Impact of the Union Budget on the Indian Stock Market

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Abstract

The stock market of a country is said to act as a barometer of its economic health. All economic activities happening in the country and outside the country lead to a change in the market conditions. Different market players who invest their money in stocks are not only interested to know about the rise and fall in the stock market, they are keen to know about the various economic events / activities that are going to take place in the near future. The stock market reacts depending on how the investors interpret the economic activities. The Union Budget is perhaps the most watched event in economic policy making in India. The core fiscal issues – taxation, expenditures, and the fiscal deficit – are obviously important for macroeconomics. In addition, governments have often chosen to use the Budget speech as a mechanism for announcing important new policy initiatives, and for outlining some plans for economic policy in the coming months. The stock market response to a Budget is often viewed as an important summary statistic of the 'quality' of a Budget in terms of improving the macroeconomic prospects. In this research paper, I intended to find an interplay between the Budget and the stock market, in the areas like informational efficiency and implications for portfolios and trading. In this study, the main focus is on return and volatility impact along with different event windows.

Keywords: **stock market, union budget, market efficiency**

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All economic activities happening in the country and outside the country lead to change in market conditions. Different market players who invest their money in stocks are not only interested to know about the rise and fall in the stock market, but at the same time, they are keen to know about the various economic events / activities that are going to take place in the near future. The stock market reacts depending on how the investors interpret the economic activities. In a semi-strong efficient market, the security prices reflect all publicly available information. Semi-strong efficiency says that an investor cannot earn an abnormal return with the knowledge of publicly available information. Immediately after the Budget speech by the Finance Minister, several reports crop up on the Internet, newspapers, as well as on satellite TV channels including news and business news channels. The reports appearing in these media construe the possible impact of the Budget on various industrial sectors (Kutchu, 2012).

The Union Budget is perhaps the most watched event in economic policy- making in India. In addition, a budget is a powerful tool in the hands of the Government to control the economic resources of the country. It contains proposals regarding changes in the tax policy, industrial policy, trade policy, exchange rate policy, and financial sector reforms, which may have a favourable or adverse impact on the stock market. Initially, if one goes by fundamental analysis, such impact is to be generally seen over the long-term performance of the shares. However, due to the impact of the declaration of the budget, the shares react in the market immediately; of course, depending on how the investors interpret the budget (Chotalia, 2013).

The Union Budget presented by the finance minister in front of the house of parliament, usually in the month of February, is an economic activity which cannot be predicted with certainty (Singh & Kansal, 2010). The Budget basically shows the true picture of financial health of a country. It includes various different activities like change in tax rates, change in financial policies, exchange rate policy, and so forth. A budget may have a favourable or adverse impact on S&P BSE SENSEX depending on how it is analyzed by market players. The Union Budget is perhaps the most- watched event in economic policy-making in India. The core fiscal issues - taxation, expenditures, and the fiscal

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deficit - are obviously important for macroeconomics. In addition, governments have often chosen to use the Budget speech as a mechanism for announcing important new policy initiatives, and for outlining some plans for economic policy in the coming months (Shah & Thomas, 2002). The budget affects the economy as a whole, the policy rates, and the stock markets. It determines how the finance minister spends and invests money and how the same affects the fiscal deficit. The extent of the deficit and the means of financing it influence the money supply and the interest rate in the economy. Consequently, high interest rates mean higher cost of capital for the industry, lower profits, and hence lower stock prices and vice versa. On the other side, the fiscal measures undertaken by the government affect public expenditure. For example, an increase in the direct taxes would decrease the disposable income, thus reducing the demand for goods. This decrease in demand will translate into a decrease in production, thereby affecting the economic growth.

Similarly, an increase in the indirect taxes would also decrease the demand. This is because indirect taxes are often partially or completely passed on to consumers in the form of higher prices. Higher prices imply a reduction in demand, and this in turn reduces the profit margins of companies, thus slowing down the production and growth. In short, it does affect the stock markets, but indirectly.

Review of Literature

Shah and Thomas (2002) studied the Indian stock market index from April 1979 to June 2001 covering 26 budget dates in this period. They found that in some years, post - budget returns were positive; in other years, post - budget returns were negative; on an average, there was no clear pattern about movement in the Index after the budget date. They also reported no evidence of over-reaction or under-reaction prior to the Budget date, or immediately after it. Thus, they concluded that the information processing by stock market participants is rational, and that the Indian stock market is semi-strong efficient.

Kaur (2004) studied the extent and pattern of stock return volatility of the Indian stock market during the year 1990 to 2000. She found that among the months, April was the most volatile month followed by March and February. This could probably be due to the effect of the Union Budget, which is usually presented on the last day of February. Singh and Kansal (2010) examined the impact of the Union Budget from 1996 to 2009 on the stock market as represented by S&P CNX NIFTY in terms of return and volatility. The impact on S&P CNX NIFTY has been studied prior to and subsequent to the budget day. The periods were segregated into short term, medium term, and long term periods. With regard to returns, the results proved that budgets have a 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.

A study done by Verma and Agarwal (2005) dealt with an event study using budget as an event window for 4 years. It compared the returns on CNX nifty index prior to and subsequent to the budget to assess the impact of the event. The findings of the study indicated that the event had a significant impact on the stock market. Gupta and Kundu (2006) examined the impact of Union Budgets on the sensex group of stocks from 1991 to 2005 covering 17 budgets. They found that investors could earn super profits during the short-term and medium term periods around the budget (up to 15 days) and also face the risk of abnormal losses if the investors' expectations were not met from the budget.

Soni (2010) studied the impact of the Union Budget and monetary policy on the stock market. The time period covered was 10 years, that is, from the year 2000-2009. All the union budgets presented and monetary policy announcements from this period were considered for the study. The BSE 30 shares index SENSEX was taken as the indicator of the reaction of the stock market. Logarithmic daily returns were calculated for the entire period. Average returns were calculated during the next and previous 3, 15, and 30 days around the announcement of the Union Budget and monetary policy. Paired *t* - test was carried out among different periods during the announcement days. *F*-test was also carried out to compare the last 30 days returns with the next 3,15, and 30 days . The findings of the paper are that the Union budget and monetary policy announcements have no impact on the stock market in the long run. However, in the short run, the impact may be either way, that is, positive as well as negative.

Saraswat and Banga (2012) analyzed the volatility of the sensex with respect to the Union Budget of India. This paper examined the impact of Union Budgets from 1995 to 2010 on the stock market as represented by Nifty in terms of volatility and returns. The impact of Nifty was studied prior to and subsequent to the budget day. The periods had been segregated into short term, medium term, and long term periods. With regards to returns, the results proved that

budgets have 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 results indicate 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 periods before the budget.

Objectives of the Study

- To find out whether the Union Budget has an impact on the stock prices in India.
- To find out the impact on volatility of stock returns around the budget announcement day.

Data and Methodology

- **Sample:** S&P BSE Sensex was considered as a representative of the stock market in India.

- **Study Period:** The period covered under study is from 1993 to 2013. This period includes twenty five budgets including four interim budgets being presented by various finance ministers in the parliament (See Appendix 1A). A total of 60 trading days around budget days were considered for the study. These were segregated into long term (+/-30 days) window, medium term (+/- 15 days) window, and short term (+/-3 days) window.

- **Data Collection:** The historical data of the indices were obtained from the official website of the Bombay Stock Exchange (BSE) (www.bseindia.com) , while the budget dates and the names of their respective presenters were gathered from the website of the finance ministry.

- **Event Study:** Economists are frequently asked to measure the effects of an economic event on the value of the firms. On the surface, this seems like a difficult task, but a measure can be constructed easily using an event study. Using financial market data, an event study measures the impact of a specific event on the value of a firm. The usefulness of such a study comes from the fact that, given rationality in the marketplace, the effects of an event will be reflected immediately in security prices. Thus, a measure of the event's economic impact can be constructed using security prices observed over a relatively short time (Mackinlay, 1997).

Event studies provide a direct test of market efficiency. Systematically, non-zero abnormal security returns which persist after a particular type of event are inconsistent with the hypothesis that security prices adjust quickly to fully reflect new information. In addition, to the extent that the event is unanticipated, the magnitude of abnormal performance at the time the event actually occurs is a measure of the impact of that type of event on the wealth of the firms' claim holders. Any such abnormal performance is consistent with market efficiency. However, the abnormal returns would only have been attainable by an investor if the occurrence of the event could have been predicted with certainty (Brown & Warner, 1980).

- **Statistical Tools:** All the data were analyzed by applying statistical small sample paired *t*-test for mean and *F*-test for variance. Levene's test was applied on the data where normality condition has not been fulfilled while applying the *F*-test. Normality of data was checked with the help of Shapiro-Wilk statistic. SPSS was used for analysis and on the basis of the results, the interpretations have been made.

- **Hypotheses Testing:** The following set of null and alternative hypotheses were applied on the collected data to test the abnormality in returns.

- **H 1.0:** There is no significant difference in the pre budget (3 days) and budget day average returns during the period from 1993-2013.

H 1.1: The budget day has significantly higher returns than the pre budget (3 days) period during 1993-2013.

- **H 2.0:** There is no significant difference in the pre budget (15 days) and budget day average returns for the period from 1993-2013.

H 2.1: The budget day has significantly higher returns than the pre budget (15 days) period during 1993-2013.

↳ **H 3.0:** There is no significant difference in the pre budget (30 days) and budget day average returns for the period from 1993-2013.
H 3.1: The budget day has significantly higher returns than the pre budget (30 days) period during 1993-2013.

↳ **H 4.0:** There is no significant difference in the pre budget (3 days) and post budget (3 days) average returns during the period from 1993-2013.
H 4.1: The post budget (3 days) returns are significantly higher than the pre budget (3 days) returns during the period from 1993-2013.

↳ **H 5.0:** There is no significant difference in the pre budget (3 days) and post budget (15 days) average returns during the period from 1993-2013.
H 5.1: The post budget (3 days) returns are significantly higher than the pre budget (15 days) returns during the period from 1993-2013.

↳ **H 6.0:** There is no significant difference in the pre budget (3 days) and post budget (30 days) average returns during the period from 1993-2013.
H 6.1: The post budget (3 days) returns are significantly higher than the pre budget (30 days) returns during the period from 1993-2013.

↳ **H 7.0:** There is no significant difference in the pre budget (15 days) and post budget (3 days) average returns during the period from 1993-2013.
H 7.1: The post budget (15 days) returns are significantly higher than the pre budget (3 days) returns during the period from 1993-2013.

↳ **H 8.0:** There is no significant difference in the pre budget (15 days) and post budget (15 days) average returns during the period from 1993-2013.
H 8.1: The post budget (15 days) returns are significantly higher than the pre budget (15 days) returns during the period from 1993-2013.

↳ **H 9.0:** There is no significant difference in the pre budget (15 days) and post budget (30 days) average returns during the period from 1993-2013.
H 9.1: The post budget (15 days) returns are significantly higher than the pre budget (30 days) returns during the period from 1993-2013.

↳ **H 10.0:** There is no significant difference in the pre budget (30 days) and post budget (3 days) average returns during the period from 1993-2013.
H 10.1: The post budget (30 days) returns are significantly higher than the pre budget (3 days) returns during the period from 1993-2013.

↳ **H 11.0:** There is no significant difference in the pre budget (30 days) and post budget (15 days) average returns during the period from 1993-2013.
H 11.1: The post budget (30 days) returns are significantly higher than the pre budget (15 days) returns during the period from 1993-2013.

↳ **H 12.0:** There is no significant difference in the pre budget (30 days) and post budget (30 days) average returns during the period from 1993-2013.
H 12.1: The post budget (30 days) returns are significantly higher than the pre budget (30 days) returns during the period from 1993-2013.

The same sets of hypotheses were used with different time frames to judge whether the difference in response to abnormality is dependent on any specific time or any specific government.

Results and Discussion

A total of 12 hypotheses each across five sets of data were tested to understand the statistical significance of the impact on the index. The test tried to compare the average returns during various time periods with one another and also, the budget day impact with average return from previous periods. All hypotheses have been tested at 5% level of significance.

A first set of three null hypotheses assumed that there is no significant difference in the pre budget (3, 15, 30 days) and budget day average returns for the period from 1993-2013. In this case, the alternative is that the budget day has higher returns than the pre budget period. Next, a set of nine hypotheses were focused on to find out whether the post budget (3, 15, 30 days) returns are significantly higher than the returns received in the pre budget period (3, 15, 30 days).

To test the hypotheses, paired *t*- test was applied. Furthermore, this test was repeated with different time frames like the years 1993 -2003 and 2004-2013 on the same set of 12 hypotheses in order to find out whether the significance of the Union Budget is higher in earlier or later time frames. This will help one to understand whether the efficiency of the market has improved over the period of time. Out of 25 budgets across 1993-2013, ten had been presented by a non-congress government (see Appendix 1A). So, a set of 12 hypotheses had also been used with respective *t*-tests to examine the severity of impact of non-UPA and UPA governments across various budgets (Budget Speeches by Finance Minister, n.d.). Before applying any paired *t*-test, the difference of pairs had been tested for normality with the Shapiro-Wilk statistic. In the next part of the study, variances of return had been compared between various time periods in order to find out the extent of volatility in the market around the budget period. *F*-test for equality of variances was used to serve this purpose. Before applying the test, the data was checked for normality with the Shapiro-Wilk statistic and for non-normal distribution, the test of homogeneity of variances had been applied.

The Table 1 shows the simple summary statistics about average daily returns for the pre budget, post budget, and budget day period (BSE Historical Indices, n.d.). Daily returns are defined as the logarithmic percentage change in the index from one day to the previous day.

↳ **Budget Day and Post Budget Day Impact :** As shown in the Appendix 2A, the test of normality was conducted on difference in order to apply the paired *t* -test. Results for the same suggest that for all the differences of the variable, significant values are higher than 0.05, which implies that the data belongs to normal distribution.

The Table 2 shows the paired *t*-test results for various hypotheses along with the pre budget and post budget period. From the Table, it can be seen that all the pairs have a significant value not less than 0.05, and hence, the null hypothesis is not rejected. It suggests that there is no significant impact of budget announcement on the budget day returns of the stock market (hypotheses pairs 1, 2, 3). It also suggests that for the short term (hypotheses pairs 4, 5, 6), medium term (hypotheses pairs 7, 8, 9), and long term (hypotheses pairs 10, 11, 12), there is no significant evidence of higher returns with respect to various pre budget windows.

The Table 3 shows the paired *t*-test results for various hypotheses along with the pre budget and post budget period (1993-2003). From the Table, it can be seen that all the hypotheses pairs except hypotheses pairs 8,9,11, and 12 have significant value not less than 0.05, which fails to reject the null hypothesis. Also, there is no significant impact of budget announcement on the budget day returns of the stock market (hypotheses pairs 1, 2, 3). It also suggests that for the short term (hypotheses pairs 4, 5, & 6), there is no significant evidence of higher returns with respect to various pre budget windows. For a medium term (hypotheses pairs 8 & 9) and long term (hypotheses pairs 11 & 12), there is significant evidence of higher returns with respect to various pre budget windows. This means that the budget did have an impact for a medium to long term in the initial years (1993-2003), and there are still chances of getting abnormal returns 15 to 30 days after the Budget announcement.

The Table 4 shows the paired *t* - test results for various hypotheses along with the pre - budget and post budget period (2004-2013). From the Table, it can be seen that all the hypotheses pairs except hypotheses pairs 2 and 3 have a *t* - value which is less than the critical value, which fails to reject the null hypothesis. Interestingly, it suggests that there is a significant impact of Budget Announcement on the budget day returns of the stock market (hypotheses pairs 2 &

Table 1. Daily Average Returns of the SENSEX

Budget Date	X3(last 30 days)	X2(last 15 days)	X1(last 3 days)	B(Budget day)	Y1(Next 3 days)	Y2(Next 15 days)	Y3(Next 30 days)
27-Feb-93	0.5009%	0.427%	0.861%	-1.057%	-2.722%	-0.982%	-0.800%
28-Feb-94	0.2730%	0.522%	1.218%	1.155%	-2.456%	-0.932%	-0.343%
15-Mar-95	-0.1048%	0.212%	-0.076%	-1.921%	-1.189%	0.119%	-0.194%
28-Feb-96(I)	0.5208%	0.565%	0.179%	-0.719%	-0.890%	-0.506%	0.091%
27-Jul-96	-0.4294%	-0.270%	-0.951%	-1.957%	0.451%	-0.343%	-0.096%
28-Feb-97	-0.2063%	0.049%	0.682%	6.331%	2.570%	0.141%	-0.004%
25-Mar-98(I)	0.5137%	0.269%	0.919%	0.556%	-0.438%	0.389%	-0.044%
1-Jun-98	-0.3693%	-0.660%	-1.664%	-1.193%	-0.895%	-1.122%	-0.307%
27-Feb-99	-0.0780%	0.038%	-0.513%	4.999%	1.927%	0.667%	-0.072%
29-Feb-00	0.1602%	0.317%	0.575%	-5.252%	-0.423%	-0.419%	-0.173%
28-Feb-01	0.0188%	-0.483%	-1.543%	4.266%	-2.013%	-0.894%	-0.890%
28-Feb-02	0.3375%	0.520%	0.926%	-3.945%	0.729%	-0.049%	-0.096%
28-Feb-03	-0.0807%	0.043%	-0.453%	0.193%	-0.589%	-0.297%	-0.304%
3-Feb-04(I)	0.1665%	-0.467%	-1.697%	-1.320%	0.967%	0.133%	-0.051%
8-Jul-04	-0.0837%	0.229%	0.579%	-2.289%	0.377%	0.370%	0.187%
28-Feb-05	0.2458%	-0.049%	-0.100%	2.170%	0.350%	-0.057%	-0.126%
28-Feb-06	0.3058%	0.359%	0.188%	0.854%	0.716%	0.296%	0.356%
28-Feb-08	-0.0374%	-0.494%	-1.315%	-4.094%	-1.376%	0.004%	0.113%
29-Feb-08	-0.3336%	0.112%	0.327%	-1.388%	-2.026%	-0.591%	-0.215%
16-Feb-09(I)	-0.0043%	0.594%	-0.044%	-3.478%	-0.955%	-0.727%	0.354%
6-Jul-09	0.2376%	-0.144%	0.950%	-6.008%	-0.686%	0.604%	0.172%
26-Feb-10	-0.2480%	0.012%	0.035%	1.073%	1.082%	0.387%	0.237%
28/02/2011	-0.2680%	-0.115%	-1.103%	0.690%	1.218%	0.061%	0.333%
16/03/2012	0.0715%	-0.150%	0.167%	-1.193%	0.258%	-0.085%	-0.028%
28/02/2013	-0.1138%	-0.168%	-0.285%	-1.530%	0.494%	-0.024%	-0.090%

Source: Calculated based on data collected from BSE Website
Note: I-Interim

Table 2. Paired Samples Test (1993-2013)

		Paired Differences			*t*	*df*	One tail $t_{critical}$
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	x1 - B	.00517	.03223	.00645	.802	24	1.711
Pair 2	x2 - B	.00653	.03042	.00608	1.074	24	1.711
Pair 3	x3 - B	.00642	.03034	.00607	1.058	24	1.711
Pair 4	x1 - y1	.00135	.01673	.00335	.404	24	1.711
Pair 5	x2 - y1	.00272	.01433	.00287	.948	24	1.711
Pair 6	x3 - y1	.00261	.01439	.00288	.905	24	1.711
Pair 7	x1 - y2	.00069	.00949	.00190	.363	24	1.711
Pair 8	x2 - y2	.00205	.00633	.00127	1.620	24	1.711
Pair 9	x3 - y2	.00194	.00578	.00116	1.680	24	1.711
Pair 10	x1 - y3	-.00006	.00904	.00181	-.032	24	1.711
Pair 11	x2 - y3	.00130	.00432	.00086	1.511	24	1.711
Pair 12	x3 - y3	.00119	.00437	.00087	1.365	24	1.711

Source: Calculated based on data collected from BSE Website (1993-2013)

3). It also suggests that for the short term (hypotheses pairs 4, 5, & 6), medium term (hypotheses pairs 7, 8, & 9), and long term (hypotheses pairs 10, 11, & 12), there is no sufficient evidence to reject the null hypothesis.

The Table 5 shows the paired *t* - test results for various hypotheses along with the pre budget and post budget period for a non-Congress led government. From the Table, it can be seen that all the pairs have a *t*-value which is less than the critical value, which fails to reject the null hypothesis. This suggests that there is no significant impact of the Budget Announcement on the budget day returns of the stock market (hypotheses pairs 1, 2, & 3). It also suggests that for the short term (hypotheses pairs 4, 5, & 6), medium term (hypotheses pairs 7, 8, & 9), and long term (hypotheses pairs10, 11, & 12), there is no sufficient evidence to reject the null hypothesis.

The Table 6 shows the paired *t* -test results for various hypotheses along with the pre budget and post budget period for a Congress led government. The Table suggests that there is a significant impact of Budget Announcement on the budget day returns of the stock market (hypotheses pairs 1, 2, & 3). It also suggest that for the short term (hypotheses pairs 4, 5, 6), medium term (hypotheses pairs 7, 8, 9), and long term (hypotheses pairs 10, 11, 12), there is no sufficient evidence to reject the null hypothesis. This proves that budgets, when taken together, have no impact on the returns of the stock market after the day of the Budget Announcement.

Table 3. Paired Samples Test (1993-2003)

		Paired Differences			*t*	*df*	One tail $t_{critical}$
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	x1 - B	-.00100	.03689	.01023	-.097	12	1.782
Pair 2	x2 - B	.00007	.03531	.00979	.007	12	1.782
Pair 3	x3 - B	-.00031	.03480	.00965	-.032	12	1.782
Pair 4	x1 - y1	.00469	.01850	.00513	.914	12	1.782
Pair 5	x2 - y1	.00576	.01655	.00459	1.255	12	1.782
Pair 6	x3 - y1	.00538	.01727	.00479	1.123	12	1.782
Pair 7	x1 - y2	.00338	.01003	.00278	1.214	12	1.782
Pair 8	**x2 - y2**	**.00445**	**.00611**	**.00169**	**2.624**	**12**	**1.782**
Pair 9	**x3 - y2**	**.00407**	**.00661**	**.00183**	**2.218**	**12**	**1.782**
Pair 10	x1 - y3	.00261	.00938	.00260	1.003	12	1.782
Pair 11	**x2 - y3**	**.00368**	**.00414**	**.00115**	**3.204**	**12**	**1.782**
Pair 12	**x3 - y3**	**.00330**	**.00456**	**.00126**	**2.610**	**12**	**1.782**

Source: Calculated based on data collected from BSE Website (1993-2003)

Table 4. Paired Samples Test (2004-2013)

		Paired Differences			*t*	*df*	One tail $t_{critical}$
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	x1 - B	.01185	.02623	.00757	1.565	11	1.796
Pair 2	**x2 - B**	**.01353**	**.02358**	**.00681**	**1.987**	**11**	**1.796**
Pair 3	**x3 - B**	**.01371**	**.02401**	**.00693**	**1.978**	**11**	**1.796**
Pair 4	x1 - y1	-.00226	.01450	.00419	-.541	11	1.796
Pair 5	x2 - y1	-.00058	.01124	.00324	-.180	11	1.796
Pair 6	x3 - y1	-.00040	.01036	.00299	-.134	11	1.796
Pair 7	x1 - y2	-.00222	.00831	.00240	-.927	11	1.796
Pair 8	x2 - y2	-.00054	.00571	.00165	-.328	11	1.796
Pair 9	x3 - y2	-.00036	.00376	.00108	-.332	11	1.796
Pair 10	x1 - y3	-.00295	.00805	.00232	-1.269	11	1.796
Pair 11	x2 - y3	-.00127	.00285	.00082	-1.543	11	1.796
Pair 12	x3 - y3	-.00109	.00285	.00082	-1.318	11	1.796

Source: Calculated based on data collected from BSE Website (2004-2013)

That is, the Budget Announcement affects the market only on the budget day. Thereafter, the market absorbs the budget information in the securities prices and it trades at normalprices from the next day onwards. The Table 7 shows the summary statistics for variances of returns for different windows (pre and post budget) for 25 budgets. Before applying the *F*-test, the normality of the data was tested and as a result, few of the data are lacking the normality on which the test of homogeneity of variance (see Appendix 3A) was applied.

The Table 8 depicts the *F*- test values that compare variances of return in sensex during the short, medium, and long term post budget period with that of medium and long term pre-budget period. The long term period post budget (Y3X3, Y3X2) shows a maximum number of significant cases (7,5) in both medium and long term pre-budget period respectively. It shows that the long term period after the budget tends to be more volatile as compared to the short and medium term.

The Figure 1 shows the average returns across various days for a long term window(-30 to +30). It can be observed that on the budget day, the market gave a knee jerk reaction, and the steepest negative return is observed on the same day in the event window. In a shorter window, on an average, the market gave negative returns, but then, it consolidates in the long term.

Table 5. Paired Samples Test - Non-Congress Led Government

		Paired Differences			*T*	*df*	One tail $t_{critical}$
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	x1 - B	-.00640	.04104	.01298	-.493	9	1.833
Pair 2	x2 - B	-.00332	.03950	.01249	-.266	9	1.833
Pair 3	x3 - B	-.00264	.03927	.01242	-.213	9	1.833
Pair 4	x1 - y1	-.00600	.01441	.00456	-1.318	9	1.833
Pair 5	x2 - y1	-.00293	.01314	.00415	-.705	9	1.833
Pair 6	x3 - y1	-.00225	.01441	.00456	-.494	9	1.833
Pair 7	x1 - y2	-.00192	.00942	.00298	-.646	9	1.833
Pair 8	x2 - y2	.00115	.00473	.00150	.770	9	1.833
Pair 9	x3 - y2	.00183	.00505	.00160	1.143	9	1.833
Pair 10	x1 - y3	-.00168	.00980	.00310	-.543	9	1.833
Pair 11	x2 - y3	.00140	.00358	.00113	1.234	9	1.833
Pair 12	x3 - y3	.00207	.00374	.00118	1.749	9	1.833

Source: Calculated based on data collected from BSE Website

Table 6. Paired Samples Test- Congress Led Government

		Paired Differences			*t*	*df*	One tail $t_{critical}$
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	**x1 - b**	**.01288**	**.02321**	**.00599**	**2.149**	**14**	**1.761**
Pair 2	**x2 - b**	**.01310**	**.02163**	**.00558**	**2.346**	**14**	**1.761**
Pair 3	**x3 - b**	**.01246**	**.02212**	**.00571**	**2.182**	**14**	**1.761**
Pair 4	x1 - y1	.00626	.01680	.00434	1.443	14	1.761
Pair 5	x2 - y1	.00648	.01425	.00368	1.760	14	1.761
Pair 6	x3 - y1	.00584	.01390	.00359	1.628	14	1.761
Pair 7	x1 - y2	.00243	.00944	.00244	.997	14	1.761
Pair 8	x2 - y2	.00265	.00731	.00189	1.406	14	1.761
Pair 9	x3 - y2	.00202	.00639	.00165	1.223	14	1.761
Pair 10	x1 - y3	.00102	.00867	.00224	.457	14	1.761
Pair 11	x2 - y3	.00124	.00487	.00126	.989	14	1.761
Pair 12	x3 - y3	.00061	.00478	.00123	.494	14	1.761

Source: Calculated based on data collected from BSE Website

Table 7. Variance of Returns of the SENSEX

Budget Date	X3	X2	X1	Y1	Y2	Y3
27-Feb-93	0.0228%	0.0279%	0.0046%	0.2131%	0.0817%	0.0699%
28-Feb-94	0.0551%	0.0714%	0.0508%	0.0052%	0.0325%	0.0230%
15-Mar-95	0.0227%	0.0355%	0.0660%	0.0086%	0.0139%	0.0220%
28-Feb-96(I)	0.0356%	0.0370%	0.0094%	0.0360%	0.0183%	0.0158%
27-Jul-96	0.0222%	0.0294%	0.0135%	0.0367%	0.0181%	0.0176%
28-Feb-97	0.0327%	0.0159%	0.0105%	0.0692%	0.0412%	0.0598%
25-Mar-98(I)	0.0272%	0.0306%	0.0428%	0.0093%	0.0196%	0.0340%
1-Jun-98	0.0319%	0.0300%	0.0067%	0.0194%	0.1078%	0.0830%
27-Feb-99	0.0199%	0.0128%	0.0069%	0.0673%	0.0310%	0.0699%
29-Feb-00	0.0384%	0.0564%	0.1129%	0.1179%	0.0502%	0.0814%
28-Feb-01	0.0201%	0.0188%	0.0261%	0.0586%	0.0950%	0.0692%
28-Feb-02	0.0109%	0.0099%	0.0243%	0.0486%	0.0207%	0.0134%
28-Feb-03	0.0063%	0.0071%	0.0078%	0.0016%	0.0142%	0.0159%
3-Feb-04(I)	0.0322%	0.0477%	0.0015%	0.0230%	0.0218%	0.0234%
8-Jul-04	0.0235%	0.0141%	0.0131%	0.0237%	0.0082%	0.0090%
28-Feb-05	0.0092%	0.0040%	0.00001%	0.0146%	0.0060%	0.0107%
28-Feb-06	0.0091%	0.0083%	0.0037%	0.0118%	0.0098%	0.0140%
28-Feb-08	0.0153%	0.0166%	0.0216%	0.0774%	0.0447%	0.0391%
29-Feb-08	0.0954%	0.0498%	0.0023%	0.1053%	0.1084%	0.0724%
16-Feb-09(I)	0.0709%	0.0436%	0.0289%	0.0305%	0.0307%	0.0580%
6-Jul-09	0.0321%	0.0284%	0.0067%	0.0383%	0.0413%	0.0390%
26-Feb-10	0.0137%	0.0112%	0.0006%	0.0130%	0.0055%	0.0059%
28/02/2011	0.0174%	0.0206%	0.0311%	0.0371%	0.0188%	0.0148%
16/03/2012	0.0119%	0.0167%	0.0188%	0.0188%	0.0164%	0.0110%
28/02/2013	0.0036%	0.0050%	0.0150%	0.0068%	0.0081%	0.0078%

Source: Calculated based on data collected from BSE Website Note: I-Interim Budget

Conclusion

It has been observed that the steepest rise in the Sensex (with more than 4% jump) occurred in 1997, 1999, and 2001. Perhaps, the budget for the year 1997 is still considered to be a dream budget. The steepest cut was recorded in 2009 and 2000, with more than 5% fall of the Sensex. The market, on an average, for 20 years of data suggests a lack of abnormality in any time frame, which suggests that the efficiency of digesting the event has improved over a period of time. At the same time, further investigation, by breaking the total time frame into two parts, suggests that investors can take advantage by waiting for a medium (+15 days) to long term (+30 days) in order to get an abnormality in returns. Furthermore, it was observed that during the Congress led government budgets, there is abnormal behaviour of return during the short time frame (+3 days), which can be used to their advantage by the traders. So, the stock market appears to be fairly efficient at information processing about the Union Budget. There is a dilemma in the post - budget period, where equity investors are exposed to substantial volatility in the long term window (+30 days) without higher returns as a consequence. It immediately suggests hedging strategies for equity investors, who could benefit by short - selling index futures on or near the budget date.

Research Implications

The study implies that there are certain events related return chances available for the investors. There is always

Table 8. *F* - test Results Comparing Variance Among Returns During Post-budget Period with Medium & Long Term Pre Budget Period

Budget Date	Medium Term Pre Budget			Long term Pre budget		
	Y1X2	Y2X2	Y3X2	Y1X3	Y2X3	Y3X3
27-Feb-93	**8.1025(L)**	2.0132(L)	2.4393(L)	**9.354**	**3.588**	**3.066**
28-Feb-94	0.073	0.456	0.322	0.094	0.590	0.417
15-Mar-95	0.243	0.392	0.619	0.380	0.613	0.968
28-Feb-96(I)	0.974	0.494	0.426	1.4615(L)	0.8422(L)	0.4492(L)
27-Jul-96	1.249	0.615	0.599	1.651	0.813	0.792
28-Feb-97	**4.341**	**2.586**	1.069(L)	2.114	1.259	0.6901(L)
25-Mar-98(I)	0.304	0.641	1.112	0.342	0.722	1.251
1-Jun-98	0.648	**3.598**	**2.770**	0.609	**3.384**	**2.605**
27-Feb-99	**5.276**	2.427	**5.478**	**3.379**	1.555	**3.509**
29-Feb-00	2.092	0.891	1.444	3.071	1.309	**2.121**
28-Feb-01	3.118	**5.049**	**3.679**	2.921	**4.729**	**3.446**
28-Feb-02	**4.908**	2.085	1.352	2.9350(L)	0.6135(L)	0.1675(L)
28-Feb-03	0.225	1.991	2.226	0.254	**2.244**	**2.509**
3-Feb-04(I)	0.481	0.456	0.491	0.4412(L)	0.0002(L)	0.0421(L)
8-Jul-04	1.684	0.580	0.636	1.007	0.347	0.380
28-Feb-05	3.604	1.496	**2.645**	1.576	0.654	1.156
28-Feb-06	1.428	1.188	1.694	1.301	1.082	1.543
28-Feb-08	**4.660**	**2.694**	**2.356**	**5.072**	**2.932**	**2.564**
29-Feb-08	2.113	2.175	1.452	1.104	1.136	0.759
16-Feb-09(I)	0.701	0.705	1.331	0.431	0.433	0.818
6-Jul-09	1.347	1.452	1.372	1.194	1.287	1.216
26-Feb-10	1.155	0.485	0.528	0.945	0.397	0.432
28-Feb-11	1.801	0.913	0.717	2.129	1.080	0.848
16-Mar-12	1.128	0.984	0.661	1.589	1.385	0.931
28-Feb-13	1.351	1.617	1.567	1.866	**2.234**	**2.165**

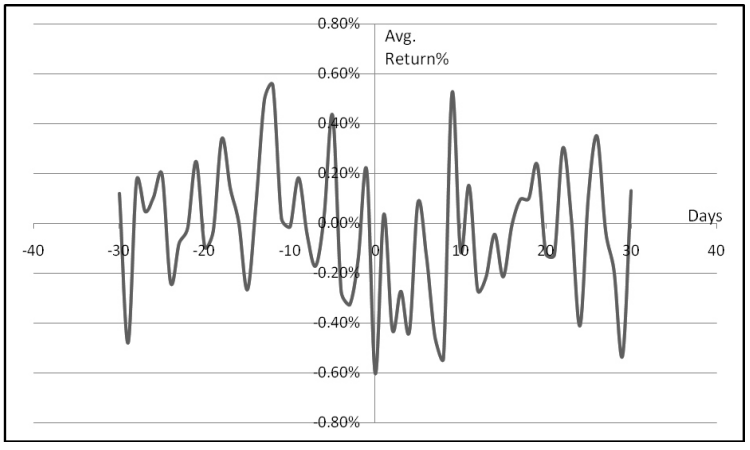
Source: Calculated on the basis of data presented in the Table 7

Note: Bold numbers indicate null hypothesis is rejected

L- Levene's statistics (non-normal distribution)

I-Interim Budget

Figure 1. Average Returns Across Event Window (-30 to +30 days)



confusion in the pre and post - budget period, where investors are uncovered to volatility. The study provides direction for investors to overcome this ambiguity. This paper is only a primary examination of a question on the relationship between the Union Budget and the stock market. Other areas, which are worth further investigation include:

1) Intraday minute event effect of union budget on the day of presentation itself.

2) Whether technological changes in BSE and NSE have any impact on the efficiency of the market.

3) Whether cross - sectional variation of stock returns for firms or industries is homogeneous in the decade of the 1990s (industrial linearization era) and heterogeneous for later years?

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Appendix 1A. List of Budgets Covered

1	27-02-1993	Dr. Manmohan Singh	
2	28-02-1994	Dr. Manmohan Singh	
3	15-03-1995	Dr. Manmohan Singh	
4	28-02-1996	Dr. Manmohan Singh	Interim
5	27-07-1996	P. Chidambaram	
6	28-02-1997	P. Chidambaram	
7	25-03-1998	Yashwant Sinha	Interim
8	01-06-1998	Yashwant Sinha	
9	27-02-1999	Yashwant Sinha	
10	29-02-2000	Yashwant Sinha	
11	28-02-2001	Yashwant Sinha	
12	28-02-2002	Yashwant Sinha	
13	28-02-2003	Jaswant Singh	
14	03-02-2004	Jaswant Singh	Interim
15	08-07-2004	P. Chidambaram	
16	28-02-2005	P. Chidambaram	
17	28-02-2006	P. Chidambaram	
18	28-02-2008	P. Chidambaram	
19	29-02-2008	P Chidambaram	
20	16-02-2009	Pranab Mukherjee	Interim
21	06-07-2009	Pranab Mukherjee	
22	26-02-2010	Pranab Mukherjee	
23	28-02-2011	Pranab Mukherjee	
24	16-03-2012	Pranab Mukherjee	
25	28-02-2013	P. Chidambaram	

Source: Compiled from http://indiabudget.nic.in

Appendix 2A. Normality Test on Data for Applying the *t*- test

	Tests of Normality (1993-2013)			Tests of Normality (1993-2003)			Tests of Normality (2004-2013)		
	Shapiro-Wilk			Shapiro-Wilk			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.	Statistic	*df*	Sig.
Difference_X1_B	.958	25	.385	.905	13	.158	.943	12	.544
Difference_X2_B	.956	25	.347	.933	13	.368	.973	12	.936
Difference_X3_B	.960	25	.415	.936	13	.406	.955	12	.708
Difference_X1Y1	.969	25	.608	.945	13	.523	.972	12	.928
Difference_X2Y1	.984	25	.951	.960	13	.750	.927	12	.347
Difference_X3Y1	.991	25	.997	.967	13	.860	.934	12	.427
Difference_X1Y2	.984	25	.957	.955	13	.669	.936	12	.448
Difference_X2Y2	.938	25	.133	.964	13	.816	.871	12	.067
Difference_X3Y2	.968	25	.606	.985	13	.995	.977	12	.968
Difference_X1Y3	.971	25	.659	.968	13	.866	.897	12	.145
Difference_X2Y3	.975	25	.765	.971	13	.906	.980	12	.982
Difference_X3Y3	.962	25	.449	.969	13	.884	.988	12	.999

	Tests of Normality (Non-Congress)			Tests of Normality (Congress)		
	Shapiro-Wilk			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
Difference_X1_B	.897	10	.204	.948	15	.500
Difference_X2_B	.933	10	.478	.967	15	.804
Difference_X3_B	.940	10	.556	.944	15	.437
Difference_X1Y1	.933	10	.482	.959	15	.680
Difference_X2Y1	.946	10	.617	.937	15	.348
Difference_X3Y1	.963	10	.821	.956	15	.629
Difference_X1Y2	.939	10	.542	.952	15	.562
Difference_X2Y2	.925	10	.396	.940	15	.051
Difference_X3Y2	.983	10	.979	.922	15	.205
Difference_X1Y3	.916	10	.324	.933	15	.298
Difference_X2Y3	.935	10	.503	.960	15	.688
Difference_X3Y3	.979	10	.958	.923	15	.211

Appendix 3A. Normality Test on Data for Applying the *F* - test

Budget Date	Tests of Normality (X2)			Tests of Normality (X3)		
	Shapiro-Wilk			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
27-02-1993	**.871**	**15**	**.035**	.935	30	.067
28-02-1994	.950	15	.525	.956	30	.246
15-03-1995	.987	15	.997	.968	30	.474
28-02-1996	.928	15	.256	**.919**	**30**	**.026**
27-07-1996	.953	15	.566	.963	30	.376
28-02-1997	.961	15	.711	.962	30	.343
25-03-1998	.950	15	.524	.954	30	.222
01-06-1998	.976	15	.932	.979	30	.791
27-02-1999	.910	15	.136	.961	30	.329
29-02-2000	.890	15	.066	.960	30	.306
28-02-2001	.964	15	.763	.976	30	.710
28-02-2002	.970	15	.855	**.913**	**30**	**.018**
28-02-2003	.932	15	.295	.952	30	.195
03-02-2004	.895	15	.080	.964	30	.396
08-07-2004	.942	15	.413	**.925**	**30**	**.036**
28-02-2005	.925	15	.232	.936	30	.073
28-02-2006	.956	15	.626	.971	30	.569
28-02-2008	.961	15	.710	.974	30	.663
29-02-2008	.949	15	.508	.985	30	.929
16-02-2009	.968	15	.829	.941	30	.100
06-07-2009	.973	15	.904	.975	30	.691
26-02-2010	.923	15	.212	.963	30	.371
28-02-2011	.985	15	.993	.988	30	.979
16-03-2012	.983	15	.987	.976	30	.723
28-02-2013	.882	15	.051	.933	30	.058

	Tests of Normality(Y1)			Tests of Normality(Y2)			Tests of Normality(Y3)		
	Shapiro-Wilk			Shapiro-Wilk			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.	Statistic	df	Sig.
27-02-1993	.904	3	.398	.898	15	.089	.976	30	.724
28-02-1994	.816	3	.152	.979	15	.963	.957	30	.266
15-03-1995	.943	3	.538	.968	15	.825	.986	30	.952
28-02-1996	.962	3	.625	.953	15	.569	.974	30	.651
27-07-1996	.967	3	.649	.926	15	.237	.978	30	.760
28-02-1997	.949	3	.564	.909	15	.131	**.902**	**30**	**.009**
25-03-1998	.978	3	.714	.935	15	.322	.981	30	.855
01-06-1998	.881	3	.328	.923	15	.217	.986	30	.947
27-02-1999	.805	3	.126	.944	15	.440	.978	30	.759
29-02-2000	.834	3	.199	.932	15	.296	.984	30	.925
28-02-2001	.981	3	.736	.987	15	.997	.988	30	.976
28-02-2002	.909	3	.413	.935	15	.324	.952	30	.194
28-02-2003	.999	3	.952	.975	15	.923	.980	30	.834
03-02-2004	.990	3	.808	.910	15	.135	.969	30	.510
08-07-2004	.950	3	.571	.962	15	.732	.976	30	.713
28-02-2005	.982	3	.743	.944	15	.433	.973	30	.638
28-02-2006	.988	3	.790	.948	15	.501	.970	30	.532
28-02-2008	.949	3	.566	.966	15	.798	.964	30	.387
29-02-2008	1.000	3	.989	.959	15	.674	.940	30	.089
16-02-2009	.867	3	.287	.940	15	.378	.978	30	.770
06-07-2009	.929	3	.486	.932	15	.296	.969	30	.517
26-02-2010	.960	3	.613	.949	15	.504	.984	30	.923
28-02-2011	.804	3	.125	.917	15	.171	.964	30	.387
16-03-2012	1.000	3	.988	.981	15	.977	.981	30	.846
28-02-2013	.959	3	.610	.942	15	.408	.964	30	.389

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