Efficiency of the Indian Stock Market : Analysis of Semi-Strong Form of Bonus Information

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Abstract

This paper tested the semi-strong form of efficiency of the Indian stock market on the basis of information relating to bonus announcements based upon the price reaction of stocks for a period of 10 years from 2003 - 2012. Event study methodology was applied, and an event window was constructed for a period of 41 days. The AARs and CAARs were analyzed by classifying the bonus issues into small and large sizes, to ascertain whether an opportunity was available to make abnormal returns during the price adjustment period. The results evidenced that the announcements of large size bonus were better than small size bonus announcements in terms of price adjustment indicating market efficiency in the semi strong form.

Keywords: **Efficient market hypothesis, bonus announcement, event study methodology, AAR, CAAR**

JEL Classification: C12, C20, G14

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The efficient market hypothesis (EMH) has been considered as one of the cornerstones of modern financial economics. Fama first defined the term "efficient market" in financial literature in 1965, as one in which security prices fully reflect all available information. A stock market is considered efficient if the reaction of market prices to new information is instantaneous and unbiased. Efficient market hypothesis is based upon the idea that information is quickly and efficiently incorporated into asset prices at any point in time and consequently, past prices cannot be used to predict future price movements since addition to existing information cannot be foreseen. Fama (1970) classified market efficiency into three different forms namely, weak form, semi strong form, and strong form based upon the nature of reflection of information in the share prices. Weak form of efficiency stipulates that current security prices reflect past price and volume information. The information contained in the past series of prices of a security is fully reflected in the current market price of that security, implying no above normal returns are possible based on the past price information or its trend. Semi-strong form of efficiency states that all publicly available information is immediately incorporated into security prices and hence is fully reflected in a security's current market price. The public information includes not only past prices but also information like data reported in a company's financial statements, company's financial operating and management related announcements, economic factors, and others. Strong form of efficiency stipulates that private information or insider information too, is quickly incorporated in the market prices and ,therefore, such information cannot be used to predict future prices.

Thus, all information, whether public or private, is fully reflected in a security's current market price and thus, information asymmetry cannot be a ground to anticipate future prices. The net effect of non-predictability of prices is that, it cannot be effectively used to earn profits through trading, exclusively by such information holders. In other words, if extra profits could not be earned by using such information, the market is efficient. If

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not, the market would not be efficient with respect to that information and the form. A bonus announcement is considered as one of the major corporate events in the stock market. It has its own impact on security prices in the market.

Bonus Issue

Many company related information, happenings, and announcements affecting its operations and finance would have its impact on the value through the market perception of such information. One such decision of a company is the announcement of bonus shares. Bonus shares are extra shares that are given by a company to its existing shareholders by way of distributing the accumulated free reserves. The purpose of the company issuing bonus shares is purported to reward or acknowledge the shareholders for being investors in the company by formally capitalizing the free reserves. Bonus issue increases the number of equity shares outstanding but has no effect on shareholders' proportional ownership of shares. If a company intends distributing accumulated reserves to its owners, it is done through a bonus issue, and it effectively transfers retained earnings into paid-up capital. Thus, it results in each shareholder holding a larger number of shares and with more stocks on issue, but their relative claim on the assets of the company remains the same. There is also no effect on the capital structure and the financial position of the company. The market perception of bonus information might be varying and situational. The market may view it as a sense of confidence of the management on the continued sustenance of higher dividend payout on the increased share capital, reflecting a high operational result. It is also seen as an effort by the management to better manage the book value, that is, the market value. The relationship between bonus announcements and share prices has been the subject of much of empirical discussion within financial literature.

The present study attempts to test the stock price reaction to information content of bonus announcement on the basis of the size with a view to examining whether the Indian stock market is efficient in its semi strong form.

Review of Literature

A number of studies have been made on testing the semi-strong form of efficient market hypothesis in relation to bonus issue announcements. A reference to these earlier studies will be relevant in the context of shaping the present study.

Researchers have shown earlier that the market generally reacts positively to bonus announcements. Fama, Fisher, Jensen, and Roll (1969), Ball, Brown, and Finn (1977), Foster and Vickrey (1978), Grinblatt, Masulis, and Titman (1984), Ramachandran (1985), Lijleblom (1989), McNichols and Dravid (1990), Obaidullah (1992), Srinivasan (1993), Rao (1994), Singh (1995), and Anderson, Cahan, and Rose (2001) in their studies have established this aspect.

Balachandran and Sally (2001) found that the magnitude of price reaction to bonus issue announcements is statistically related to the size of bonus issues and pre-announcement effect. Gupta (2003), in a study involving a sample of 145 bonus issues, examined the announcement effects of bonus issues on equity share prices in India. Based on the results, the study concluded that the Indian stock market was efficient in its semi-strong form. Mishra (2005) examined the reaction of the stock price to the information content of bonus issues and found that the stock starts showing positive abnormal returns 8 to 9 days before the announcement date. This could be due to the leakage of the informational content. This paper lends support to the hypothesis that the Indian stock market is efficient in its semi-strong form. Malhotra, Thenmozhi, and Arun Kumar (2007) examined the share price reaction to the announcement of bonus issue for a sample of Indian companies. Bonus issue announcement yielded negative abnormal returns around the announcement date. There was a negative reaction after the bonus issue announcement conveying that the market under reacts after the announcement. It was also observed that there is no information leakage prior to the announcement.

Shirur (2008) revealed that the top management of the companies decides to issue bonus shares when the investors undervalue the company while they go for a stock split when the investors overvalue the company for a

long time, and the promoters have to step in to correct these anomalies. Lasfer (2011) assessed the market valuation of an unusual form of free stock distributions called bonus issues, which are mainly financed by the revaluations of assets equity reserve in an inflationary economic setting. They detected positive excess return on the announcement day for these bonus issues similar to the market reaction to stock dividends and splits in developed and emerging markets. Ray (2010) concluded that the Indian stock market is efficient in its semi-strong form with respect to bonus issue announcements only.

Ghatak (2011) revealed that there was a positive abnormal return of 2.08% with a confidence level of 90% on the event date, which is the bonus issue announcement date. The market reacted positively on the announcement date and after that, there was a mixed reaction in the market. Therefore, this evidence strongly confirms that the Indian stock market is efficient in its semi strong form of efficient market hypothesis. Sujith Kumar and Sadanand (2011) examined the semi-strong form of market efficiency by considering market response to a bonus announcement. The results of the study showed the fact that the security prices reacted to the announcement of bonus.

Objectives of the Study

The main objectives of the present study are :

(1) To study the stock returns on bonus announcement for selected companies on the basis of their size.

(2) To test the persistence of effect of bonus announcement on stock returns of the selected companies on the basis of their size.

Data Collection and Methodology

The present study aims to test the semi-strong form of efficiency of the Indian stock market with respect to information content of bonus announcements, and the study considers a period of 10 years from 2003-2012. The present study is based upon secondary data relating to share prices and the value of index around the bonus announcement dates. The data were obtained from "PROWESS" database maintained by Centre for Monitoring Indian Economy (CMIE). Additional information was obtained from the Bombay Stock Exchange Official Directory and the BSE website.

The present study comprises of companies that announced a bonus during the study period. The criteria for selection of companies for analysis were based on bonus announcement exclusively. During the study period, a total of 84 companies had announced bonus share issues, out of which 24 companies clubbed bonus issue announcement with other major events like stock splits (10), dividend (7), and periodical operating results (7). These companies were not considered for this study, since a combination of events is likely to have a combined impact on market values and hence, the impact of bonus issues could not be analyzed exclusively. Other than these, 26 other companies were eliminated due to non-availability of share price data within the period either before or after the announcement and during the event window. Hence, this study relates to the remaining 34 companies which constitute the sample as detailed in the Table 1.

Event Study Methodology : An event study is an empirical analysis that is used to assess the effect of an event on stock returns. The earlier studies applying event study method were taken up by Sharpe (1963), Ball and Brown (1968), Fama et al. (1969), Brawn and Warner (1985), Henderson Jr. (1990). The announcement effect on the price was calculated by using the standard market model under the event study methodology (MacKinlay, 1997).

According to the efficient market hypothesis, the impact of an event will be immediately reflected on the share price of a firm. An event is a corporate event announcement that is likely to have an effect on the share price of the

Table 1. Selection of Companies Announcing Bonus Issue

Sl. No.	Particulars	No. of Sample Companies	% of Sample Companies
1	Total companies announcing bonus issue during the study period.	84	100%
2	Bonus announcements clubbed with other announcements (periodical operating results, rights issue, stock splits, merger and acquisitions) and hence, eliminated.	24	29%
3	Non-availability of data & information and hence, eliminated.	26	31%
4	**Number of Companies Selected**	**34**	**40%**

Source: Computed from "PROWESS" database

firm like bonus, rights, dividend, financial results, stock splits, merger and acquisition, earnings announcement, and so forth since they constitute important information. The main purpose of an event study is a systematic way of analyzing the behaviour of share prices around the event.

This study, in order to examine the impact of bonus announcement on stock returns, uses the event study methodology to estimate the normal return for security.

↳ **Stage 1:** In order to carry out an event study, the event date, event period, and estimation period needs 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 comprises of 20 days before the event (t -20) to 20 days after the event ($t + 20$) relative to the event day $t = 0$. In order to eliminate the effects of market variations, the changes in the market value over a past period need to be estimated. For this purpose, the estimation window is set as 150 days prior to the event day that is from t-170 to t-21, where $t = 0$.

Return on security *'j'* in period *'t'* is given by :

$$R_{jt} = (P_{jt} - P_{jt\text{-}1}) / P_{jt\text{-}1} \qquad \ldots (1)$$

where,
R_{jt} is return of security *'j'* at day *'t'*,
P_{jt} is price of security *'j'* at day *'t'*,
$P_{jt\text{-}1}$ is price of security *'j'* at previous day observed.

↳ **Stage 2:** For determining the market returns, the BSE-500 index returns were taken as the proxy for the market. The rate of return is calculated as :

$$R_{mt} = (P_{mt} - P_{mt\text{-}1}) / P_{mt\text{-}1}$$

↳ **Stage 3 :** The expected return which would be the returns on the stock eliminating the general economic and market related effects during the event window is calculated adopting the market model. Using the market model is calculated as normal returns and abnormal returns are computed. The returns of 150 days during the estimation window of the respective shares were regressed against the BSE-500 index returns to determine the 'constant' and the regression 'co-efficient'. The following equations are used :

$$R_{jt} = \alpha_j + \beta_j R_{mt} + E_{jt} \qquad \ldots (2)$$

where,
R_{jt} is the daily return security *'j'* at day *'t'*,
R_{mt} is the daily return on BSE index at day *'t'*,
α_j, β_j is the regression intercept and slope coefficient estimators respectively,

E_{jt} is the error term of the stock *'j'* on the day *'t'*.

The expected return is the estimated return which is calculated by using regression analysis. The expected return on a security for a day is defined as :

$$ER_{jt} = \alpha_j + \beta_j R_{mt} \quad \ldots (3)$$

where,
ER_{jt} is expected return on security *'j'* at day *'t'*,
α_j, β_j are the regression estimated from the equation (2).

↳ **Stage 4:** Abnormal returns are obtained as the difference between actual returns of a company on a day and the expected return generated by the selected market index according to the market model (equation 3). The abnormal return during the event window is calculated as:

$$AR_{jt} = R_{jt} - ER_{jt} \quad \ldots (4)$$

where,
AR_{jt} is abnormal return of security *'j'* at day *'t'*,
R_{jt} is the actual return of security *'j'* at day *'t'*,
ER_{jt} is the expected return of security *'j'* at day *'t'*.

The average abnormal return has been computed by averaging the abnormal returns of all the securities of the select companies for each day of an event period. The average abnormal returns (AARs) are used to analyze the impact of information content of bonus issue announcements. The average abnormal returns (AARs) of various securities on a particular event day *'t'* are calculated as:

$$AAR_t = \frac{1}{N}\sum_{j=1}^{N} AR_{jt} = (AR_{j1} + AR_{j2} + AR_{j3} + \ldots\ldots + AR_{j0})/N \quad \ldots (5)$$

where,
'N' denotes the number of securities.

The cumulative average abnormal return (CAARs) has been computed by cumulating the daily average abnormal returns for the entire event period. It is used to analyze the adjustment of prices to new information. The cumulative average abnormal returns (CAARs) are the sum of daily average abnormal returns (AARs) during the event window.

$$CAAR_t = \sum_{t-k}^{+k} AAR_t \quad \ldots (6)$$

where,
-k to *+k* denotes -20 to +20 days during the event window.

↳ **Stage 5:** The average abnormal returns and cumulative average abnormal returns in all the trading days in the event window are analyzed by using the *'t'* test to identify whether they are significantly different from zero, implying an opportunity to book abnormal returns.

Analysis and Results

An analysis of the impact of bonus issue announcement was made to find out whether the efficiency was different

when the entire sample is categorized on the basis of the size of the bonus issue. The study companies were divided into two categories in accordance with bonus size namely, small sized (less than 100%) and large sized (100% and more). Out of the total 34 selected companies, 13 companies come under the small-sized bonus announcement, and 21 companies come under the large-sized bonus announcement. The results of the analysis and classification are shown in the Table 2.

Table 2. Impact on Share Prices Based on Size of Bonus Issue Announcements

Particular		Bonus Size			
		Small Size		Large Size	
		No. of Companies	%	No. of Companies	%
Companies having positive	Significant*	-	-	6	29
AAR during event window	Insignificant	7	54	7	33
Companies having negative	Significant*	-	-	1	5
AAR during event window	Insignificant	6	46	7	33
Companies having positive AR on announcement date		11	85	12	57
Companies having negative AR on announcement date		2	15	9	43
Total		**13**	**100**	**21**	**100**

*Significant at < 10% Source: Computed from Bonus data in "PROWESS" Database.

Table 3. AARs and CAARs of Small Size Bonus Announcements (Less than 100%)

DAYS	AAR	*t*-statistics	*P*-Value	CAAR	*t*-statistics	*P*-Value	DAYS	AAR	*t*-statistics	*P*-Value	CAAR	*t*-statistics	*P*-Value
-20	**-0.7510**	**-2.993**[b]	**0.011**	**-0.7510**	**-2.993**[b]	**0.011**	1	-0.0309	-0.034	0.973	**7.2073**	**2.940**[b]	**0.012**
-19	0.4138	1.136	0.278	-0.3371	-0.897	0.388	2	-0.8723	-1.027	0.325	**6.3351**	**2.554**[b]	**0.025**
-18	0.3285	0.345	0.736	-0.0087	-0.008	0.993	3	-0.5222	-0.908	0.382	**5.8129**	**2.189**[b]	**0.049**
-17	-0.8559	-1.517	0.155	-0.8646	-1.012	0.331	4	-0.5254	-1.233	0.241	5.2875	1.975	0.072
-16	0.0804	0.180	0.860	-0.7841	-0.830	0.423	5	-1.0354	-1.453	0.172	4.2522	1.703	0.114
-15	0.3963	0.514	0.617	-0.3878	-0.320	0.754	6	0.5645	0.604	0.557	4.8167	1.800	0.097
-14	0.1913	0.173	0.865	-0.1965	-0.112	0.913	7	-0.1355	-0.226	0.825	4.6812	1.713	0.112
-13	-0.6777	-1.253	0.234	-0.8742	-0.521	0.612	8	0.5671	0.482	0.639	5.2482	1.862	0.087
-12	0.4702	0.750	0.468	-0.4040	-0.210	0.837	9	-0.2730	-0.333	0.745	4.9752	1.794	0.098
-11	0.3511	0.616	0.550	-0.0529	-0.026	0.980	10	0.0693	0.113	0.912	5.0445	1.854	0.088
-10	**2.0580**	**2.321**[b]	**0.039**	2.0051	0.954	0.359	11	-0.8008	-1.661	0.123	4.2437	1.730	0.109
-9	-1.2027	-1.774	0.101	0.8025	0.369	0.718	12	0.1331	0.243	0.812	4.3768	1.731	0.109
-8	0.0074	0.012	0.991	0.8099	0.360	0.725	13	-0.6543	-1.853	0.089	3.7225	1.420	0.181
-7	-0.3155	-0.511	0.618	0.4944	0.206	0.840	14	-0.3140	-0.669	0.516	3.4085	1.285	0.223
-6	**1.4737**	**2.616**[b]	**0.023**	1.9681	0.803	0.438	15	0.1527	0.207	0.840	3.5612	1.227	0.243
-5	2.1117	1.421	0.181	4.0798	1.700	0.115	16	-0.0784	-0.168	0.869	3.4829	1.174	0.263
-4	-0.3845	-0.821	0.427	3.6953	1.525	0.153	17	0.7967	1.452	0.172	4.2796	1.368	0.197
-3	-0.3647	-0.569	0.580	3.3306	1.488	0.163	18	0.1899	0.275	0.788	4.4695	1.341	0.205
-2	1.6669	1.701	0.115	**4.9975**	**2.298**[b]	**0.040**	19	0.1693	0.313	0.760	4.6389	1.455	0.171
-1	-0.1944	-0.306	0.765	4.8031	1.882	0.084	20	0.8902	1.491	0.162	5.5290	1.772	0.102
0	**2.4351**	**2.526**[b]	**0.027**	**7.2382**	**3.051**[b]	**0.010**							

Note : a and b denote significance level at the 1% and 5%

It can be seen from the Table 2 that seven of the selected companies (54%) which made small size bonus announcements have a positive return, and six of the companies (46%) have negative returns, which are not statistically significant during the event window. On the announcement date of companies which made small size bonus announcements, 11 of the study companies (85%) have positive returns and two of the study companies (15%) have negative returns.

In the case of share price performance of companies which made large size bonus announcements, it is observed that six of the study companies (29%) have positive abnormal returns, and one company (5%) has negative abnormal returns, which are statistically significant during the event window. On the other hand, seven each of study companies (33%) have positive and negative returns during the event window, but the same are not statistically significant. On the announcement date with regard to this group, 12 of the study companies (57%) have positive returns and nine of the study companies (43%) have negative returns.

The average abnormal return is calculated for the share price reaction of 13 companies which announced small sized (less than 100%) bonus during the event window of 41 days (*t*- 20 to *t* +20 including event day). To know the persistent effect of information on the price, the cumulative average abnormal returns were also calculated. To ascertain the statistical significance, the *t* - test was conducted, and the results are shown in the Table 3.

The Table 3 shows the AARs for small size (less than 100%) bonus announcement of the selected companies along with *t* - test statistics. It can be seen that on the event day, an AAR of 2.43% is earned, and the rate of return also is comparatively high and is significant at the 5% level. It is also seen from the *t* - test that the bonus announcement generated significant reaction in the share prices of the sample companies at two levels, 1% and 5% levels of significance. It shows that the market viewed the small size bonus announcement positively.

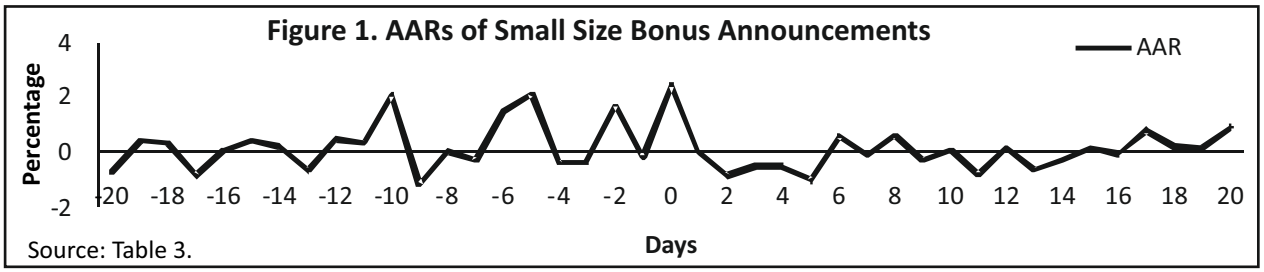
The AARs in the pre-announcement period of the event window, that is, from *t* - 20 to *t* - 1 days are positive for 12 days out of 20 days and are negative for the other 8 days. They ranged from a lowest value of -1.20% on day -9 to the highest value of 2.11 % on day -5. The AARs are statistically significant during 3 days only at the 5% level of significance - they are a negative 0.75% on day -20, positive 2.06% on day -10, and a positive 1.47% on day -6. In the pre-event window period, the positive average abnormal returns are more than 2% on 2 days with 2.11% on day -5 and 2.06% on day -10. The average abnormal returns are more than 1% on 2 days with 1.67% on day -2 and 1.47% on day -6. During the other days, the AARs are less than 1%. During the post-event announcement period of the event window, the AARs are positive during 9 days and negative for the remaining 11 days. They ranged from the lowest value of -1.03 % on day 5 to the highest value of 0.89 % on day 20.

The CAARs on the bonus announcement of small size (less than 100%) during the pre-event window shows that on 10 days, the CAAR is negative and on 10 days, it is positive, indicating the positive reaction of the market due to information leakage of issue of bonus shares. The CAARs during the pre-announcement periods are statistically significant only on 2 days, having a positive return of 4.99% on day -2 and negative return of 0.75% on day -20 at the 5% level. The CAAR on the event day is 7.24%, which is a major increase, and it is significant at the 5% level. During the post-event period, the CAAR is positive on all the days. The CAAR results are significant at the 5% level only on 3 days.

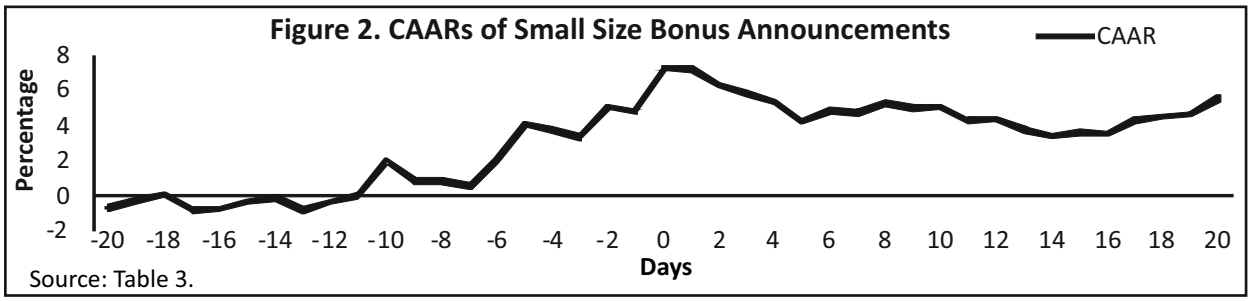
It indicates a positive impact of bonus issues on the share prices and a quick adjustment in prices since the prices leveled from day 5 onwards. In spite of the fact that the CAARs around the event day are positive and statistically significant at the 5% level, the prices got adjusted in 3 days after the announcement, and hence, the possibility of making abnormal returns on a sustainable manner is doubtful. However, by conducting a stricter test at the 1% significant level, no CAAR is statistically significant throughout the event window, thereby supporting the semi-strong form of efficiency of the market.

The average abnormal returns (AARs) and cumulative average abnormal returns (CAARs) of bonus issues for small sized (less than 100%) announcements are presented graphically in Figure 1 and Figure 2 respectively. It can be inferred from the Figures that the volatility was present in the pre-event window, but once the price got adjusted based on this new information over a period of 8 days (from -6 to 1), it remained stable, indicating the existence of semi-strong form of efficiency.

In the analysis of the share price reaction of 21 companies which made large sized bonus announcements (100% and more) during the event window of 41 days (*t* - 20 to *t* + 20 including event day), the average abnormal



Source: Table 3.



Source: Table 3.

return was calculated, and to know the persistency of effect of information on the price, the cumulative average abnormal returns (CAARs) were also calculated. To know the statistical significance, the *t* - test was calculated, and the results are provided in the Table 4.

The Table 4 shows that for 20 days before the announcement date, there is no consistent pattern of average abnormal returns (AARs) of the companies which made large sized (100% and more) bonus announcements. It is clearly understood from the Table 4 that AAR of 0.66% on the event day occurred, which is not statistically significant. It means that the announcement had an impact on the price positively, but there was no scope for booking an abnormal return.

The AARs during the pre-announcement period (t-20 to t-1 day) are positive for 16 days out of 20 days and are negative for 4 days. During the pre-announcement period, the AARs range from the lowest value of -0.68% on day -1 to the highest value of 2.36% on day -6. The positive AARs during the pre-announcement period are returns of 2.36% followed by returns 1.92%, 1.30%, 0.75%, 0.54%, 0.53%, 0.48%, 0.45%, 0.44%, 0.42%, 0.42%, 0.29%, and 0.26% during the days -6, -5, -9, -7, -18, -16, -13, -11, -10, -2, -15, -14, and -4 in the pre event window period. The negative AARs are returns of -0.59% on day -19, -0.59% on day -17, -0.68% on day -1, and -0.09% on day -12 in the pre-event announcement period. The AAR is significant at the 5% level when it is positive 1.30% on day -9. On the other days during the pre-announcement period, there is no statistical significance in the abnormal returns to the investors of the selected companies.

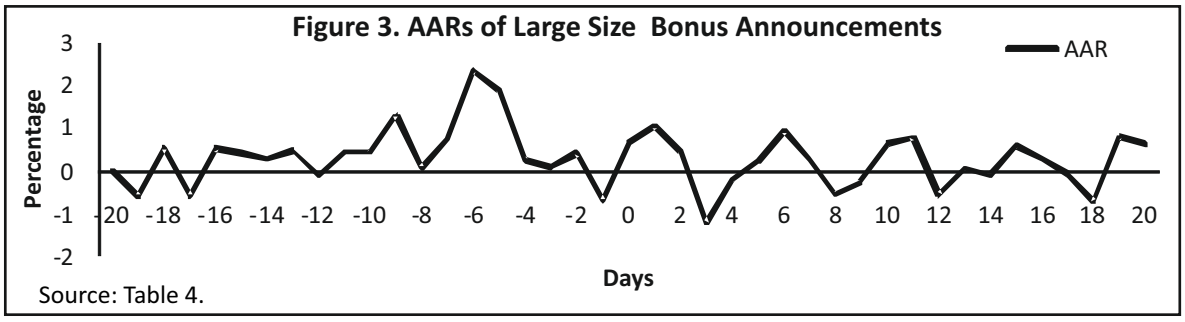
During the post-announcement period, for 12 days, the AARs are positive, and for 8 days, the returns are negative. The average abnormal returns during the post-event announcement period range from the lowest value of -1.22% on day 3 to the highest value of 1.07% on day 1. The positive AARs during the post-announcement period are on day 1, followed by days 6, 19, 11, 20, 10, 15, 2, 7, 16, and 5 with AAR value of 1.07%, 0.96%, 0.79%, 0.64%, 0.64%, 0.58%, 0.47%, 0.28%, 0.27%, and 0.23% respectively. The negative AARs during the post-announcement period are 1.22%, 0.71%, 0.56%, 0.53%, 0.25%, and 0.18% in the days 3, 18, 12, 8, 9, and 4 respectively. The AAR which is negative on day 3 (-1.22%) is significant at the 5% level. On the remaining days after the announcement date, there is no significant abnormal return.

With respect to CAARs of large size (100% and more) bonus announcements, during the pre-event window, CAAR is negative for 4 days and on 16 days, it is positive. It indicates the positive reaction of the market in anticipation to bonus shares. The event day CAAR is positive 9.05%, but this is not significant. During the pre-announcement period, the CAARs range from a low of -0.64% on day -17 to a high of 9.06% on day -2. The CAARs in the pre- announcement period are positive for 16 days, and the highest positive returns of 9.06% are observed on day -2 followed by returns which are more than 8% on 4 days : 8.64% on day -3, 8.54% on day -4,

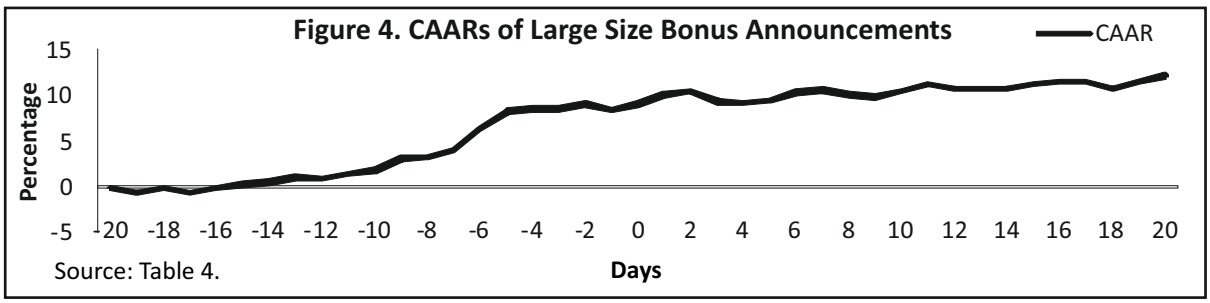
Table 4. AARs and CAARs of Large Size Bonus Announcements

Days	AAR	*t*-statistics	*p*-value	CAAR	*t* - statistics	*p* - value	Days	AAR	*t*-statistics	*p*-value	CAAR	*t*-statistics	*p*-value
-20	0.0008	0.002	0.999	0.0008	0.002	0.999	1	1.0661	1.319	0.202	10.1119	1.804	0.086
-19	**-0.5906**[c]	**-1.735**	**0.098**	-0.5899	-0.893	0.382	2	0.4661	0.701	0.491	10.5779	1.858	0.078
-18	0.5402	0.811	0.427	-0.0497	-0.052	0.959	3	**-1.2165**	**-2.145**[b]	**0.044**	9.3615	1.659	0.113
-17	-0.5916	-1.147	0.265	-0.6413	-0.556	0.584	4	-0.1833	-0.311	0.759	9.1781	1.635	0.118
-16	0.5316	0.873	0.393	-0.1098	-0.097	0.924	5	0.2264	0.524	0.606	9.4045	1.598	0.126
-15	0.4170	0.821	0.421	0.3072	0.329	0.746	6	0.9612	1.613	0.123	10.3657	1.707	0.103
-14	0.2910	0.720	0.480	0.5982	0.666	0.513	7	0.2775	0.559	0.583	10.6432	1.693	0.106
-13	0.4781	1.049	0.307	1.0763	1.020	0.320	8	-0.5312	-1.396	0.178	10.1120	1.584	0.129
-12	-0.0984	-0.223	0.826	0.9779	0.723	0.478	9	-0.2489	-0.424	0.676	9.8631	1.507	0.148
-11	0.4549	0.690	0.498	1.4328	0.906	0.376	10	0.6398	1.421	0.171	10.5029	1.618	0.121
-10	0.4379	0.712	0.485	1.8707	1.072	0.297	11	0.7868	1.262	0.221	11.2896	1.667	0.111
-9	**1.3017**	**2.751**[b]	**0.012**	3.1724	1.524	0.143	12	-0.5646	-1.155	0.262	10.7250	1.544	0.138
-8	0.0719	0.149	0.883	3.2443	1.535	0.140	13	0.0694	0.165	0.871	10.7945	1.485	0.153
-7	0.7514	0.984	0.337	3.9957	1.563	0.134	14	-0.0934	-0.186	0.854	10.7011	1.426	0.169
-6	2.3611	1.812	0.085	6.3568	1.783	0.090	15	0.5836	0.976	0.341	11.2847	1.428	0.169
-5	1.9196	1.665	0.111	8.2764	1.951	0.065	16	0.2757	0.447	0.660	11.5605	1.401	0.176
-4	0.2613	0.328	0.746	8.5377	1.987	0.061	17	-0.0760	-0.085	0.933	11.4845	1.310	0.205
-3	0.0974	0.113	0.911	8.6351	1.767	0.093	18	-0.7105	-0.927	0.365	10.7740	1.198	0.245
-2	0.4247	0.540	0.595	9.0599	1.708	0.103	19	0.8024	0.878	0.390	11.5764	1.301	0.208
-1	-0.6784	-1.490	0.152	8.3814	1.541	0.139	20	0.6403	0.921	0.368	12.2167	1.347	0.193
0	0.6643	0.637	0.531	9.0457	1.667	0.111							

Note : [a] and [b] denotes significance level at 1% and 5%



Source: Table 4.



Source: Table 4.

8.38% on day -1, and 8.28% on day -5, and other returns are 6.36%, 3.99%, 3.24%, 3.17%, 1.87%, 1.43%, 1.08%, 0.98%, 0.59%, and 0.31% during days -6, -7, -8, -9, -10, -11, -13, -12, -14, and -15 respectively in the pre-event window. The negative CAARs during the pre-announcement period on 4 days are : -0.64% on day -17, -0.59% on day -19, -0.11% on day -16, and -0.05% on day -18. However, on the announcement day, that is, the event day, there is an increase in CAAR from 8.38% on day -1 to 9.05%.

During the post-announcement period, on all the days from $t+1$ to $t+20$, the CAAR is positive. The positive CAARs range from a low of 9.18% on day 4 to a high of 12.22% on day 20 in the post-announcement period. However, on all days, the CAARs are not statistically significant, and no abnormal returns are earned by the investors. The absence of statistically significant positive CAARs throughout the event window supports the semi-strong form of efficiency of the market.

The average abnormal returns (AARs) and cumulative average abnormal returns (CAARs) of bonus issues for large sized (100% and more) announcements are presented graphically in Figure 3 and Figure 4 respectively. Volatility is witnessed in prices around the bonus issue announcement, especially from day -6, which means a scope was available to formulate a strategy to book profits. However, from the CAAR curve, it is seen that there is persistency in price change, and the market absorbed the information in a matter of few days, which indicates efficiency in the semi-strong form.

A comparison between the behaviour of the prices categorized based upon the size of bonus issue shows that the impact and persistency of change has been more positive and pronounced in the case of large-sized bonus issues.

Conclusion

The present study was taken up to test the stock price reaction to bonus announcements based on the size with a view of examining whether the Indian stock market is efficient in the semi-strong form. It is observed that the market reacted positively to small and large size bonus announcements with a positive AAR on the event day. The CAAR on the event day was also positive for small and large size bonus announcements. It was also found that large sized bonus announcements were better than the small size bonus announcements. The study evidenced supportive results to the semi-strong form of market efficiency in the Indian stock market during the study period both under small and large size bonus announcements.

Implications

Previous studies conducted in this area focused on bonus announcements as a whole and size wise analysis was not attempted. The present study has revealed the differences in the results when the sample varies size-wise and the same differences were identified when compared with earlier studies. The study has revealed that the information content is present and the bonus announcements impact the prices of the stocks in the Indian stock market.

Limitations of the Study and Scope for Further Research

The study is based on secondary data; it is beset with certain limitations, which are bound to arise while dealing exclusively with secondary data. The date of board meeting is taken as the announcement date of corporate events. Any pre-disposition in the form of information leakage through any other sources was not considered.

Moreover, tracing the exact day of informal information release is practically not possible. The present study tested the semi-strong form of market efficiency of the Indian stock market with the help of event study methodology by focusing on bonus annulments. Study of the market reaction to the rights issue, stock splits, capital expenditure, employee stock option, annual general meetings, increasing authorized capital, preference

shares events would give scope for further research to enhance the quality of the existing literature on stock market efficiency. Apart from the individual announcements, the effect of clubbing of information announcements may also be examined by researchers in future studies.

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