A STUDY ON THE IMPACT OF UNION BUDGET 2018 ON INDIAN STOCK MARKET WITH REFERENCE TO BSE

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ABSTRACT

Union budget is the government's main economic policy document, which shows how the government plans to use public resources to meet policy goals. It is always much awaited by all sectors as this may bring a drastic change. Stock markets also respond to the budget announcements to an extent. This paper attempts to study how Sensex companies have reacted to the announcements of Union budget 2018. The impact has been studied by using event study taking data prior and subsequent to the budget announcements. Regression analysis is used in the study. Returns, average abnormal returns, and cumulative average abnormal returns were calculated. Returns on the Sensex were negative, even before budget announcements and continued the same. It was found that there was no significant impact of the event of the announcement of union budget 2018 on return on Sensex companies. While CAAR showed a slight negative effect on day-1, event day and day+1 which shows that the market expected and reacted to some extent on these days because of the union budget 2018.

KEYWORDS: Budget, SENSEX, Volatility, Return

INTRODUCTION

Bombay Stock Exchange is one of the premier stock exchanges not only in India but also in Asia and also one of the oldest stock exchanges in Asia. BSE has the largest number of listed companies in the world after the United States. Global investors now keenly seek India as their preferred location for investment. Since the market gives a high rate of return on investment than other markets in the world and there is scope for further development. Thus, SENSEX can be said to represent market sentiments during various economic events. The index reflects the average fluctuation in share prices of the stocks listed in the particular index. Many factors influencing the share price movements of stocks, information especially related to a company affect share price of the particular company, information related to an industry affects share prices of companies related to the particular industry. But macroeconomic factors affect the share prices of all companies in a country. There are many macroeconomic factors affecting the movement of the stock market. Union budget of India affects the movement of the share market to some extent, but the direction and level of impact depend on contents in the budget and it may vary industry to industry.

In India, the budget is an annual financial statement containing the estimated receipts and expenditure of the Government of India, which has to be laid before parliament in respect of every financial year, which runs from 1st April to 31st March under article 112 of the constitution. A budget is a powerful tool in the hands of the Government to control the economic resource of the country. It contains proposals regarding changes in tax policy, industrial policy,

trade policy, exchange rate policy and financial sector, which may have a favorable or adverse impact on the stock market.

This paper examines the impact of latest Union budget 2018 on the Stock Market as represented by BSE in terms of returns and volatility. The impact of BSE has been studied prior to and subsequent to budget day. SENSEX does not only depended on one factor, i.e. union budget, it is depends on various other factors; union budget is just a part of it.

REVIEW OF LITERATURE

Various researches have been conducted on the impact of the declaration of budget on stock market and they have come up with constructive result. Some of them are discussed here. Saraswat and Banga (2012) examined the impact of Union budgets from 1995 to 2010 on the Stock Market as represented by Nifty in terms of returns and volatility. The periods were segregated into short-term, medium-term, and long-term. The result proved that budgets had the maximum impact in the short term period, with some impact extending into the medium-term and no significant impact at all on the long-term average returns. With regards to volatility the result indicated that the long term period after the budget tends to be more volatile than the medium-term and the short-term periods when compared to similar long-term before the budget. Verma and Agarwal (2005) analyzed the impact of budget on stock returns for 4 years. The study compared the return on the CNX NIFTY index before and after the budget to access the event. The findings derived from the study were that the event has put a remarkable impact on the stock market. Gakhar et al (2015) has analyzed the impact of Union budget on NSE's CNX NIFTY Index. The impact was measured in terms of daily average returns and volatility over the short term, medium term and long term period for pre and post budget period. The study was for five budget periods from 2011 to 2015. Statistical tools such as paired T-test and F-test were used. Paired T-test was conducted on average returns and the F-test was conducted on variances over the period, i.e., 3, 10 and 30 days in pre and post budget period. The results showed that the impact of the budget was seen maximum in the short term which then gradually decreased during the medium term and finally diminished in the long term. Therefore the paper inferred that the investor should fear to invest in the stock market around the budget period. Babu and Venkateswarlu (2013) examined the impact of the Union Budgets on Indian stock prices, as represented by Sensex, the premier index of Bombay Stock Exchange. The nineteen-year period from 1991 to 2009 was used for the study. The statistical tests were applied on returns around the time of budget and three, fifteen and thirty days' average returns around the budget showed that over the years, a budget exerted the maximum impact in terms of absolute return immediately on and around the budget day which gradually reduced as one moves further away from the budget day.

STATEMENT OF THE PROBLEM

The stock market is one of the preferred avenues for investment who like to take risks. Since, this avenue gives a high rate of return compared to other type of investments. Especially Indian stock market is in the top listed markets for international investors because of providing a higher rate of return than all developed markets and most of the developing markets. As an emerging market, both international and home investors like to make an investment in Indian stock market. Investors intend to predict the market; they buy shares when the price is low and sale in the market when the prices are high. Many factors drive the share prices in the market. Among them certain events affect market to a certain extent based on the nature of the event and its persistence also based on the weightage of the event. The union budget announcement is one of the big events in India; generally it affects market performance to certain extent based on contents of the budget. "The latest Union budget 2018 was announced on 1st February 2018, Thursday. The Sensex has crossed the 36000 mark.

The future movements might be based on the contents of the budget 2018. Generally there are negative sentiments and expectations attached to the Budget thus investors usually postpone buying decisions before the Budget is tabled. Thus in the past mostly the benchmark index has fallen in the month leading up to the Budget and the markets both Sensex and Nifty have seen gains after the Budget has been delivered. This has been the trend in six out of the last nine Budgets. But the said trend has now been broken with the markets touching new heights just before the Budget 2018." (Business Standard, Jan 30, 2018). Hence, the paper analyzed the impact on market movements in India in terms of the index Sensex of BSE.

OBJECTIVE OF THE STUDY

The following is the major objective to be accomplished through this paper:

- To analyze the impact of the union budget 2018 on returns and volatility of SENSEX of BSE.

METHODOLOGY

The Study: The study is empirical in nature, it tries to study whether the budget announcement has an impact over stock prices or not. The union budget has been announced on 1st February 2018. Hence 01.02.2018 was taken as an event date and standard 'Event Study' methodology was adopted for analysis. According to the method, an event window was framed as 10 working days before and 10 working days after the event day. In order to estimate the return of scripts, an estimated window was framed for 100 working days before the event window. Regression analysis was used for the purpose of estimation. As a broad-based index BSE SENSEX was taken as an independent factor in order to estimate return on the share price of BSE 30 listed companies.

In order to understand abnormal returns on the selected scripts caused by the selected event, the estimated return was calculated considering data for 100 days using regression analysis. Abnormal return (AR) was calculated by deducting estimated return from actual return. It is considered as an abnormal return caused by the event. Average abnormal return (AAR) was calculated by averaging the abnormal return of the selected companies. The study also calculated a cumulative average abnormal return (CAAR) in order to know the sustainability effect of the event. Return on a specific company is calculated as,

$$R_c = \frac{SP_{ct} - SP_{ct-1}}{SP_{ct}} \times 100 \tag{1}$$

Where, R_c – Return on Company 'c', SP_c – Share price of company 'c', t – current day and t-1 – previous day.

Return on SENSEX index is calculated as,

$$R_m = \frac{M_t - M_{t-1}}{M_t} \times 100 \tag{2}$$

Where, R_m – Return on SENSEX, M – Index of SENSEX, t – current day and t-1 – previous day.

Expected return was calculated as,

$$ER_{ct} = \alpha_c + \beta_c R_{mt} + E_{ct} \tag{3}$$

Where, ER_{ct} – Expected return of security 'c' of day 't'.

α_c – Intercept for security 'c'

β_c – systematic risk component of security 'c'

R_{mt} – Return on market for day 't' (SENSEX)

E_{ct} – Error term for security 'c' for day 't'.

Abnormal return is calculated as,

$$AR_{ct} = R_{ct} - ER_{ct} \tag{4}$$

Where, AR_{ct} – Abnormal return of security 'c' for day 't'.

R_{ct} – actual return of security for day 't'.

ER_{ct} – Expected return of security 'c' for day 't'.

Average abnormal return was calculated as,

$$AAR_t = \frac{1}{N}\sum_{c=1}^{N} AR_{ct} = (AR_{c1} + AR_{c2} + AR_{c3} + \cdots AR_{cN})/N \tag{5}$$

where, N denotes the number of securities considered for day 't'

Cumulative average abnormal returns (CAARs) were also calculated for analysing the persistent effect of the event in the price. Cumulative Average Abnormal Returns (CAARs) are the sums of daily average abnormal returns (AARs) during the event window.

$$CAAR_t = \sum_{t-k}^{+k} AAR_t \tag{6}$$

't' test for Abnormal Return

The average abnormal return (AAR) and cumulative average abnormal returns (CAAR) were calculated for the selected companies for the event window. In order to check the efficiency of the market, student 't' test has been applied (two-tailed) to know the significance of the abnormal return.

An estimator of σ can be constructed from the cross-sectional variance of the abnormal returns in period 't' and is denoted by:

$$S_t = \sqrt{\frac{1}{N-1}\sum_{i=1}^{N}(AR_{ct} - AAR_t)^2} \tag{7}$$

Where, N is the number of companies considered

AR_{ct} = Abnormal return of company 'c' at time 't'

AAR_t = Average abnormal return of particular day 't'

The above yields the following test statistic for the AARs

$$t = \sqrt{N}\frac{AAR_t}{S_t} \sim t_{N-1} \tag{8}$$

The test statistic follows student 't' distribution with N-1 degrees of freedom and approximately follows a

standard normal distribution. This is a result of the central limit theorem, which states that under these assumptions, $\sqrt{N}$ times the average divided by the standard deviation converges to a standard normal random variable. Therefore,

$$t = \sqrt{N}\frac{AAR_t}{S_t} \approx N(0,1) \tag{9}$$

't' test for Cumulative Abnormal Returns (CAR)

In order to analyze the adjustments of prices, it is needed to test the significance of abnormal returns in an event window around t = 0. Cumulative average abnormal returns (CAAR) over the event window are tested for its significance.

The standard deviation is calculated as

$$S_t = \sqrt{\frac{1}{N-1}\sum_{c=1}^{N}(CAR_{ct} - CAAR_t)^2} \tag{10}$$

where, N is the number of companies considered for the study

CAR_{ct} = Cumulative Abnormal Return of Share 'c' at time 't'

$CAAR_t$ = Cumulative Average Abnormal Return of a day 't'

The test statistics is

$$t = \sqrt{N}\frac{CAAR_t}{S_t} \approx N(0,1) \tag{11}$$

Sample: Sample taken for the study is daily stock indices of BSE SENSEX and listed 30 companies.

Estimation window

Estimation window is for 100 trading days return beginning from 24th August 2017 to 16th January 2018 before the event window.

Event window

Event window consisted 21 days, including the event day, 10 trading days before the event day and 10 trading days after the event day. The event window for analysis therefore, includes the day of the announcement of the union budget 2018 and 10 days before and after the day in which the event is announced.

Tools for Data Collection

The nature of data is secondary as daily BSE index values for 121 trading days for each company (for 30 companies) and for BSE Sensex, a total of 3,751- day observations were used for analysis. Information used in this study has been taken from various sources, like websites, books, journals, newspaper and magazines. The daily stock prices have been collected from BSE website. The database contains the opening, high, low and closing values of the index. The closing figure of each day has only been used for the study. The study considers only the trading days and leaves out any holiday or other days when the market remains closed.

RESULTS AND DISCUSSIONS

This section of the paper presents the results of analysis and discussion. Table 1 gives the results of the index Sensex and its return during event window.

Table 1: Return on BSE Sensex

Day	Sensex	Return
-10	35081.82	0.8938
-9	35260.29	0.5087
-8	35511.58	0.7127
-7	35798.01	0.8066
-6	36139.98	0.9553
-5	36161.64	0.0599
-4	36050.44	-0.3075
-3	36283.25	0.6458
-2	36033.73	-0.6877
-1	35965.02	-0.1907
Event Day	35906.66	-0.1623
+1	35066.75	-2.3392
+2	34757.16	-0.8829
+3	34195.94	-1.6147
+4	34082.71	-0.3311
+5	34413.16	0.9696
+6	34005.76	-1.1839
+7	34300.47	0.8666
+8	34155.95	-0.4213
+9	34297.47	0.4143
+10	34010.76	-0.8360

Source: Secondary Data

Table 1 shows the BSE Sensex values and the return on the announcement of Union budget 2018. It was found that on the date of the event the return was negative with -0.16227. Hence the market negatively reacted in the event of union budget 2018 on the date of the event. While referring the returns of pre-event window on the day -1, day -2, and day -4 the returns were negative and continues to be negative on the day of announcement of the budget. This may be due to the negative perception of the investors before the budget announcements. Then on day +1 which is immediately after the date of budget announcements the return was high negative at -2.33915, which showed that there was a very high negative impact on the Indian stock market by the event of union budget 2018. This was the highest negative effect on returns in the event window. Thus, due to budget announcements, there was some effect on day +1 but after that Sensex started to recover and became normal.

Table 2 gives the results of average abnormal returns and their respective t-values to know its significance.

Table 2: AARs of Sensex Companies by the Event of Union Budget 2018

Day	AAR	T-Value
-10	-0.1165	-0.5182
-9	-0.6213*	-2.0063
-8	-0.0483	-0.2541
-7	-0.3137	-0.8656
-6	0.0343	0.1410
-5	-0.1775	-0.4694
-4	-0.2746	-1.1131
-3	-0.2946	-0.8219
-2	0.1063	0.5217
-1	-0.4922	-1.3238
Event Day	**-0.0640**	**-0.1757**
+1	-0.0271	-0.1053
+2	0.5638	1.5085
+3	-0.0530	-0.1844
+4	0.2416	1.1795
+5	-0.0231	-0.0877
+6	0.2959	1.5628
+7	0.0932	0.3606
+8	0.1099	0.3558
+9	-0.1616	-0.9141
+10	-0.0746	-0.5560
Source: Secondary Data * - Significant		

Table 2 shows that on the event day of the announcement of Union Budget 2018 there was not much effect on the Sensex companies of the BSE. The abnormal return on the day of the event was negative at -0.0640, but the quantum of abnormal return found to be very low, its consecutive t-value was -0.1757, it is less than the table value, since the abnormal return on the day of the event was not statistically significant. Hence there was no significant impact of the event of the announcement of union budget 2018 on return on Sensex companies. It was noted that there was no much annoucement for any sectors of the economy in the union budget, hence the investors did not take this event as important, since the very meager effect was found on the stock market on the day of the event. In other words, on the event day the AAR was not having much difference which showed that the stock market never responded much to the union budget. When compared to all the 10 days before and after the event there was not much difference at all in the AAR, which clearly showed that the news of the union budget has not made any effect on the stock market in terms of return on Sensex companies. It was also observed that during the pre event window, out of 10 days during the 8 days the AARs were negative, since the investors negatively perceived about the expectations on union budget 2018. But during the post event window, out of 10 days, there was positive AARs for 5 days, of which the AAR on day +2 was comparatively higher than other days (0.5638). Hence, during the post event day, the investors positively perceived on the event to certain extent. In no day except day -9, the calculated values of AAR were statistically significant, hence no significant impact was found on Indian stock market on the event of annoucement union budget 2018.

In order to analyze the persistency effect of the event of union budget 2018 on return on Indian stock market, cumulative average abnormal returns (CAAR) were calculated during the event window along with t-value and the results

are presented in table 3.

Table 3: CAARs of Sensex Companies by the Event of Union Budget 2018

Day	CAAR	T-Value
-10	-0.1165	-0.5182
-9	-0.7378*	-2.0304
-8	-0.7861	-1.8516
-7	-1.0998	-1.6775
-6	-1.0655	-1.4710
-5	-1.2430	-1.3335
-4	-1.5176	-1.5900
-3	-1.8122	-1.6571
-2	-1.7059	-1.5896
-1	-2.1981	-1.8504
Event Day	**-2.2620**	**-1.6524**
+1	-2.2891	-1.7418
+2	-1.7253	-1.4716
+3	-1.7783	-1.5216
+4	-1.5367	-1.2958
+5	-1.5598	-1.3015
+6	-1.2639	-1.0593
+7	-1.1708	-0.9979
+8	-1.0608	-0.9441
+9	-1.2224	-1.0404
+10	-1.2971	-1.1072

Source: Secondary Data
* - Significant

Cumulative average abnormal returns of the event of the announcement of Union budget on Indian stock market were not statistically significant during any of the days of the event window except during the day -9, hence no significant persistent impact was found on return on Indian stock market by the event of union budget 2018. But it was noticed that the CAAR was -2.2620 per cent on the day of the event but it was not statistically significant. This CAAR is considered high, the result showed that the investors in the market negatively perceived on expectations of union budget 2018 from day -10, it caused high negative CAAR on the day of the event. CAAR remained almost the same on day +1 (-2.2891) which was a slight increase than on the event day. Therefore the effect of the event prolonged for the day +1. When seeing one day before the event day -1 also high, it was -2.1981 per cent, which showed that the market already was expecting for a change due to the announcement of the Union budget. But after the announcement of budget 2018 there was not much impact on any of the sectors and it was in general and thus the market started to recover, the CAAR decreased after day+1 on +2,+3,+4 till day+10. Thus, it is reached its normality after day+1. On the whole, the market negatively reacted on the expectations on union budget 2018 as shown by the results of CAAR during pre-event window.

CONCLUSIONS

The study measured the impact of Union budget 2018 on the stock market taking into consideration the returns and volatility in BSE Sensex by using event study. The results show that the Union budget 2018 does not have a significant impact on the BSE Sensex. The abnormal return on the day of the event is found to be very low. Also in the Union budget, there were not many announcements for any sectors of the economy.

Hence the investors did not take this event as important. But when noticing the cumulative average abnormal return, there was a slight negative effect one day prior, one day after and on the day of the event. This was due to the negativity prevailing among the investors due to the Union budget 2018.

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