
Reaction of Share Price and Trading Liquidity to Announcement of Stock Dividends

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ABSTRACT

Stock Dividends being purely a redistribution of funds between reserves and paid up share capital does not affect the firm's net worth, and should therefore have no impact on share prices and trading volume. This has been supported by the findings of some empirical studies but a number of studies have also shown a positive relationship between bonus issue announcements and the share prices. The lack of conclusive evidence for the same prompted the present study. The study provided evidence of the signaling hypothesis as a significant positive abnormal return of 1.983% was found on announcement day.

INTRODUCTION

The goal of corporate entities is to maximize the shareholders' wealth through their financial decisions. An important decision taken by managers is whether or not to capitalize the reserve by issuing bonus shares. But the question arises whether issuing the bonus shares would essentially create value for the shareholders or not. Although academic theories suggest that announcement of bonus issue should have no impact on shareholders value in the absence of taxes and market imperfections, a number of empirical studies have shown that market valuation of stocks gets affected by the announcement of bonus issue. The findings of these studies support the signaling hypothesis according to which companies pay stock dividends to their shareholders so as to signal information about the future earnings prospects. This results in a price increase after the announcement of the event. Other studies suggest that any positive impact of bonus issue on share prices is due to the attention-seeking hypothesis, which suggests that managers use bonus issue to attract attention from professional analysts and to trigger a revaluation of their future cash flows. Thus it is argued that the issue of bonus shares helps in bringing

about a proper balance between paid up capital and accumulated reserves, elicit good public response to equity issues of the public enterprises and helps in improving the market image of the company.

The present study examines the impact of bonus announcement on share price and trading volume for a sample of 40 Indian companies from the BSE 500 index with the use of the Event study methodology from 2006 to 2009.

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Bonus share announcements have become the focus of a number of research studies in the light of its strong implications for corporate policy.

LITERATURE REVIEW

Empirical research shows that the market reacts positively to the announcement of bonus issue. Kraus and Litzenberger (1976) found that when companies with good performance issue bonus shares, abnormal profit is observed. The reason is that potential investors try to collect more information about the company, which issues bonus shares, and value the shares appropriately. This shows that the market takes significant time to adjust to new information. Sometimes, signal has to be sent to the potential investors by the top management to make the capital market semi-strong. Hence, capital market is not inherently semi-strong and has to be made so through positive action like issuing of bonus shares. Similarly, Woolridge's (1983) empirical study of the American capital market showed 0.986 per cent positive average abnormal ex-date return for a sample of 317 bonus issues. Grinblatt, Musulis, and Titman (1984) who examined the results for the period 1967 to 1976 for the European capital markets also found an average abnormal return of 1.1 per cent. Balachandran and Tanner (2001) in their study examined share price reaction to 139 bonus announcements of Australian companies for the period 1992 to 2000. They found that the magnitude of price reactions to bonus issue announcements was statistically related to the size of the bonus issues and the pre-announcement effect. Overall, evidence from their study lend considerable support for signalling hypothesis which was stronger for industrial non-financial and mining companies than financial companies.

Studies in India have also provided evidence of positive average abnormal returns on bonus announcements (Lukose and Sapar (2002); Lukose and Rao (2004); Mishra (2005); Shirur (2008); Dhar, and Chhaochharia (2008). These studies prove that capital markets are not inherently efficient even in the long run and promoters have to intervene to manage the prices of their stocks through corporate actions. Hence, proving the signaling hypothesis. Also consistent with the signalling hypothesis, Lukose and Rao (2004) found that bonus issuing firms also report superior operating performance.

However, a number of other Indian studies found results to the contrary such as the study by Mohanty (2007) who found that investors give less importance to the announcement of bonus issues. Similarly, Kumar et.al. (2007), studied stock market reaction and liquidity changes around bonus issue announcements and found that bonus issue announcement yields negative abnormal returns around the announcement date conveying that the market under reacts after the announcement. Further it has been evidenced that the size of the firm issuing bonus shares does not affect the abnormal returns of the company. To test the industry influence, Madhuri et al (2007) examined share price reaction to the announcement of Bonus Issue for a sample of Indian Software and Finance firms. The market was found to be semi strong form efficient for finance sector but not so for the software sector. Bonus issue announcement yielded negative abnormal returns around the announcement date in the case of finance sector. The announcement yielded no significant returns for the software sector, which implies that bonus issue announcement had no significant impact on the investors' sentiments.

The lack of conclusive evidence for the same motivated the present study. In addition, this study provides a useful insight into the understanding of the nature of reaction to this event and the reasons behind it in the context of a developing economy like India.

OBJECTIVES OF THE STUDY

- To analyze the effects of bonus issue announcement on the market prices of equity shares.
- To make an attempt to analyze the bonus effect on trading volume of shares.

HYPOTHESIS

The purpose of our study is to determine whether there is any abnormal return around the announcement dates and how fast the new information is absorbed in the security prices. **For the purpose of the study, the hypothesis were:**

H₀₁: There is no significance difference in average abnormal returns (AAR) during the pre and post-announcement window of Bonus issue.

H₀₂: There is no significance difference in average trading volumes (ATV) during the pre and post-announcement window of Bonus issue.

RESEARCH DESIGN

In this context, the behavior of stock prices and trading volume has been examined in the pre and post announcement periods.

Sample

The sample consists of 40 bonus issue announcements by companies listed on the BSE 500 index during the period 2006 to 2009. Ten bonus announcements have been taken for each year. Out of the total available list of companies, which announced bonus during the study period, the following companies were excluded.

- Companies for which bonus offers coincide with other events, such as stock splits, right issues, and demerger announcements.
- Companies for which data on announcement date is not available with accuracy.
- Companies for which trading data, either on price or volume, is not available for entire or significant period of event window.

Data and Data Sources

The data used in this study were as follows:

- Dates of Bonus announcements
- Closing share prices, Beta and Trading Volumes of the sample companies for the selected period.
- The yields on the Treasury Bills (Risk-free rate)
- Closing values of the BSE- Sensex.

The above data was extracted from BSE and other websites as well as the Prowess Data base maintained by CMIE.

Research Methodology

The study used the event study methodology to examine the market reaction to bonus issues on share prices taking the announcement date as event date

and taking event window as 30 days before and 30 days after the announcement. (-30 to +30 days).

The abnormal returns were computed for each day of the event window for each sample company as follows:

Abnormal Return, $AR_{it} = R_{it} - E(R_{it})$

Where,

R_{it} = Actual Return on security i for day t

$E(R_{it})$ = Expected Return on security i for day t

The **Actual Return**, R_{it} is calculated as follows:

$$R_{it} = (P_i - P_{i,t-1}) / P_{i,t-1}$$

Where, P_i and $P_{i,t-1}$ are the respective daily prices for company i at time t and $t-1$.

The **CAPM model** was used to compute the **Expected Return**, $E(R_{it})$ that was derived from the following equation:

$$E(R_{it}) = R_{ft} + B_i * [R_{mt} - R_{ft}]$$

Where,

R_{mt} = the daily return on Indian stock market at day t

R_{ft} = Risk free rate of return.

\hat{a}_i = Beta of Security i

The yields on 91-day treasury bills were used as risk free return while the proxy for the market portfolio is the BSE Sensex.

The **Market Return**, R_{mt} is computed as:

$$R_{mt} = (I_t - I_{t-1}) / I_{t-1}$$

Where, I_t and I_{t-1} are the respective daily values for Sensex at time t and $t-1$.

The **Average Abnormal Returns (AARs)** are computed for each day in the event window (i.e. -30 to +30 days) as follows

$$AAR_t = \frac{\sum_{i=1}^N AR_{it}}{N}$$

Where,

AAR_t is average abnormal return for period t

AR_{it} is the abnormal return for a security i in given period t

N is the total number of securities

The **Cumulative Average Abnormal Returns (CAAR)** are calculated for event days t_1 through t_2 by summing the average abnormal returns for these days as follows :

$$CAAR = \sum_{t=t_1}^{t_2} AAR_t$$

CAAR is computed because the security's overall reaction to the announcement or event will not be captured instantaneously in the behaviour of average abnormal return (AAR) for one specific day. It gives an idea above average stock price behaviour over time. Generally if the market is efficient, the CAAR should be close to zero.

The **parametric t-test** is used to assess the significance of average abnormal return (AAR) of each trading day.

Where H_0 : The average abnormal returns are close to zero i.e. $AAR_t = 0$

The **t-values** were computed using SPSS and were tested at 5% level of significance. If the t statistics

are statistically significant, the event affects returns; the sign of the excess abnormal return determines whether the effect is positive or negative.

The t-test was also used to determine whether there is significant difference in abnormal returns in the pre and post announcement period.

Similarly the average trading volume (ATV) for each day in the event window was calculated and the t-test was used to determine whether there is significant difference in trading volume in the pre and post announcement period.

FINDINGS:

Table 1 summarizes the impact of bonus issues on share price performance. We found that 70% of sample companies have positive abnormal return on announcement date of bonus issue.

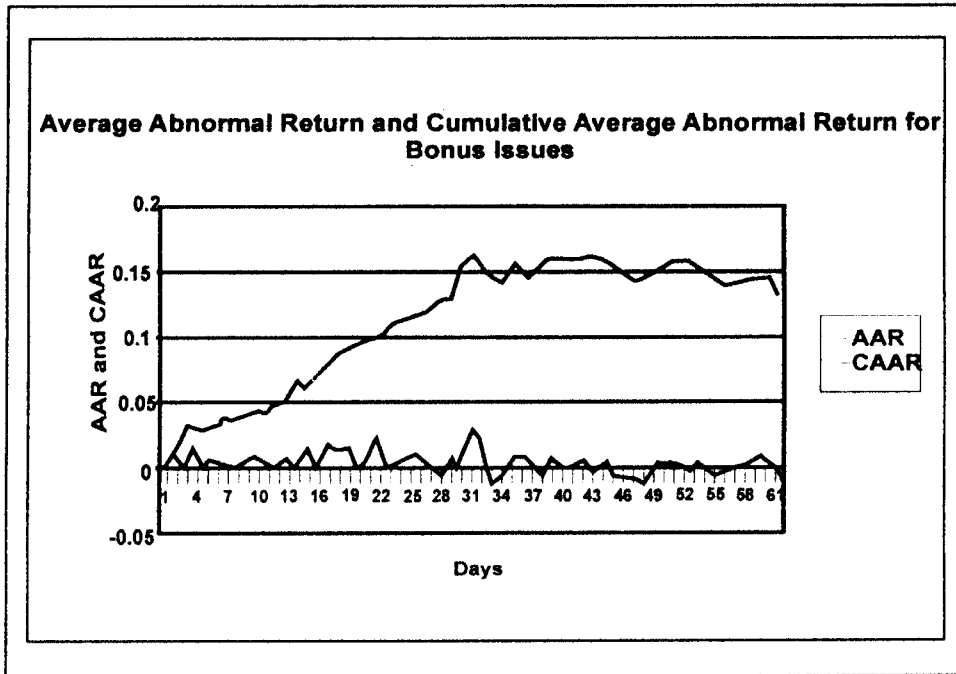
Table 1: Impact of Bonus Issues Announcement on Share Price Performance

Particulars	Bonus Issue	
	No. of Companies	Percentage
Companies having positive return on Announcement Date	28	70
Companies having negative return on Announcement Date	12	30

The line graph in **Figure 1** shows AAR and CAAR over the event window. There is a run up in AAR on

the announcement date. It is found that CAAR for sample stocks are positive during entire event window.

Figure 1: Average Abnormal Return (AAR) and Cumulative Average Abnormal Return (CAAR) for Bonus Issues



It is clear from the average trading volume (ATV) in **Figure 2** and **Table 2** (See Below) that there is some abnormal trading taking place about ten days before the announcement, which may be indicative of a leakage of information about the bonus issue. Also a sudden rise can be seen near the

announcement day with trading volume reaching its maximum on the announcement day. However after the bonus announcement, the trading volume becomes normal again. This is due to the reaction of the market on bonus announcement.

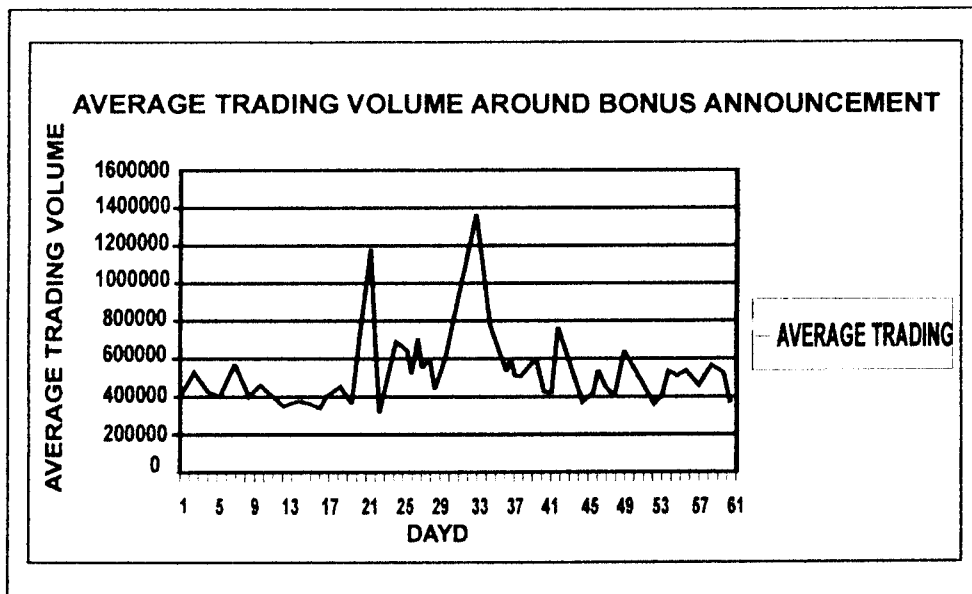


Table 2: Average Trading Volume (ATV) around Bonus announcement (61 days window)

DAY	ATV	DAY	ATV
-30	437203.2	1	997145.1
-29	504647.4	2	748366.8
-28	436039.1	3	636743.8
-27	415193.5	4	526149.3
-26	408610.6	5	600132.3
-25	459035.3	6	500733.9
-24	557263.7	7	507775.5
-23	407073.7	8	549581
-22	424116.3	9	593678.7
-21	471311.4	10	429262.8
-20	391116.3	11	427587.9
-19	333936.3	12	771910.9
-18	360703.7	13	575097.6
-17	354982	14	389097.9
-16	325086.6	15	443780.6
-15	397627.3	16	549401.7
-14	432884.2	17	482570.5
-13	468629.8	18	434956.7
-12	380297.9	19	426297.3
-11	1158478	20	625098
-10	353116.6	21	513860.3
-9	477852.4	22	367231
-8	684394.3	23	445869
-7	640948.3	24	551959.6
-6	508021.6	25	501845.6
-5	700480.2	26	499274.7
-4	486146.4	27	448735.9
-3	562894.7	28	555104.2
-2	430033.1	29	500682
-1	630711.1	30	384066.5
0	1368518		

Table 3 below presents the results pertaining to the announcement effects of bonus issues for the entire period of the window period of 61 days comprising

the event day, 30 days before the event, and 30 days after the event. It shows the AARs and CAARs around the announcement of bonus issue.

Table 3: AARs and CAARs around the announcement of bonus issue

DAY	AAR(%)	t-values	CAAR(%)
-30	0.259871	0.567941	0.259871
-29	0.518578	1.169088	0.778449
-28	0.222709	0.510019	1.001158
-27	1.00706	2.353092*	2.008218
-26	-0.15198	-0.34988	1.856241
-25	0.760708	1.650438	2.616949
-24	0.514704	1.0712	3.131653
-23	0.178962	0.36752	3.310615
-22	0.312402	0.784922	3.623017
-21	0.608435	1.32752	4.231452
-20	0.147376	0.326574	4.378828
-19	0.538461	1.294467	4.917289
-18	0.190826	0.361659	5.108115
-17	0.840853	1.8885	5.948968
-16	-0.08284	-0.1771	5.866133
-15	1.112407	1.820785	6.97854
-14	0.916984	1.931115	7.895524
-13	1.049096	2.439155*	8.944619
-12	0.396142	0.835854	9.340762
-11	0.120226	0.268819	9.460988
-10	0.088087	0.223135	9.549076
-9	1.524501	2.406238*	11.07358
-8	0.318979	0.550871	11.39256
-7	0.241013	0.628577	11.63357
-6	0.290472	0.649801	11.92404
-5	0.722704	1.266977	12.64675
-4	0.20232	0.271763	12.84907
-3	-0.46111	-1.12835	12.38796

-2	0.694213	1.711299	13.08217
-1	0.095834	0.157241	13.178
0	1.983016	3.006924*	15.16102
1	1.068002	1.775839	16.22902
2	-0.82601	-1.50591	15.40301
3	-0.59566	-1.20868	14.80736
4	-0.44995	-0.86417	14.35741
5	0.426282	0.751886	14.78369
6	0.53919	1.312756	15.32288
7	-0.52064	-1.5984	14.80224
8	0.936822	1.818377	15.73906
9	0.149341	0.44537	15.8884
10	0.002211	0.004339	15.89061
11	0.365508	0.924466	16.25612
12	-0.12937	-0.22594	16.12675
13	0.009652	0.020613	16.1364
14	0.154124	0.342774	16.29053
15	-0.71368	-1.73393	15.57684
16	-0.77554	-1.87321	14.80131
17	-1.16057	-2.75659*	13.64073
18	0.035425	0.09107	13.67616
19	0.461325	1.291372	14.13748
20	0.783959	1.28867	14.92144
21	0.778797	1.55267	15.70024
22	-0.23469	-0.55961	15.46555
23	0.011435	0.02794	15.47698
24	-0.73054	-1.22342	14.74644
25	-0.37435	-0.81991	14.37209
26	-0.24616	-0.6048	14.12593
27	0.267768	0.545199	14.3937
28	0.22836	0.562227	14.62206
29	-0.11938	-0.31654	14.50268
30	-1.56192	-0.76357	12.94076

*t-values are significant at 5% significance level

The results indicate that bonus announcements in India have a significant impact on share prices of the issuing companies. It can be observed from the table that on the announcement day there was a positive AAR of 1.983%, which is significant at 5% level. There is also a clear run up in prices before the announcement of bonus. This is evident from AARs generated on -1, -2, -3 and -4 days before the announcement of bonus, which are 1.5978%, 1.1846%, 1.6987%, and 1.0331% respectively. These returns are however not significant at 5% level.

In the post announcement period however, all these abnormal returns are lost immediately i.e. on the days following day of the announcement which witness a negative though insignificant average abnormal return. It is also seen that on days t-27, t-13 and t-9, the average abnormal returns are positive and significant at 5% percent level as observed t-values exceed the critical values. This may be due to leakage of information during these days. Further a significant negative AAR is observed on day t+17. This may be because the study has used a longer window and such returns may be from other factors as it is unlikely that they could be due to bonus announcements.

During the 30 days before the event date, returns are positive for 27 days as compared to negative returns on only 3 days. This indicates that the market had already anticipated the announcement of bonus issue and had reacted much earlier than on the day of announcement.

However, after the announcement of bonus there is a reversal in the pattern of returns as positive returns are seen for a smaller number of 16 days compared to negative returns on the remaining 14 days. Thus, it is summarized that the Indian Stock market reacts strongly to the announcement of bonus issue. There is also clear indication that there is a leakage of such information on bonus issue before a formal announcement of the bonus issue is made.

HYPOTHESIS

H_{01} : There is no significant difference in average abnormal returns during the pre and post-announcement window of Bonus issue.

Table 4: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre announcement AAR	.00439267	30	.004248077	.000775589
	Post announcement AAR	-.00074009	30	.006240508	.001139356

The securities on an average are giving positive abnormal returns in the pre announcement period

but are providing negative returns in the post announcement period (See Table 4 above).

Table 5: Paired Samples Test

		Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	t	dt	Sig. (2-tailed)
Pair 1	Pre announcement AAR - Post announcement AAR	.005132753	.008387901	.001531414	3.352	29	.002

Paired sample test has shown that this difference is significant at 5% level (See Table 5 above). Thus the null hypothesis that there is no significant difference in abnormal returns in the pre and post announcement periods is rejected.

H_{02} : There is no significant difference in average trading volumes during the pre and post-announcement window of Bonus issue.

Table 6: Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Pre announcement trading volume	486627.8158	30	161360.51	29460.26
Post announcement trading volume	532799.8967	30	130406.049	23808.78

Paired sample statistics has shown that there is difference between the mean trading volumes of pre and post bonus issue announcements. In the pre announcement period the trading volumes are on average less than those in the post announcement period (See Table 6 above).

However paired sample t-test has shown that this difference is not significant at 5% level (See Table 7 below). Thus the null hypothesis that there is no significant difference in trading volumes in the pre and post announcement periods is accepted.

Table 7: Paired Samples Test

		Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pair 1	Pre announcement AAR - Post announcement ATR	.46172.08	.206078.39	.37624.59	-1.227	29	.230

CONCLUSION

Based on the results, it can be concluded that price effect associated with bonus announcements is significant, and there is a significant positive abnormal return of 1.983% found on announcement day. The mean AAR for the pre announcement period was 0.439%, which was significantly more than that of post announcement period, which showed a negative, mean AAR.

Abnormal return is present in the market, even before the announcement, but the trading volume rises on the announcement. But there was leakage of information before the announcement as suggested

by the presence of significant positive excess return in the pre-announcement window.

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