Testing Semi-Strong Efficiency of Indian Stock Market – Evidence from Union Budget

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ABSTRACT

The movement of share prices is very unpredictable in any country’s economy. There are certain micro (reported profit, Dividend, Book Value per share etc.) pay-out ratio and macro-economic variables (Budget, Interest rate, crude price, foreign exchange rate fluctuations etc.) which are held responsible for the movement in stock price. The impact of certain events cannot be predicted by the stock market with certainty because of their nature. The Annual Budget presented in the Parliament of India, is one such event. A budget is a powerful tool in the hand of the Government to control the economic resources of the country. It contains proposals regarding changes in direct and indirect taxes, industrial policy, allocation of resources and the fiscal deficit which may have favourable or adverse impact on certain sectors of stock Market. Therefore, the current study entitled “Impact of Union Budget on Indian Stock Market” has been undertaken with an objective to investigate the Indian stock markets reaction reflect the market efficiency in semi strong form or not. The required data has been collected from capitalline data base. In order to realise the stated objectives the researchers have employed an event study methodology. For this purpose of the study, the date on which finance bill was taken as the event date (t = 0) the 31 days enclosing the date of budget (i.e., t= -30, ……… 0,………… +30) Is labelled as the event window. The current study revealed the following major findings: the efficiency of stock market which absorbs the new information of annul finance bill and does not reflect too much on return. There is a degree of volatility in stock market over budget period but beyond seven days that volatility because of budget fades away and the market seems to absorb the information of annual finance bill within this phase itself and thereafter the daily return and the volatility on returns seems to be unaffected by the budget. The Indian stock market appears to be fairly efficient at information processing about the Union Budget.

Keywords: Union Budget, Abnormal return, Event study, Cumulative Abnormal Return, Efficient Market Hypothesis. 
JEL Classification: B22, G14, G28

INTRODUCTION:

The Union Budget, also mentioned to as the annual financial statement of the estimated revenues and expenditure of the central government of the Republic of India for a particular year. It commences from 1st April every year and ending on 31st March of the next year. Union Budget is classified into Revenue Budget and Capital Budget. Revenue Budget covers the government's revenue receipts and expenditure. Generally there are two types of revenue receipts (i) tax (for example: direct taxes such as income tax, corporate tax, customs duty etc.) and (ii) non-tax revenue (like interest receipts, profits and dividends, fees and fines, external grants etc.). Any expenditure spent on day to day functioning of the government and on innumerable services offered to citizens of the nation. If revenue expenditure exceeds revenue receipts, the situation is called revenue deficit.
However, Capital Budget comprises assets and liabilities of the central government which takes into consideration changes in capital. Capital receipts cover loans raised from public, foreign governments, RBI, recovery of loans and disinvestments. Any expenditure spent by the government on development of buildings, machinery, health facilities, education etc. are termed as Capital expenditure. Fiscal deficit is incurred when the government's total expenditure exceeds its total revenue. The central government presents the budget on the first day of February every year. However, till 2016 it was presented on the last working day of February every year. The finance bill, has to be passed by both the Houses of the parliament before its implementation. The Union Budget is preceded by an Economic Survey, which summaries the comprehensive course of the budget and the financial performance of the nation. The Budget is framed to allocate the Government’s resources optimally to different sections of the society, so that the wide range objectives of the government can be accomplished. The following are the major objectives behind government budget (i) to stimulate speedy and balanced economic growth of the nation denotes a sustained increase in real GDP of the nation; (ii) to improve living standard of the citizens; (iii) alleviation of poverty and unemployment by creation of more employment of opportunity in the nation; (iv) redistribution of income and wealth; (v) reallocation of resources on the basis of social priorities; (vi) price stability and economic stability; (vii) reducing regional disparities; (viii) management and financing of public sector enterprises. Generally we have three different approaches to a government budgets, they are: balanced, surplus and deficit budgets depending upon whether the estimated receipts are equal to, less than or more than estimated receipts, respectively. The first Union budget of India was presented by Ramasamy Kandasamy Shanmukham Chetty on November 26, 1947. However, the first Indian Budget was presented by finance member of Indian Council Mr James Wilson on February 18, 1860. Mrs Indira Gandhi was the first and the only female Finance Minister in the history of India to present a budget. Shri Morarji Desai holds the record of presenting maximum number of Budgets in India, which accounts to a total 10 followed by P Chidambaram with eight union budgets. Pranab Mukherjee, Yashwant Sinha, YB Chavan and C.D. Deshmukh, all have presented the seven budgets. Dr. Mammanoh Singh, Yashwant Sinha and Arun Jaitley also hold the record of presenting the Union Budget five times in a row. Mr K.C. Neogy and Mr H.N. Bahuguna were the only two Finance Ministers who did not present any Indian Budget. So far, nation has seen sixty seven annual budgets, twelve interim budgets and four mini budgets.

Stock market is often referred to as the barometer of the economy. Stock market is a place where stock buyers will associate with the stock sellers. The foremost objective of the stock exchange is to provide much more needed liquidity to the participants. Stocks are first offered by the company to the public through a process called initial public offerings (IPO) and later they are sold on stock market. The concept of the Efficient Market Hypothesis (EMH) introduced by Eugene Fama (1970), defines that in informationally-efficient markets, stock prices fully reveal all the relevant information that is available in the market about a stock. An efficient market offers all related financial information to market members. If the stock market is informationally-efficient then stock prices adjust immediately to the new information. The major implication of this theory is that new data regularly enter the financial market in the form of earnings announcement, dividend payment, sector report and political issues, and if the market is efficient then security prices adjust promptly to new information. Therefore, the EMH followers argue that the historical prices lose the predictive power to forecast the future prices. Consequently, prices of assets cannot be predicted by the participants as the assets prices move randomly and restrict them from earning the abnormal returns. Further, Majority of the valuation models have been developed on the basis of information efficient market. However, global stock markets, have documented several anomalies some occur once and evaporate, while others are continuously noticed in financial markets for example, Day-of-the-Week effect (Gibbons and Hess (1981); Jaffrey and Westerfield (1985), Schallheim & Kato (1985); Mehdian and Perry (2004); Brooks and Persand (2001); Kamaly & Tooma (2009); January effect (Rozeff & Kinney(1976); Dyl (1977); Brown et al. (1983); (Kato and Schallheim (1985); Maxwell (1998); Easterday & Stephan (2006); Agarwal and Wong (2006) Alagidede & Panagiotidis (2009)), holiday effect (Cadsby and Ratner (1992); Tan and Wong (1996); Al-Saad, (2005); Cao et al (2009)), Halloween effect (Zarour (2007)), Intra-month effect (Ariel (2002), Balaban & Bulu (1996)). The presence of such anomalies violates the concept of market efficiency, because asset prices are not random, but predictable based on some effect. This permits participants to frame trading strategies which makes abnormal returns on the basis of such anomalies. Economists and researchers have offered inconsistent explanations for this strange phenomenon. However, there is no definite explanation for many of these market anomalies. Majority of the researchers are of the opinion that such market anomalies are primarily owed to behavioral causes (Schwert, 2003).
Annual Budget presented in the Parliament of India, is one such event. A budget is a powerful tool in the hand of the Government to control the economic resources of the country. It contains proposals regarding changes in direct and indirect taxes, industrial policy, allocation of resources which may have favorable or adverse impact on certain sectors of stock Market. Therefore, the current study has been undertaken to investigate the impact of budget on Indian stock market. The remainder of the current paper comprises of four sections. Chapter two discuss the review of previous studies. While section three briefs out the objectives of the current study, the methodology employed for the analysis of the collected data. Section four outlines the data analysis and inference part and in the final part, a brief discussions and conclusion have been made.

LITERATURE REVIEW:

A brief review of previous studies have been presented in this paragraph to find the research gap on the proposed topic. The notion of EMH has been examined in several empirical studies over the years for various extreme economic and dramatic events such as general elections Niederhoffer et al. (1970); Hensel and Zimba (1995); Forrester and Schmitz (1997); Vuchelen (2003); Booth and Booth (2003); Cahan et al., (2005); Nordhaus (1975); Irungu (2012), political events (Zach (2003); Cosset, & Essaddam (2005) Ortega and Tornero (2009); Wisniewski, (2009); Kim and Mei (1994) Niederhoffer (1971); Onder and Mogan (2006); Chen, Bin, and Chen (2005); Kim and Mei (2001); Angelovska (2011), terror attacks (Cartaer, D. and Simkins, B. (2004); (Suleman, 2012), Sanjay Kumar, Jiangxia Liu (2010); Mustafa Karman (2011); Anh Phuong Nguyen and Carl E. Enomoto (2009) Ramiah and Graham (2013); Papadamou and stagiainnis (2011), political policies of the country (Yang et al., 2014); (Lease et al., 1983; Nenova, 2003; Zingales, 1994) (Stulz & Wasserfallen, 1995), government changeover (Cutler et al., (1989)), bad news Engle & Ng (1993), quality of monetary institutions (Alfaro et al. (2008)), policy announcement (Bouchkova et al. (2007); Mohanty (2004); Sathyanarayana & Sudhindra Gargesha(2017)), uncertain economic environment (Veronesi (2002)), political stability (Chan & John Wei, (1996) ; Bittlingmayer, (1998); Porwal and Gupta (2005); Manzoor, (2013)), political catastrophes (Taha, (2012) Shelor, Anderson, & Cross, 1990; Bittlingmayer, 1998), special issues like Brexit referendum (Sathyanarayana & Sudhindra Gargesha(2017)), natural disasters (Wan (2011); Andrew, Valadkhani and Worthington (2004); Shelor et al. (1990) etc.

Gupta and Kundu (2006) explored the impact of Union Budget on Indian stock market in terms of returns and volatility from 1991 to 2005 covering 17 Budgets. They found that market participants can earn abnormal returns for the short and medium term periods around the date of budget i.e., up to 15 days with a risk of losses if their expectations are not met. Similar findings were documented by Vishal Kutchu (2012).

Rao (1997) tried to investigate the impact of macroeconomic events like union budgets and the credit policy announcements on stock prices from 1991-1995. It was found that budget contributed to the volatility in stock prices in the short run. Similar study was conducted by Soni Anil (2009). For the purpose of the study he collected the data form 2000-2009. He concluded the finance bill has no impact on the stock market especially in the long run. However, in the short run he found both positive and negative impact. Similar findings were documented by Kaur (2004); Gupta and Kundu (2006); S.Babu and M. Venkateswaralu (2013).

In another study by Divya Verma Gakhar et al. (2015) tried to investigate the impact of Union budget on NSE’s CNX NIFTY Index. For the purpose of the study they classified the event into short term, medium term and long term period in pre and post budget period. They conclude that the maximum impact of budget is seen in short term then it gradually decreases in medium term and finally diminishes in the long term. Similar findings were documented by Saraswat and Banga (2012) with an exception that with regards to volatility, the findings 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.

In an empirical study by Ishan Harendrakumar Pandya (2014) found that the steepest rise in the Sensex (with more than 4% jump) occurred in 1997, 1999, and 2001. The steepest cut was recorded in 2009 and 2000, with more than 5% fall of the Sensex. The study concluded that the market, on an average, for twenty 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.

Dimensional Securities (2005) documented that BSE Sensex has recorded a negative returns during the post-budget period as compared to a pre-budget time period. However, Varadharajan and Vikkraman (2011) tried to investigate the impact of annual budget on Indian stock market volatility and analyses how returns vary with it. The findings from the study confirms the high degree of volatility during post budget in comparison to pre-budget.

In an empirical investigation by Aabha Singhvi (2014) found no significant impact of union budget on the
NIFTY 50 Index. However, he documented that budget day returns are more than the returns during the previous 30, 15, and 3 trading days. In an empirical study by Vadali. Sri Ram Datta et al. (2015) try to investigate the impact of budget on Indian stock market. They found a significant volatility in Nifty 50 index during the budget speech.

Thomas and Shah (2002) tried explore the indices from 1979 to 2001 covering 26 Budget and finds that in some years, post-budget returns are positive; in other years post-budget returns are negative; on average, there is no clear pattern about movement in the Index after budget date. The study concludes that the information treating by participants is rational, and concludes that stock market is semi-strong efficient. However, in the financial markets and stock market in particular, there is an asymmetry of information (Shiller (1981); Dierkens 1991; Aboody and Lev 2000; Fama and French 2005; Chae 2005). This concept advocates that participants have different notions, outlook and information about the state of the economy. This information is used while making the investment decisions. Consequently, information asymmetry of the market participants can lead to a state of instability in the financial markets and to the formation of diverse expectations (Chae 2005). According to Henry (2000); Ciner and Karagözoglu (2008) the developing economies markets exhibits less efficiency compared to developed economy due to information asymmetry. Bittlingmayer, (1998) argued that developing and under developed economies stock markets exhibits more risk than the developed economies owing to their instable political conditions (Gupta 1985)). Financial markets are normally neither perfectly efficient nor wholly inefficient. The unit of informational efficiency varies across stock markets, times and nations. Financial market will be more informationally efficient if more financial information is available to the participants. This offers an opportunity to address the research focus of attention and to ascertain the significance of the information content of the annual budgets and its impact on stock market. Therefore the main objective of this empirical research proposal is to investigate the link between annual budget and its impact on Indian stock market.

**RESEARCH DESIGN:**

**Objectives of the study:**
1. To examine the impact of annual financial bill on chosen indices (Sensex and Nifty 50);
2. To explore the deviations of instability in returns around the ex-dates;
3. To examine whether there is any abnormal returns around the event date and
4. To investigate the Indian stock markets reaction reflect the market efficiency in semi strong form or not.

**Hypotheses of the Study:**

H0: There is no significance impact on stock market due to finance bill (Budget). \( \mu_1 = \mu_2 \)

H1: There is no significance impact on the volatility on stock market due to finance bill (Budget) \( \sigma^2_1 = \sigma^2_2 \)

**Research Design:**

Primary data: Primary data is not required as this research is analytical in nature. Secondary data was collected from capital line, database. The data was collected from 1-1-2009 to 22-2-2017. The event study methodology has been undertaken. The sample in this study includes the data which is collected for this purpose was of BSE, NIFTY 50, NIFTY BANK, NIFTY METAL, NIFTY METAL BVRA, NIFTY MNC, NIFTY MEDIA, NIFTY PHARMA, NIFTY REALTY, NIFTY SHERIA, NIFTY FMCG and NIFTY IT, from capital line. The sample size includes 12 Indices.

**Data Analysis:**

To investigate the impact of Union Budget on Indian stock market the event study methodology has been employed. In order to realize the stated objectives the researchers have collected the data from 27th Feb 2012 to 22nd Feb 2017 from capital line data base. An even study methodology has been employed to ascertain the abnormal returns (AR) and student t test has been used to test the significance. The first ever event study methodology was documented in the financial literature by James Dolley (1933) to investigate the returns effect of stock splits by using a total of 95 stock splits. Later, this methodology was employed by Myers and Bakay (1948); C. Barker (1957); J. Ashley (1962) and Fama et al., (1969). Subsequently, researchers started modifying the methodology for example Brown and Warner (1980) (1985) Kothisi and Warner (2005). For this purpose of the study, the date on which finance bill was taken as the event date \( t = 0 \) the 31 days enclosing the referendum (i.e., \( t = -15, \ldots, 0, \ldots, +15 \)) is labelled as the event window. The abnormal returns (AR) of the selected stocks for the event window were computed. In order to get the flawless results log returns were
computed, for the entire study period. In the first step the expected return for the window period (ER) was calculated. In the second phase, the abnormal return (AR) was computed by deducting the Actual returns (AR) by expected returns (ER). In third step, the Cumulative Abnormal Returns (CAR) for the 30 days has been calculated. The CAR has been calculated by adding the daily AR for the entire event window of 30 days. The t value was taken as base to draw the graph. In the last phase student t –test, f-test to test has been run to investigate the significance difference in the mean returns before and after the Union Budget.

**DATA ANALYSIS:**

**Table No 4.1: Table Showing ER, AR and Car and T Value for BSE and Nifty 50 for the Year 2018**

| Days | AR   | CAR  | t stats | AR   | CAR  | t stats |
|------|------|------|---------|------|------|---------|
| -30  | 0.001833 | 0.001833 | 0.314124 | -0.00251 | -0.00251 | -0.45008 |
| -29  | -0.00252 | -0.00068 | -0.43105 | -0.00164 | -0.00414 | -0.29397 |
| -28  | 0.000946 | 0.000264 | 0.16211 | 0.004271 | 0.000129 | 0.767286 |
| -27  | 0.002848 | 0.003111 | 0.487904 | 0.003022 | 0.003151 | 0.542777 |
| -26  | -0.00246 | 0.00065 | -0.42167 | -0.0049 | -0.00175 | -0.87947 |
| -25  | -0.00369 | -0.00304 | -0.63204 | -0.00246 | -0.0042 | -0.44149 |
| -24  | 0.003791 | 0.000752 | 0.64944 | 0.005232 | 0.001029 | 0.939812 |
| -23  | -0.00453 | -0.00378 | -0.77568 | -0.00993 | -0.0089 | -1.78447 |
| -22  | -0.00372 | -0.0075 | -0.63757 | -0.00191 | -0.01082 | -0.34333 |
| -21  | 0.000203 | -0.00729 | 0.034695 | -0.00207 | -0.01288 | -0.37112 |
| -20  | -0.00027 | -0.00757 | -0.04669 | 0.004202 | -0.00868 | 0.754767 |
| -19  | 0.004738 | -0.00283 | 0.811736 | 0.002841 | -0.00584 | 0.510408 |
| -18  | 0.004649 | 0.00182 | 0.796586 | 0.004917 | -0.00092 | 0.883177 |
| -17  | 0.002669 | 0.00449 | 0.457312 | 0.000137 | -0.0079 | 0.024592 |
| -16  | -0.00168 | 0.002811 | -0.28761 | -0.00108 | -0.00187 | -0.19421 |
| -15  | 0.000878 | 0.003689 | 0.150486 | -0.00051 | -0.00237 | -0.09076 |
| -14  | -0.00338 | 0.00031 | -0.5789 | 0.000584 | -0.00179 | 0.104964 |
| -13  | 0.009113 | 0.009423 | 1.561335 | 0.004772 | 0.002984 | 0.85724 |
| -12  | 0.000925 | 0.010349 | 0.158504 | -0.00397 | -0.00098 | -0.71296 |
| -11  | -0.00299 | 0.007358 | -0.5124 | 0.005426 | 0.004441 | 0.974678 |
| -10  | 0.012636 | 0.019993 | 2.164859 | 0.002107 | 0.006548 | 0.378491 |
| -9   | 0.000154 | 0.020147 | 0.026396 | 0.005405 | 0.01954 | 0.970975 |
| -8   | 0.007311 | 0.027458 | 1.252566 | 0.004041 | 0.015995 | 0.725907 |
| -7   | 0.007802 | 0.035261 | 1.336772 | 0.009356 | 0.025351 | 1.680693 |
| -6   | 0.003981 | 0.039242 | 0.682066 | -0.00054 | 0.024816 | -0.09617 |
| -5   | -0.00689 | 0.032354 | -1.18013 | -0.00246 | 0.022359 | -0.44127 |
| -4   | -0.00227 | 0.03008 | -0.38957 | -0.00326 | 0.019095 | -0.58643 |
| -3   | 0.007422 | 0.037502 | 1.271624 | 0.005997 | 0.025091 | 1.077244 |
| -2   | -0.00236 | 0.035138 | -0.40498 | -0.0059 | 0.019194 | -1.05944 |
| -1   | -0.00582 | 0.029322 | -0.99643 | -0.00295 | 0.016248 | -0.52917 |
| 0    | -0.00969 | 0.016934 | -1.65985 | -0.0017 | 0.014543 | -0.30621 |
| 1    | -0.01068 | 0.008952 | -1.83018 | -0.02001 | -0.00547 | -3.59499 |
| 2    | -0.00481 | 0.004139 | -0.82461 | -0.00108 | -0.00655 | -0.19392 |
| 3    | -0.0192 | -0.01506 | -3.29021 | -0.0203 | -0.02685 | -3.64608 |
| 4    | -0.00361 | -0.01867 | -0.61835 | -0.00189 | -0.02873 | -0.33894 |
| 5    | 0.013281 | -0.00539 | 2.275377 | 0.01648 | -0.01225 | 2.960405 |
| 6    | -0.01454 | -0.01994 | -2.49172 | -0.01548 | -0.02773 | -2.78095 |
| 7    | 0.006114 | -0.01382 | 1.047467 | 0.004395 | -0.02334 | 0.789506 |
| 8    | -0.00119 | -0.01502 | -0.20427 | -0.00139 | -0.02473 | -0.24987 |
| 9    | -0.00668 | -0.02169 | -1.14415 | -0.00727 | -0.032 | -1.30643 |
| 10   | 0.001834 | -0.01986 | 0.314293 | 0.000928 | -0.03108 | 0.166631 |
Analysis:

It is evident from the above table 4.1 that on -10th day AR recorded were 0.0126 with a t value of 2.1649 (significant), followed by -13th day with an AR of 0.0091 with a t value of -1.5613 (not significant) and -7th day 0.0078 with a t value of 1.3368 (not significant) and on -3rd day with an AR of 0.0074 with a t value of 1.2716 (not significant), followed by -24th day with an AR of 0.0146 with a t value of 1.7107 (not significant), and on -5th day we have the least reported AR with -0.0103 with a t value of -1.2031 (not significant) followed by 2nd day with an AR of 0.0098 with a t value of -1.1477 (not significant), followed by 1st day with an AR of 0.0016 with a t value of -1.1233 (not significant) and 13th with an AR of 0.0009 with a t value of -1.0639 (not significant).

After the event, the highest reported AR was on 27th day with 0.0174 with a t stats of 1.240363 (significant) followed by 5th day with an AR of 0.0133 with a t value of 2.2754 (significant), 25th day with an AR of 0.0082 with a t value of 1.4024 (not significant) and on 16th day with an AR of 0.0067 with a t value of 1.1537 (not significant). However on 3rd day the reported AR was -0.0192 with a t value of -3.2902 (significant) followed by 6th day with an AR of -0.0145 with a t value of -2.4917 (significant), on 23rd day with an AR of -0.0140 with a t value of -2.3997 (significant) and on 22nd day with an AR of -0.0110 with a t value of -1.8905 (not significant). However, on the event date (0) the AR was -0.0097 with a t value of 1.6599 and it was not statistically significant.

For Nifty 50:

It is evident from the above table 4.1 that on -7th day AR recorded were 0.0093 with a t value of 1.6806 (not significant), followed by -3rd day with an AR of 0.0059 with a t value of 1.0772 (not significant) and -11th day with an AR of 0.00542 with a t value of 0.9746 (not significant) and on -9th day with an AR of 0.0054 with a t value of 0.9709 (not significant), followed by -24th day with an AR of 0.00523 with a t value of 0.9391 (not significant), and on -23rd day we have the least reported AR with -0.0099 with a t value of -1.7844 (not significant) followed by -2nd day with an AR of -0.0058 with a t value of -1.0594 (not significant), followed by -26th day with an AR of -0.0048 with a t value of -0.8794 (not significant) and on -12th day with an AR of -0.0039 with a t value of -0.7126 (not significant).

After the event, the highest reported AR was on 27th day with 0.0182 with a t stats of 3.2779 (significant) followed by 5th day with an AR of 0.01648 with a t value of 2.9604 (significant), followed by 25th day with an AR of 0.0069 with a t value of 1.2403 (not significant) and followed by the 16th day with an AR of 0.0062 with a t value of 1.1267 (not significant). However on 3rd day the reported AR was -0.0202 with a t value of -3.6460 (significant) followed by 1st day with an AR of -0.0201 with a t value of -3.5949 (significant), on 6th day with an AR of -0.01548 with a t value of -2.7801 (significant) and on 22nd day with an AR of -0.01266 with a t value

| Days | AR   | CAR  | t stats | AR   | CAR  | t stats |
|------|------|------|---------|------|------|---------|
| 11   | -0.00932 | -0.02918 | -1.59731 | -0.00981 | -0.04089 | -1.76237 |
| 12   | -0.00785 | -0.03703 | -1.34501 | -0.00795 | -0.04884 | -1.42858 |
| 13   | -0.0023  | -0.03933 | -0.39392 | -0.0014  | -0.05023 | -0.25063 |
| 14   | 0.003949 | -0.03538 | 0.676603 | 0.003839 | -0.04639 | 0.689696 |
| 15   | -0.00175 | -0.03713 | -0.2996 | -0.00248 | -0.04887 | -0.44477 |
| 16   | 0.006734 | -0.0304  | 1.15372 | 0.006272 | -0.0426  | 1.126751 |
| 17   | 0.006589 | -0.02381 | 1.12889 | 0.005441 | -0.03716 | 0.977398 |
| 18   | -0.00226 | -0.02607 | -0.38779 | -0.00092 | -0.03808 | -0.16527 |
| 19   | -0.00431 | -0.03038 | -0.73762 | -0.00441 | -0.04249 | -0.79308 |
| 20   | -0.00332 | -0.0337  | -0.56875 | -0.00141 | -0.0439  | -0.25287 |
| 21   | -0.00148 | -0.03518 | -0.25381 | -0.00189 | -0.04579 | -0.33984 |
| 22   | -0.01103 | -0.04621 | -1.89054 | -0.01266 | -0.05845 | -2.27425 |
| 23   | -0.01401 | -0.06022 | -2.39975 | -0.01203 | -0.07049 | -2.16153 |
| 24   | -0.00939 | -0.06961 | -1.60898 | -0.01008 | -0.08056 | -1.80991 |
| 25   | 0.008185 | -0.06142 | 1.402365 | 0.006905 | -0.07366 | 1.240363 |
| 26   | -0.00425 | -0.06568 | -0.72834 | -0.00592 | -0.07958 | -1.06423 |
| 27   | 0.017439 | -0.04824 | 2.987743 | 0.018248 | -0.06133 | 3.277974 |
| 28   | -0.00194 | -0.05017 | -0.33161 | 0.000971 | -0.06036 | 0.174408 |
| 29   | -0.00083 | -0.051   | -0.1419  | -0.00121 | -0.06158 | -0.21812 |
| 30   | -0.00524 | -0.05624 | -0.89792 | -0.00558 | -0.06716 | -1.00308 |

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of -2.2742 (significant) and on 23rd day with an AR of -0.01203 with a t value of -2.1615 (significant). However, for the event date (0) we have noticed an AR of -0.001704639 with a t value of 0.306210995 which was not statistically significant.

Graph Showing the T Statistics

| Days   | F Critical | F Value (Sensex) | F Value (Nifty 50) | Results (Sensex) | Results (Nifty 50) |
|--------|------------|------------------|--------------------|-------------------|-------------------|
| 2018   |            |                  |                    |                   |                   |
| 3 Days | 19         | 2.502209         | 26.9048            | Accept            | Reject            |
| 7 Days | 4.283866   | 6.159686         | 12.59309           | Reject            | Reject            |
| 15 Days| 2.483726   | 4.245562         | 8.639349           | Reject            | Reject            |
| 30 Days| 1.860811   | 4.159753         | 8.601469           | Reject            | Reject            |
| 2017   |            |                  |                    |                   |                   |
| 3 Days | 19         | 3.624745         | 4.30493            | Accept            | Accept            |
| 7 Days | 4.283866   | 3.842108         | 5.010688           | Accept            | Reject            |
| 15 Days| 2.483726   | 2.161094         | 2.384943           | Accept            | Accept            |
| 30 Days| 1.860811   | 1.730083         | 1.893048           | Accept            | Reject            |
| 2016   |            |                  |                    |                   |                   |
| 3 Days | 19         | 1.035087         | 1.152567           | Accept            | Accept            |
| 7 Days | 4.283866   | 1.048691         | 1.071589           | Accept            | Accept            |
| 15 Days| 2.483726   | 0.308076         | 3.416714           | Accept            | Reject            |
| 30 Days| 1.860811   | 0.537634         | 318.3353           | Accept            | Reject            |
| 2015   |            |                  |                    |                   |                   |
| 3 Days | 19         | 4.511102         | 4.805787           | Accept            | Accept            |
| 7 Days | 4.283866   | 1.087847         | 1.28798            | Accept            | Accept            |
| 15 Days| 2.483726   | 1.337432         | 0.859698           | Accept            | Accept            |
| 30 Days| 1.860811   | 1.100772         | 0.90938            | Accept            | Accept            |
| 2014   |            |                  |                    |                   |                   |
| 3 Days | 19         | 1.224614         | 1.394374           | Accept            | Accept            |
| 7 Days | 4.283866   | 3.424955         | 3.334573           | Accept            | Accept            |
| 15 Days| 2.483726   | 1.769087         | 1.726916           | Accept            | Accept            |
| 30 Days| 1.860811   | 1.654208         | 1.613965           | Accept            | Accept            |
| 2013   |            |                  |                    |                   |                   |
| 3 Days | 19         | 2.556046         | 1.845635           | Accept            | Accept            |
| 7 Days | 4.283866   | 2.116109         | 1.961912           | Accept            | Accept            |
| 15 Days| 2.483726   | 1.115963         | 0.874328           | Accept            | Accept            |
| 30 Days| 1.860811   | 0.579196         | 0.589661           | Accept            | Accept            |
**Analysis for Sensex:**

In order to ascertain any significant difference between the pre-event window volatility in returns (+30 to -1) and post event window volatility in returns (+30 to 1) for 30, 15, 7 and 3 days event window F stats was run. It is evident from the above table No. 4.2 that for Sensex 2018 as the F value - 2.50220924 is less than the F critical two-tail value (19), we cannot reject the null hypothesis, meaning that there is no significant difference between pre-event window volatility in abnormal returns and post event volatility in abnormal returns. However, for 7 days, 15days and 30 days we can reject the null hypothesis as the as the F value is greater than the F critical two-tail value.

For year 2017, 2016, 2015, 2014, 2013, 2012 and 2009 we can reject the null hypothesis as the F value is less than the F critical two-tail value meaning that there is no significant difference between pre-event window volatility in abnormal returns and post event volatility in abnormal returns. For the year 2011 we found a significant difference in volatility for 3 days and 7 days event window and for 15days and 30 days we did not reject the null hypothesis as the as the F value is less than the F critical value. For the year 2010 for 3 days, 7 days and 15days event window we cannot reject the null hypothesis as the as the F value is less than the F critical two-tail value. However, we found a significant difference between pre-event window volatility in abnormal returns and post event volatility in abnormal returns for 30 days event window.

**Analysis for Nifty 50:**

It is evident from the above table No. 4.2 that for Nifty 50 for 3 days event window, as the F value 26.9048 which is greater than two-tail value (19), for 7 days the F value 12.59309 which is greater than two-tail value (4.283866), for 15 days the F value 8.639349 which is greater than two-tail value (2.483726) and for 30 days event window the F value 8.601469 which is greater than two-tail value (1.860811), therefore, we can reject the null hypothesis meaning that there is a significant difference between pre-event window volatility in abnormal returns and post event volatility in abnormal returns for the year 2018. For the year 2017, for 3 days and 15days event window, we cannot reject the null hypothesis as the as the F value is less than the F critical two-tail value. However, for 7 days and 30 days event window, we can reject the null hypothesis as the as the F value is greater than the F critical two-tail value. For year 2015, 2014, 2013, 2012 and 2009 we can reject the null hypothesis as the as the F value is greater than the F critical two-tail value.
meaning that there is no significant difference between pre-event window volatility in abnormal returns and post event volatility in abnormal returns. For the year 2011 for 3 days and 7 days event window we can reject the null hypothesis as the F value is greater than the F critical two-tail value. However, for 15 days and 30 days event window we cannot reject the null hypothesis as the as the computed F value is less than the F critical two-tail value. For the year 2010 for 3 days, 7 days and 15 days we cannot reject the null hypothesis as the F value is less than the F critical two-tail value. However, for 30 days event we can reject the null hypothesis as the F value (2.735303) is greater than the F critical two-tail value (1.860811).

Table No: 4.3. Table Showing T Status – Sensex And Nifty 50

| Days    | t Critical | t Value (Sensex) | t Value (Nifty 50) | Results (Sensex) | Results (Nifty 50) |
|---------|------------|------------------|--------------------|------------------|-------------------|
| 2018    |            |                  |                    |                  |                   |
| 3 Days  | 4.30265273 | -1.51665537      | 0.542907           | Accept           | Accept            |
| 7 Days  | 2.306004135| 1.039193872      | 0.820438           | Accept           | Accept            |
| 15 Days | 2.085963447| 2.15143779       | 0.933768           | Reject           | Accept            |
| 30 Days | 2.018081703| 2.049353654      | 0.929466           | Reject           | Accept            |
| 2017    |            |                  |                    |                  |                   |
| 3 Days  | 4.30265273 | -0.33649786      | -0.30319           | Accept           | Accept            |
| 7 Days  | 2.306004135| 1.720693378      | -1.68664           | Accept           | Accept            |
| 15 Days | 2.085963447| 0.865495505      | -0.90884           | Accept           | Accept            |
| 30 Days | 2.018081703| 0.807810234      | -0.99385           | Accept           | Accept            |
| 2016    |            |                  |                    |                  |                   |
| 3 Days  | 4.30265273 | 1.618414396      | 1.402979           | Accept           | Accept            |
| 7 Days  | 2.306004135| 2.63831966       | 2.698205           | Reject           | Reject            |
| 15 Days | 2.085963447| 1.93283816       | 1.918804           | Accept           | Accept            |
| 30 Days | 2.018081703| 1.817206878      | 1.137419           | Accept           | Accept            |
| 2015    |            |                  |                    |                  |                   |
| 3 Days  | 4.30265273 | -0.358986383     | -0.46759           | Accept           | Accept            |
| 7 Days  | 2.306004135| -0.50385436      | -0.68004           | Accept           | Accept            |
| 15 Days | 2.085963447| -1.944687376     | -2.00979           | Accept           | Accept            |
| 30 Days | 2.018081703| -0.680185868     | -0.71479           | Accept           | Accept            |
| 2014    |            |                  |                    |                  |                   |
| 3 Days  | 4.30265273 | 12.42892075      | 9.939211           | Reject           | Reject            |
| 7 Days  | 2.306004135| 1.404288835      | 1.603293           | Accept           | Accept            |
| 15 Days | 2.085963447| 0.555834747      | 0.648196           | Accept           | Accept            |
| 30 Days | 2.018081703| -0.203448641     | 0.393196           | Accept           | Accept            |
| 2013    |            |                  |                    |                  |                   |
| 3 Days  | 4.30265273 | 3.830604485      | 3.642551           | Accept           | Accept            |
| 7 Days  | 2.306004135| 1.658250368      | 1.707143           | Accept           | Accept            |
| 15 Days | 2.085963447| 0.543128149      | 0.582503           | Accept           | Accept            |
| 30 Days | 2.018081703| 0.423847536      | 0.502327           | Accept           | Accept            |
| 2012    |            |                  |                    |                  |                   |
| 3 Days  | 4.30265273 | 0.507806735      | 0.464279           | Accept           | Accept            |
| 7 Days  | 2.306004135| -0.345725003     | -0.38767           | Accept           | Accept            |
| 15 Days | 2.085963447| 0.218382626      | 0.09898            | Accept           | Accept            |
| 30 Days | 2.018081703| 0.276522302      | 0.138938           | Accept           | Accept            |
Analysis for Sensex:
In order to ascertain any significant difference between the pre-event window abnormal returns (-30 to -1) and post event window abnormal returns (+1 to +30) for 30, 15, 7 and 3 days event window student t test was run. It is evident from the above table No. 4.3 that for Sensex 2018 as the t value -1.51655378 which is less than the t critical two-tail value (4.30265273), we cannot reject the null hypothesis, meaning that there is no significant difference between pre-event window in abnormal returns and post event abnormal returns. However, for 7 days, the t value 1.039193872 which is less than the t critical two-tail value (2.018081703), we cannot reject the null hypothesis. For 15 days and 30 days we can reject the null hypothesis as the as the t value is greater than the t critical two-tail value meaning that there is a significant difference between pre-event window in abnormal returns and post event abnormal returns. For year 2017, 2015, 2013, 2012, 2011, 2010 and 2009 for 3 days, 7 days, 15 days and 30 days we cannot reject the null hypothesis as the as the t value is less than the t critical two-tail value meaning that there is no significant difference between pre-event window abnormal returns and post event abnormal returns. For year 2016, for 3 days, 15 days and 30 days we cannot reject the null hypothesis as the as the t value is less than the t critical two-tail value meaning that there is no significant difference between pre-event window abnormal returns and post event abnormal returns. However, for 7 days event window we can reject the null hypothesis as the as the t value is greater than the t critical two-tail value meaning that there is a significant difference between pre-event window abnormal returns and post event abnormal returns. For year 2014, for 7 days, 15 days and 30 days we cannot reject the null hypothesis as the as the t value is less than the t critical two-tail value meaning that there is a significant difference between pre-event window abnormal returns and post event abnormal returns. However, for 3 days event window we can reject the null hypothesis as the as the t value is greater than the t critical two-tail value meaning that there is a significant difference between pre-event window abnormal returns and post event abnormal returns.

Analysis for Nifty 50:
It is evident from the above table No. 4.3 that for Nifty 50, for 2018 as the t value 0.542907 which is less than the t critical two-tail value (4.30265273), we cannot reject the null hypothesis, meaning that there is no significant difference between pre-event window in abnormal returns and post event abnormal returns. However, for 7 days, the t value 0.820438, for 15 days t value is 0.933768 and for 30 days t value is 0.929466 which is less than the t critical two-tail value (2.018081703), (2.085963447) and (2.018081703) we cannot reject the null hypothesis meaning that there is a significant difference between pre-event window in abnormal returns and post event abnormal returns. Similarly for 2017, 2015, 2013, 2012, 2011, 2010 and 2009 for 3 days, 7 days 15 days and 30 days we cannot reject the null hypothesis as the as the t value is less than the t critical two-tail value meaning that there is no significant difference between pre-event window abnormal returns and post event abnormal returns.

| Days     | t Critical | t Value (Sensex) | t Value (Nifty 50) | Results (Sensex) | Results (Nifty 50) |
|----------|------------|------------------|-------------------|------------------|--------------------|
|          |            |                  |                   |                  |                    |
| 2011     |            |                  |                   |                  |                    |
| 3 Days   | 4.30265273 | 0.689660373      | 0.639114          | Accept           | Accept             |
| 7 Days   | 2.306004135| 0.6313223812     | 0.695924          | Accept           | Accept             |
| 15 Days  | 2.085963447| -0.134676315     | -0.05397          | Accept           | Accept             |
| 30 Days  | 2.018081703| 1.125957633      | 1.17168           | Accept           | Accept             |
| 2010     |            |                  |                   |                  |                    |
| 3 Days   | 4.30265273 | 0.713855218      | 0.703401          | Accept           | Accept             |
| 7 Days   | 2.306004135| 0.629322733      | 0.491538          | Accept           | Accept             |
| 15 Days  | 2.085963447| 0.544174008      | 0.863391          | Accept           | Accept             |
| 30 Days  | 2.018081703| 1.203229168      | 1.234927          | Accept           | Accept             |
| 2009     |            |                  |                   |                  |                    |
| 3 Days   | 4.30265273 | -0.218119821     | -0.22171          | Accept           | Accept             |
| 7 Days   | 2.306004135| -0.122043734     | -0.11262          | Accept           | Accept             |
| 15 Days  | 2.085963447| 0.7334799        | 0.894026          | Accept           | Accept             |
| 30 Days  | 2.018081703| 0.035476968      | 0.216914          | Accept           | Accept             |

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DISCUSSION AND CONCLUSION:

Union Budget has always been seen as a significant event which has influenced investors while investing in stock market as investors tend to hold or buy or sell and watch the budget for timing their investment decision. Therefore, the current empirical study “Impact of Union Budget on Indian Stock Market”, has been undertaken to investigate the impact of annual finance bill (union budget) and its impact on selected indices. In order to realise the stated objectives the researchers has collected the data from 1st January 2008 to 1st March 2018 from capitaline data base. An even study methodology has been employed to ascertain the abnormal returns (AR) and student t test has been used to test the significance. For this purpose of the study, the date on which finance bill was taken as the event date (t = 0) the 31 days enclosing the date of budget (i.e., t = -30, ........ 0, ........ +30) Is labelled as the event window. The sample in this study includes the data which is collected for this purpose was of BSE, NIFTY 50, NIFTY BANK, NIFTY METAL, NIFTY METAL BVRA, NIFTY MNC, NIFTY MEDIA, NIFTY PHARMA, NIFTY REALTY, NIFTY SHERIA, NIFTY FMCG and NIFTY IT. The current study revealed the following major findings: For SENSEX for the year 2018, the AR was significant for 10th day, and on the event day (0) AR was not significant. However, after the event (0) day 27th day, 5th day, 3rd day, 6th day and 23rd day was significant. For NIFTY 50, the AR was -0.001704639 with a t value of -0.306210995 was not statistically significant. However, after the event (0) day 27th day, 5th day, 1st day, 3rd day, 6th day, 22nd day, 23rd day and 26th day was significant. For NIFTY BANK, the AR was -0.00761 with a t value of 0.0060 with a t value of 0.1774 was not statistically significant. However, after the event (0) day 27th day, 5th day, 3rd day, 6th day, 23rd day was significant. For BSE 200, the AR of -0.0020 with a t value of -0.3554 was not statistically significant. However, after the event (0) day 27th day, 5th day, 1st day, 3rd day, 6th day, 22nd day and 23rd day was significant. For BSE 500, the AR of -0.00196 with a t value of -0.3526 was not statistically significant. However, after the event (0) day 27th day, 5th day, 1st day, 3rd day, 6th day, 22nd day, 23rd day and 24th day was significant. For NIFTY BANK, the reported AR was -0.001704639 with a t value of -0.306210995 and it was not statistically significant. However, after the event (0) day 5th day, 1st day, 3rd day, 6th day, 9th day, 23rd day was significant. For NIFTY MNC, the AR was significant for -3rd day, and on the event day (0) AR of -0.0127 with a t value of -0.1774 was not statistically significant. However, after the event (0) day 27th day, 5th day, 3rd day, 1st day, 22nd day and 23rd day was significant. For NIFTY METAL , the AR was significant for -7th day, 20th day, -10th day and -12th day and on the event day (0) AR of 6.0004 with a t value of 0.0366 was not statistically significant. However, after the event (0) day 5th day, 16th day, 22nd day and 26th day was significant. For NIFTY MEDIA, the AR was significant for -14th day and on -11th day, and on the event day (0) AR of -0.0060 with a t value of -0.6080 was not statistically significant. However, after the event (0) day, 5th day, 3rd day, 1st day was significant. For NIFTY PHARMA, the AR was significant for -26th day, and on the event day (0) AR of -0.02331 with a t value of -1.9845 was statistically significant. However, after the event (0) day, 5th day, 3rd day, 2nd day was significant. For NIFTY REALITY, the AR was significant for -10th day and -12th day, and on the event day (0) AR of -0.0097 with a t value of -0.61872 was not statistically significant. However, after the event (0) day, 5th day, 3rd day, 1st day was significant. For NIFTY SHERIA, on the event day (0) AR of -0.0020 with a t value of -0.3353 was not statistically significant. However, after the event (0) day, 5th day, 27th day, 3rd day, 1st day, 12th day and 22nd day was significant. For NIFTY FMCG, on the event day (0) AR of 0.00761 with a t value of 0.768820 was not statistically significant. However, after the event (0) day, 27th day, and 3rd day the AR was significant. For NIFTY IT, the AR was significant for -12th day, -16th day and on -8th day. On the event day (0) AR of 0.0019 with a t value of -0.22441 (not statistically significant). However, after the event (0) day, 14th day, and 3rd day the AR was significant.
BSE Sensex:
It is evident from the current study that the Budget (Annual Finance bill) had an impact on BSE index, as the Abnormal Returns (AR) were statistically significant on the event day for 2017, 3 days before event and one day after the event for 2016, 2 days before the event and 1 day after the event for 2015 and 1 day before the event for 2013. And the Budget had no impact on BSE index, as the Abnormal Returns (AR) were statistically not significant for all the observed event window of year 2014 (1) and 2014 (2). F test revealed a high degree of volatility in BSE for the period of 15 days event window in the years 2014 (2) and 2013, for the period of 7 days event window in the years 2017, 2016, 2015, 2014 (2) and 2013. And t stats revealed a high degree of volatility in BSE for the period of 15 days event window for 2015 and 2013, for the period of 7 days event window in the year 2014 (2). Therefore it is recommended to the participants such as Scalpers, Position traders, Day traders, Speculators, etc. to construct and protect their portfolios by considering the Annual Budget. Brokers and dealers should give calls to their clients either to hold or sell or buy stocks based on budget. Retail and individual investors should also take budget very cautiously as the evidence from the study shows that it is expected to increase the volatility of the stock prices on various benchmark indices in Indian stock market.

NIFTY 50:
It is evident from the study that the Budget (Annual Finance bill) had an impact on NIFTY 50 index, as the Abnormal Returns (AR) were statistically significant on the event day for 2017, 3 days before event and one day after the event for 2016, 2 days before the event and 1 day after the event for 2015 and 1 day before the event, on the day of the event and the day after the event for 2013. And the Budget had no impact on NIFTY 50 index, as the Abnormal Returns (AR) were statistically not significant for all the observed event window of year 2014(1) and 2014(2). F test revealed a high degree of volatility in NIFTY 50 for the period of 15 days event window in the years 2017, 2014(2) and 2013, for the period of 7 days event window in the years 2017, 2015, 2014(1), 2014(2) and 2013. And t stats revealed a high degree of volatility in NIFTY 50 for the period of 15 days event window for the year 2015 and 2013, for the period of 7 days event window in the years 2014(2) and 2013. Therefore it is recommended to the participants such as Scalpers, Position traders, Day traders, Speculators, etc., to construct and protect their portfolios by considering the Annual Budget. Brokers and dealers should give calls to their clients either to hold or sell or buy stocks based on budget. Retail and individual investors should also take budget very cautiously as the evidence from the study shows that it is expected to increase the volatility of the stock prices on various benchmark indices in Indian stock market.

The current study based on all the indices chosen for the purpose of the study revealed that pre-budget period, in short term (3days) the returns were higher than medium term (7 and 15 days event window), and long term (30 days event window) have higher returns than medium term (7 days and 15 days event window). Post-budget period, the returns became mixed depend upon the rigour of the budget (positive or negative) in medium term (7 and 15 days event window) and long term (30 days event window) as compared to short- term (3 days) i.e. short term period have higher returns or sometimes lower than medium (7 and 15days event window) and long term (30 days event window). The present event study shows that the annual finance bill (budget) do not have significant impact in long run. Apart from that the volatility on account of budget secession was significant only for the year 2018 taken up for the purpose of the study. It was worth to note that the volatility was significant only of the medium and long run.

The above study shows that Budget has an impact on Indian stock market and thus it is recommended to the market participants to construct and protect their portfolios by considering the Annual Budget as one of the major event. Brokers and dealers should give calls to their clients either to hold or sell or buy stocks based on budget. Retail and individual investors should also take budget very cautiously as the evidence from the study shows that it is expected to increase the volatility of the stock prices on various benchmark indices in Indian stock market. However, it is very important note that one significant observation is that in the post-budget event window (0 …….. +30 days), participants seem to be continuing to bear a very high degree of volatility, without any excess returns in reward. While this feature continues to exist, it may make sense for many investors to short sell index futures on budget date, and reduce their beta for a period of two or three months. Therefore, it is also recommended to the participants that they should invest more cautiously around the budget day as volatility in the market is high in short term during the budget announcement days. Yet another important factor to be noted in this context is that there is a degree of volatility in stock market over budget period but beyond seven days that volatility because of budget fades away and the market seems to absorb the information of annual fiancé bill within this phase itself and thereafter the daily return and the volatility on returns seems to be unaffected by the budget. It is also recommended to the policy makers, when markets are more volatile they
should monitor the market movements on a real time basis and take corrective measures.

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