

Market Efficiency of Indian Stock Market: A Study of Budget Announcement in Bombay Stock Exchange

¹Mitesh Patel, ²Dr. Munjal Dave, ³Dr. Mayur Shah

¹C U Shah University, Wadhwan, Gujarat, India

²Faculty of Mgt Studies, C U Shah University, Wadhwan, Gujarat, India

³Chimanbhai Patel Institute of Mgt & Research, Ahmedabad, Gujarat, India

Abstract

Market where all pertinent information is available to all participants at the same time, and where prices respond immediately to available information. In other words the current market price should reflect all publically available information. Under such conditions the current market price in any financial market could be the best unbiased estimate of the value of the investment. The present try to test the informational efficiency of the Indian Stock Market in the semi-strong form of efficient market hypothesis with respect to the information content of the event budget announcement for BSE 30 in the year 2016. The AARs, CAARs and t test were analysed to ascertain whether an opportunity was available to make above abnormal returns during the price adjustment period. AARs after the announcement day (except +3 day) are statistically not significant. The study reveals that the investors have not been able to earn abnormal returns in the study companies.

Keywords

Union Budget, Stock Market, Event Study, Abnormal Return

I. Introduction

The Government's economic policy might provide support or restrain an industry's development. For example, it can impose restrictive import quotas and/or tariffs, increase/decrease customs duty, favorable/unfavorable tax legislations, etc., which may substantially lessen or improve the profits of a particular industry (Fisher and Jordan, 1996). The movement of share price is unpredictable in any economy. In some studies micro economic variables like dividend per share, earning per share and book value per share have got importance in others macro variables like bank rate of interest, union budget, inflation rate and foreign currency have been highlighted. Hence annual budget is one such event which may have impact on stock market (Gurcharan and Salony, 2010).

The Union Budget of India also referred to as the Annual financial statement in the Article 112 of the Constitution of India, is the annual budget of the Republic of India. It is presented each year on the last working day of February by the Finance Minister of India in Parliament. The budget, which is presented by means of the financial bill and the Appropriation bill, has to be passed by the Houses before it can come into effect on April 1, the start of India's financial year. Does this publicly available information affect the security prices in the manner predicted by the Budget analysts? What is the speed of adjustment of security prices to Budget announcements? These are the questions which are investigated in this study. The efficient-market hypothesis (EMH) states that it is not possible for an investor to outperform the market because all available information is already built into all stock prices. Investors who agree with this statement tend to buy index funds that track the overall market performance. There are three major versions of the hypothesis, namely, "weak", "semi-strong", and "strong". The semi-strong form of the EMH claims both that prices reflect

all publicly available information and that prices instantly change to reflect new public information (Udhaya R, 2014).

II. Review of Literature

Md. Nezum and Mohammed Jashim (2014) tried to show the dividend scenario of the listed commercial bank of Dhaka Stock Exchange (DSE) from the fiscal year 2000 to 2013. In this context declaring dividends during the fiscal year 2012-2013 have been considered as the observation period and event study methodology has been used. The result by using event study methodology indicates that there is no effect of dividend announcement on stock prices over the observation periods. Józef Rudnicki (2012) studied the stock splits liquidity analysis of Warsaw Stock Exchange and the Vienna Stock Exchange. The main aimed at analyzing the implications of the split for market liquidity, i.e. whether there occurs an immediate effect following the split as well as whether this corporate event improves the level of market liquidity over long run. Study found a significant growth in the market liquidity of stock splitting firms over 36 months following the split for both capital markets what is indicative of lower transaction costs for investors.

P.Varadharajan and Dr. P Vikkraman (2011) try to explore the impact of budget on stock market volatility and analyses how returns vary with it. The main aim is to help investors gain knowledge about volatility present in different months, thereby they can invest cautiously. The study found that the values of co-efficient of variation and standard deviation pertaining to the market capitalization of NSE are slightly more volatile when compared to BSE. Hasan, M. S. B., Akhter, S., & Huda, H. A. E. (2012) investigated cash dividend announcement effect of the stocks traded in the Dhaka Stock Exchange from 2006 to 2010. It was found that in 2006, 2007 and 2009 market has reacted over the announcement in the event date. Some sectors like Food & Auxiliary, Fuel and Miscellaneous have impacted the market both in the event and post event date across the years considered.

Raja, M., & Sudhahar, J. C. (2010) attempted to test the efficiency of Indian stock market with respect to bonus issue announcement by IT companies. The results of the study showed that the security prices reacted to the announcement of bonus issue. Thus one can safely conclude from the foregoing discussions that the Indian capital market for the IT sector, in general, are efficient, but not perfectly efficient, to the announcement of bonus issue. Kumar, S., Mahadevan, A., & Gunasekar, S. (2012) used the event study methodology used to determine whether there is an abnormal stock price effect associated with an event. From the stock return behavior of 10 companies studied, the return behavior of only one company does not move with the market return. At the same time, the chance to earn abnormal return is found only in 3 companies. The announcement of results is said to have an impact only when there is an abnormal return after the announcement of dividend results.

Carroll Howard Griffin (2010) did the study on Abnormal Returns and Stock Splits: The Decimalized vs. Fractional System of Stock Price Quotes and found that According to the Positive Signaling Hypothesis, investors have normally seen stock splits as being a sign by company insiders of good things to come. Company executives foresee the stock price continuing to rise in the near future and feel the stock should be split. Docking, D. S., & Koch, P. D. (2005) examine whether investor reactions are sensitive to the recent direction or volatility of underlying market movements and found that dividend change announcements elicit a greater change in stock price when the nature of the news (good or bad) goes against the grain of the recent market direction during volatile times.

Below, S. D., & Johnson, K. H. (1996) examined the differential share price reaction to dividend increase and decrease announcements with respect to market phase and found that market phase has a significant impact on abnormal returns around the announcement, and it appears that more information is conveyed by dividend change announcements which run counter to market phase. The results are robust in that the conclusions are the same for both an analysis of the raw abnormal returns data, and for the FGLS regressions which control for possible confounding factors. Hussin, B. M., Ahmed, A. D., & Ying, T. C. (2010) focused on the announcement effect of both dividend and corporate earnings on stock prices to examine evidence of semi-strong form efficiency in Malaysian Stock Exchange. The study results support the information content of dividend theory that increasing dividend announcements, on an average, earn positive abnormal return, while decreasing dividend announcements are associated with negative abnormal return. Based on the market reaction to both dividend and earnings announcements, this study concludes that both dividends and earnings play a significant role as signaling effects of the future prospects of the firm, with the dividends effect proving to be significantly stronger than the earnings effect.

Mînjînă, D. I., & Reșceanu, O. (2008) focused on the announcements for acquisitions and takeover public offers for companies acting in the pharmaceutical and the aluminium sectors listed on the Romanian capital market. After testing the semi-strong form of the efficient market hypothesis in Romania, using the event studies technique for these announcements, the result was that the capital market in Romania is inefficient. Khan, A. Q., & Ikram, S. (2010) tested the efficiency of the Indian Capital Market in its semi-strong form of Efficient Market Hypothesis in relation to the impact of Foreign Institutional Investors (FII's). The results suggest that the FII's do have significant impact on Indian Capital Market, which leads to the conclusion that Indian Capital Market is semi-strong form efficient.

Gopaldaswamy, A. K., Acharya, D., & Malik, J. (2008) empirically investigated the differences in stock price reaction of target and acquiring companies due to merger announcements. Various event windows have been considered and compared to find out the period where the price run-up initiates. The result suggested an upward trend in cumulative abnormal returns for companies in the pre-announcement period which in turn is indicative of insider information or anticipation. In addition, the evidence also suggests that around the announcement period the returns for the acquiring companies are higher than those for the target companies. Elfakhani, S., & Lung, T. (2003) examined the market behavior surrounding stock split announcements in the Canadian market for

the 1977–1993 period and the effect of the 2-year before compared to the 2-year after the announcement. The study found that positive abnormal returns (AR) exist on both the announcement days (0,1) and the 11-day period surrounding stock split announcements and split event, bid-ask spreads decrease, while both trading volume and the number of transactions increase, thus suggesting that split events enhance liquidity.

III. Methodological Framework

In order to examine the impact of budget announcement on the stock prices, this paper analyzed the stock price behavior of the selected private banks surrounding 40 days of the date of budget announcement of Bombay Stock Exchange (BSE). This study wants to check the impact of 2015 budget announcement (29/2/2016) on stock price of BSE 30. In this regards event study methodology has employed. The event study methodology is well accepted and has been used in a variety of research such as examine return variances trading volume (Beaver, 1968, Patell, 1976, Campbell and Wasley, 1996). Event studies also serve an important purpose in capital market research as a way of testing market efficiency. Systematically nonzero abnormal security returns that persist after a particular type of corporate event are inconsistent with market efficiency. Accordingly, event studies focusing on long-horizons following an event can provide key evidence on market efficiency (Brown and Warner, 1980). The present study is based on secondary data relating to share prices, budget announcement dates and the value of index around these days. The data were obtained from "PROWESS" database maintained by Centre for Monitoring Indian Economy (CMIE). Additional information was obtained from Bombay Stock Exchange Official Directory and the BSE website. Extensive use of books, journals and magazines were made for collecting required background information. BSE 30 has been selected for all this period.

A. Event Study Methodology

In order to carry out an event study, the event date, event period and estimation period need to be determined. The event date ($t = 0$) in this study is the date of bonus announcement by the sample companies. The event window is set as 41 days and is considered as $t-20$ to $t+20$ relative to the event day $t = 0$. The estimation window is from $t-170$ to $t-21$ relative to the event day $t = 0$. Following are the steps of event study (Menike M.G.P.D & Wang Man, 2013).

Daily share return of each company is calculated according to the following equation.

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}} \quad (1)$$

Where,

R_{it} = Returns on Security i on day t

P_{it} = Price of the security i on day t

P_{it-1} = Price of the security at time t-i

Daily expected return is estimated using the Market Model for each share as follows.

$$E(R_{it}) = \alpha + \beta(rm) \quad (2)$$

Where,

$E(R_{it})$ = expected return on share i on day t

α = Alpha value

β = Beta value

rm = return on the market on day t

In order to test the market reaction to the announcement of abnormal return was calculated at the time of the announcement and before and after announcement.

$$AR_{it} = R_{it} - E(R_{it}) \quad (3)$$

Where,

AR_{it} = abnormal return on share i on day t

R_{it} = return on share i on day t

The Abnormal return is the percentage of change in share price below or above what would normally be expected to occur. To improve the informativeness of the analysis of abnormal returns, we average the ARs across the observations for all events,

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{it} \quad (4)$$

Where,

AAR_t = Average abnormal return at day t

AR_{it} = Abnormal return for share i at day t

N = number of events in the sample

In order to make generalizations and to draw on overall inference for the market reactions to earnings announcement, the cumulative abnormal returns was also analyzed for the 41-day event window,

$$CAAR_t = \sum_i^k AAR_t \quad (5)$$

Where,

$CAAR_t$ = Cumulative abnormal return of day t

$\sum_i^k AAR_t$ = Sum of Average abnormal return of day t_{-20} to t_{+20}

The statistical significance of AAR_t is measure through the student t statistic as specified below.

$$t(AAR) = \frac{AAR}{\frac{s}{\sqrt{n}}} \quad (6)$$

Where,

AAR_t = Average Abnormal Returns on day t,

$\frac{s}{\sqrt{n}}$ = Standard error

n = number of sample companies

B. Hypothesis of the Study

H01= There is no significant difference between AARs before and after issue of bonus announcement.

H02= There is no significance difference between CAARs before and after issue of bonus announcement.

IV. Results and Discussion

Below table presents the results obtained by computing the AARs and CAARs for the 30 companies' budget announcements. For each of the 41 days in the event window it reports the average abnormal returns (AARs) and cumulative average abnormal returns (CAARs). The AARs with their respective values along with their significance at 1 %, 5 %, and 10 % levels is analyzed for the above sample.

Table 1: AARs, CAARs and t-AARs of Budget Announcement

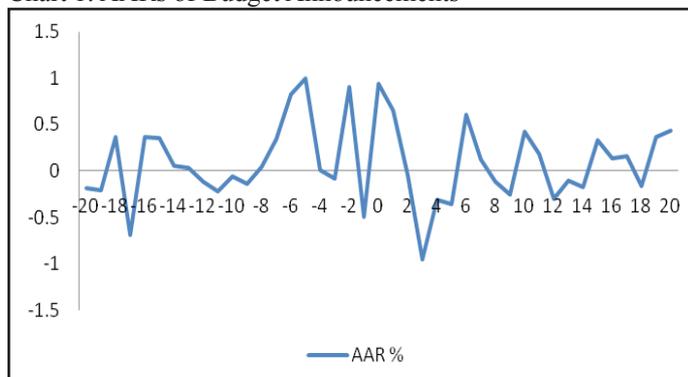
Days	AAR %	CAAR %	t-statistics	Days	AAR %	CAAR %	t-statistics
-20	-0.1867	-0.1867	-0.882	1	0.6467	3.6854	1.071
-19	-0.2066	-0.3933	-0.786	2	-0.0456	3.6398	-0.086
-18	0.3592	-0.0341	0.849	3	-0.951	2.6888	-2.308**
-17	-0.6927	-0.7268	-1.823***	4	-0.3141	2.3747	-0.795
-16	0.3591	-0.3677	0.876	5	-0.356	2.0187	-0.657
-15	0.3562	-0.0115	0.966	6	0.6095	2.6282	1.601
-14	0.0532	0.0417	0.526	7	0.1196	2.7478	0.316
-13	0.0362	0.0779	0.101	8	-0.1113	2.6365	-0.22
-12	-0.1109	-0.033	0.33	9	-0.2581	2.3784	-0.547
-11	-0.2152	-0.2482	0.91	10	0.4216	2.8	1.169
-10	-0.0574	-0.3056	1.21	11	0.1798	2.9798	0.406
-9	-0.1442	-0.4498	0.784	12	-0.2978	2.682	-0.812
-8	0.0473	-0.4025	0.124	13	-0.1073	2.5747	-0.702
-7	0.3434	-0.0591	0.65	14	-0.1777	2.397	-0.503
-6	0.8218	0.7627	2.442**	15	0.3289	2.7259	0.912
-5	0.9931	1.7558	2.222**	16	0.1403	2.8662	0.337
-4	0.0144	1.7702	0.028	17	0.1577	3.0239	0.437
-3	-0.0793	1.6909	-0.136	18	-0.1662	2.8577	-0.678
-2	0.8997	2.5906	1.468	19	0.3603	3.218	0.939
-1	-0.4933	2.0973	-1.34	20	0.4358	3.6538	1.531
0	0.9414	3.0387	1.795***				

* Significant at 1% level. ** Significant at 5% level. *** Significant at 10% level.

The event day generated an AAR of 0.9414 percent which was significant at 10 percent level. The AARs before announcement period from -20 days to -1 day are positive for 12 days out of 20 days and are negative for the other 8 days. The AARs are significant at 5 percent level consisting of positive returns of 0.82 percent on day -6 and 0.99 percent on day -5. On day -17 a negative return of 0.69 percent during the pre-announcement period which was significant at 10 percent level.

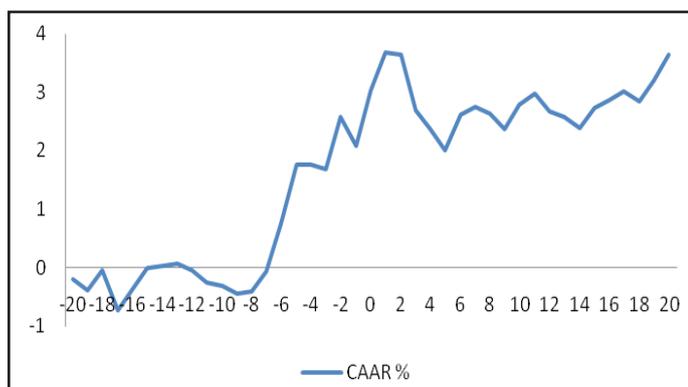
During the post event period there was no consistent pattern in the AARs. It was negative for 10 days out of 20 days and is positive for remaining days. AARs after the announcement day are not statistically significant except on day +3. It reveals that the investors did not have a chance to earn abnormal returns due to the event. Absence of statistical significance shows that among the companies studied no much of variations had occurred. The AARs consequent to budget announcement are presented graphically in Chart.1.

Chart 1: AARs of Budget Announcements



However, CAARs were positive for 30 days including the event day and negative for only 11 days during the event window. After -6th day, all the values of CAARs are positive. Subsequently the returns have remained static. The quickness with which price adjustment have taken place with reference to the study points to efficiency. The CAARs on budget announcements are presented graphically in chart 2.

Chart 2: CAARs of Budget Announcements



V. Conclusion

Efficient market emerges when new information is quickly incorporated into the price. The study was taken test the stock price reaction to information content of budget announcement with a view of examining whether the Indian Stock Market is efficient in semi strong form. AARs after the announcement day (except +3

day) are statistically not significant. It reveals that the investors have not earned abnormal returns in the sample companies. This is corroborated by the CAAR data as well. This implies that the level of efficiency of the stock market is high.

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Dr. Munjal Dave is currently Serving as an Assistant Professor at Faculty of Management Studies, C. U. Shah University, Wadhwan. He has published his Papers in National & International Journals of repute. He has presented research papers in National & International Conference at prominent B Schools. He has also attended several workshops, seminars, QIPs and FDPs held in prominent management institutions. He holds PhD in Management (Finance). His area of interest includes financial management, security analysis and portfolio management etc. Dr. Munjal Dave has more than 9 years of teaching experience as a finance area faculty.



Dr. Mayur Shah is a one of the leading professionals in management education with a distinguished academic and research career. An expert in the subject area of Security Analysis & Portfolio Management (Investments), Foreign Exchange (International Finance) and Derivatives & Risk Management. Dr. Mayur Shah has more than 11 years of teaching experience as a finance area faculty. He is currently a faculty member in finance area at Shri Chimanbhai Patel Institute of Management & Research, Ahmedabad. He is also a PhD Guide with Gujarat Technological University. His research interests include stock market, valuation, derivatives, foreign exchange and portfolio management. Dr. Shah is also involved in other activities like Curriculum Design, Consultancy. He is also advising many organizations on issues relating to foreign exchange risk management, export import management, portfolio management and security valuation. He has published more than 8 research papers at national as well as international level. He holds PhD in Management (Finance - Derivatives) from Ganpat University. He holds MBA in Finance from North Gujarat University.



Mr. Mitesh Patel has been a ranker during his MBA programme and has passed his MBA with distinction grades. He is a research scholar of C U Shah University, Wadhwan, Surendranagar. He is pursuing his doctorate in the field of Stock Market. He is a curious person to learn new things and wants to make significant contribution in the field of management education. He has also attended several workshops, seminars,

QIPs and FDPs held in prominent management institutions. security He has published his Papers in National & International Journals of repute like *International Research Journal of Finance and Accounting*, *IFRSA Business Review (IBR)*, *IUP Journal of Management Research*. He has won the best paper award in "RBCON-2012-National level Conference on Business strategies and India's economic growth. He has awarded first prize in paper presentation in the Category of Academic and Industry Delegates at the 19th Nirma International Conference on Management (NICOM 2016)