 NEXT 10 DAYS	Y2 NEXT 20 DAYS	Y3 NEXT 30 DAYS
1998	feb-march	0.0144	0.0128	0.0007	0.0117	0.0058	0.0059
1999	5th sep- 3rd oct	0.0172	0.0223	0.0411	0.039	0.0185	0.0132
2004	20th aprl-may10th	0.0131	0.0179	0.022	0.0203	0.0186	0.0124
2009	16th aprl-13may	0.0033	0.0046	0.0134	0.0007	0.0157	0.011
2014	7th -16th may	0.0062	0.0067	0.0129	0.0096	0.0062	0.0042

Table8. *variance of returns in sensex index*

YEAR	Election Dates	X3 LAST 30 DAYS	X2 LAST 20 DAYS	X1 LAST 10 DAYS	Y1 NEXT 10 DAYS	Y2 NEXT 20 DAYS	Y3 NEXT 30 DAYS
1998	feb-march	0.0138	0.0131	0.006	0.0132	0.0055	0.006
1999	5th sep- 3rd oct	0.0173	0.0205	0.0302	0.0384	0.064	0.0112
2004	20th aprl-may10th	0.0119	0.0166	0.0188	0.0189	0.0164	0.0112
2009	16th aprl-13may	0.0036	0.005	0.0149	0.0668	0.0081	0.0078
2014	7th -16th may	0.0061	0.0062	0.0123	0.0082	0.0058	0.0038

Table 7 and Table 8 represents the variance of returns in CNX NIFTY & SENSEX. A cursory glance at it shows decreased volatility over the long term compared to the medium term and short term in pre-Election period and also a decreased volatility over the long term compared to the medium term and the short term in post-Election period in most of the cases. It implies that volatility & its impact always reduces as we look forward to the long term.

Table9. *f-test results comparing variance among the returns(post-election) of nifty with one another*

YEAR	ACTUAL VALUES	TABLE VALUE	ACTUAL VALUES	TABLE VALUE	ACTUAL VALUES	TABLE VALUE
	Y1 & Y2		Y2 & Y3		Y3 & Y1	
1998	2.017241379	3.74	1.017241379	2.31	1.983050847	3.32
1999	2.108108108	3.74	1.401515152	2.05	2.954545455	3.32
2004	1.091397849	3.74	1.5	2.05	1.637096774	3.32
2009	22.42857143	19.42	1.427272727	2.05	15.71428571	19.46
2014	1.548387097	3.74	1.476190476	2.05	2.285714286	3.32

Table10. *f-test results comparing variance among the returns(post-election) of sensex with one another*

YEAR	ACTUAL VALUES	TABLE VALUE	ACTUAL VALUES	TABLE VALUE	ACTUAL VALUES	TABLE VALUE
	Y1 & Y2		Y2 & Y3		Y3 & Y1	
1998	2.4	3.74	1.090901	2.31	2.2	3.32
1999	1.66667	19.42	5.817423	2.05	3.42857143	3.32
2004	1.1524	3.74	1.4642582	2.05	1.6875	3.32
2009	8.24691	3.74	1.038461	2.05	8.56410256	3.32
2014	1.41379	3.74	1.526315	2.05	2.15785	3.32

The findings of Table 7 & 8 have been further statistically tested by F-test. Table 9 &10 reveals F-test values for the test that compare the variance among the returns during short-term, medium-term and long-term period after the Election with one another. All the results are non-significant which shows that volatility does not generally increase in a post-Election situation as time period increases. As volatility in short-term period is more than medium & long term period during post-Election session, so this test have retained the H2 hypothesis.

Table11. *f-test results comparing variance among the returns during post-election periods with long-term pre-election period of nifty*

YEAR	ACTUAL VALUES	TABLE VALUE	ACTUAL VALUES	TABLE VALUE	ACTUAL VALUES	TABLE VALUE
	X3 & Y1		X3 & Y2		X3 & Y3	
1998	1.230769	19.46	2.482758621	2.31	2.440677966	1.86
1999	2.267442	3.32	1.075581395	2.05	1.303030303	1.86
2004	1.549618	3.32	1.419847328	2.05	1.056451613	1.86
2009	4.714286	19.46	4.757575758	2.05	3.333333333	1.86
2014	1.548387	3.32	1	2.31	1.476190476	1.86

Table12. *f-test results comparing variance among the returns during post-election periods with long-term pre-election period of sensex*

YEAR	ACTUAL VALUES	TABLE VALUE	ACTUAL VALUES	TABLE VALUE	ACTUAL VALUES	TABLE VALUE
	X3 & Y1		X3 & Y2		X3 & Y3	
1998	1.045455	19.46	2.509091	2.31	2.3	1.86
1999	2.219653	3.32	3.699422	2.05	1.544642857	1.86
2004	1.588235	3.32	1.378151	2.05	1.0625	1.86
2009	18.55556	3.32	2.25	2.05	2.166666667	1.86
2014	1.344262	3.32	1.051724	2.31	1.605263158	1.86

Table 11 and Table 12 shows specifically the F-test values that compares the variances of returns during short-term, medium-term and long-term post Election periods with that of the long-term pre-Election period.It indicates that in 2013 medium term and long term period after the Election were more volatile when compared to similar long term period before the Election. The results are not significant for other years that show the volatility does not generally increase after Election. So this test has retained the H1 hypotheses as there is no significant difference among the volatility in post Election periods when compared to long term pre Election period.

FINDINGS

Table 1 and Table 2 represent the average daily returns given by NIFTY, SENSEX and during various periods around the Lok Sabha Election.

The estimates indicate that an individual Election has maximum impact (positive or negative) in the short-term, which diminishes in the medium-term and further reduces in the long-term in comparison to the pre-Election period.

Particularly there is no any negative return in NIFTY around the pre elections and post elections period. But in case of SENSEX, it has positive and also negative returns in post and pre period. And in the 2004 elections it has total negative values around pre and post elections.

Table 7 and Table 8 represent the variance of returns in NIFTY & SENSEX. A cursory glance at it shows decreased volatility over the long term compared to the medium term and short term in pre-Election period and also a decreased volatility over the long term compared to the medium term and the short term in post-Election period in most of the cases. It implies that volatility & its impact always reduces as we look forward to the long term.

SUGGESTIONS & CONCLUSION

The results show that Election does not have a significant impact on the CNX NIFTY. After using the paired T- Test, we found that the impact of Electionon average returns is not significant whether in pre or post Election period, for short term, medium term & long term.

The results of F-Test on the variances of returns 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, but mainly there is no significant difference. So this proves our H1 hypotheses correct.

It was also seen that the Election has more effect in short term, less in medium term and it diminishes in the long term after the Election announcement retaining the H2 hypothesis. 35 So, the investors should invest more cautiously around the Election day as volatility in the market is high in short term during the Election announcement days. As a speculator by making investment strategies one can earn extra profits during this time. For the government and regulators, when markets are more volatile they should monitor the market movements on a real time basis and take corrective measures.

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