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Sharmila R
Associate Professor, Sakthi
Institute of Information and
Management Studies, Pollachi

Nanjundaraj Prem Anand
Principal, DJ Academy for
Managerial Excellence,
Coimbatore, Tamil Nadu,
India

Thiyagarajan. R
Student, Sakthi Institute of
Information and Management
Studies, Pollachi

Correspondence:
Sharmila. R
Associate Professor, Sakthi
Institute of Information and
Management Studies, Pollachi

Volatility of Stock prices around Bonus share Announcements

Sharmila R, Nanjundaraj Prem Anand, Thiyagarajan. R

Abstract

The study examines the market reaction to bonus share announcements in the Indian Stock Market of CNX 500 stocks for the period 2013 and 2014 using event study methodology. The AAR on -15 day is found to be positive and significant which shows the leakage of information before the event. The CAAR is found to be positive from -15 day to +7 days supporting the signaling hypothesis of bonus share announcements. The negative CAAR from +8 to +30 days supports the trading range hypothesis.

Keywords: Event study methodology, Bonus share announcements, Average Abnormal Returns (AAR), Cumulative Average abnormal Returns (CAAR)

1. Introduction

A company uses a bonus issue to convert cash reserves into share capital. This process is an accounting procedure used to convert profits which the company has retained into share capital. This is achieved by creating a number of new shares and then giving them to existing shareholders. Shareholders do not have to pay for these shares because the cash which has been converted into share capital already belongs to shareholders. To give bonus shares to investors, a company builds a reserve by retaining a part of its profit over the years (the part that is not paid as dividend). When these free reserves increase, the company transfers a part of the money into the capital account, from which it issues bonus shares. The purpose of issuing bonus shares is to increase liquidity in the stock and hand out the available distributable net worth in a cash-neutral manner. The effect of a bonus issue is to increase the number of shares in issue and as a result reduce the price per share.

Shareholders are aware that, after the bonus issue, companies usually increase total dividend payout. This, in turn, indicates the confidence of management in the company's future. Consequently, the share price may increase in response to this information and affects shareholders' wealth. Bonus issues in the U.S. and in other markets are associated with positive market reaction around the announcement day [Odumbe (2010)^[13], Balachandran, Faff & Jong (2005)^[11]. One of the explanations for the positive market reaction is the expected increase in trading liquidity following bonus issues. However, the empirical evidence on the trading liquidity effect is not convincing and empirical results show contrary evidence to Huddart & Ke (2007)^[6], Brooks & Graham (2005)^[2] and Papaioannou & Travlos (2000)^[14].

McNichols and Dravid (1990)^[12] provided further evidence to support the signaling hypothesis by examining the relationship between the size of a stock dividend (or split factor) and the degree of abnormal returns around the announcement dates. Their findings suggested a positive relationship between stock dividend size and abnormal return; that is, the larger the stock dividend, the greater the signaling benefits. However, a study in U.S. by Papaioannou and Travlos (2000)^[14] analyzed the price reaction to stock dividend announcements by firms listed on the Athens Stock Exchange found statistically insignificant abnormal returns on and around the announcement date. Malhotra *et al.* (2007)^[11] explained the fact that most stock dividend distributions are compulsory requirements imposed upon the firms to satisfy regulatory requirements and shareholder approval must be sought regarding the size and terms of the distributions.

Effects of Bonus Issue

Bonus shares do not directly affect a company's performance. The following are the major indirect effects of bonus issues.

- Share capital gets increased according to the bonus issue ratio
- Liquidity in the stock increases
- Effective Earnings per share, Book Value and other per share values stand reduced
- Markets take the action usually as a favorable act
- Accumulated profits get reduced
- A bonus issue is taken as a sign of the good health of the company.

Though, bonus shares do not cost to shareholders technically, bonus shares are not free. Companies do not generally distribute their entire profits to the stockholders as dividends. A fairly large part of the profit is retained and added on to what is commonly called the reserves of the company.

2. Review of Literature

Odumbe (2010)^[13] investigated the information content of bonus issue announcement by companies quoted at the Nairobi Stock Exchange. In the study, evaluative research design and event methodology was used. The 54 active companies trading shares at the Nairobi Stock Exchange were targeted. The period of study was from 2000-2010. The study found that information of bonus issue announcement can be used by the investors for making abnormal returns at any point of the announcement period. The studies of Wu, Wang & Yao (2005)^[19], Kim & Limpaphayom (2000)^[9] and Rankine & Stice (1997)^[17] had found similar returns and significant increase in trading volume.

Josipura & Unnisa (2013)^[7] examined the stock price reaction contiguous with bonus announcement surrounding its announcement and effective day in post-global financial crisis period. Sample of 74 bonus issued CNX 500 stocks for the period 2008-2012 has been considered for the study. This study reported statistically significant positive abnormal returns surrounding announcement as well as effective days and impacted positively on share prices. The above result was supported by the study of Pukhthuanthong, Elayan & Rose (2007)^[15].

Papaioannou & Travlos (2000)^[14] analyzed the price reaction to stock dividend announcement by firms listed on the Athens stock exchange and found that there was no statistically significant abnormal returns on and around the announcement of bonus issue. Huddart & Ke (2007)^[6] and Dravid (1987)^[3] also found the similar results in their studies. The result was found to be insignificant and inferred that the trading volume was decreased after the issue.

Jyoti (2014)^[8] attempted to find the impact of bonus issue on stock prices of the companies and found to have negative impact on stock prices due to the announcement. According to the study, the negative outcome was due to the informational leakages in the market which resulted in the high abnormal returns before the bonus share announcement and declined after the announcement. Another reason was that the dilution of equity combined with unchanged profits that had driven down the EPS and also decreased the stock price proportionately after the bonus share announcement. The findings of Ramachandran (1985)^[16] supported the results of the study.

3. Rationale of the study

The study is motivated by the fact that bonus offer is a well-known phenomenon in the Indian markets. A number of studies have already been undertaken to study the price and liquidity effects associated with bonus effects in the past in developed markets like the US and also emerging markets, including India. Though there are many studies that have documented the evidence of positive price effect associated with stock dividend, a lot of differences do exist in the results in different time frames and in different markets. There are mixed results for volatility changes around different corporate announcements. Hence the present study is an attempt to study the volatility of stock prices around bonus issue announcements.

4. Objectives and Hypothesis

Objectives

1. To examine the stock market reaction to bonus shares announcements of CNX Nifty companies.
2. To examine whether there is any abnormal returns around the announcement date of the bonus shares.

Hypotheses

H1: There is significant impact on stock prices around the announcements of bonus shares.

H2: There is significant difference in excess returns in the pre-announcement and post announcement period around bonus shares

5. Sample and Data

Sample

The stocks that announced bonus shares among the stocks listed in CNX Nifty of NSE during the year 2013 and 2014 have been considered as the sample. The CNX Nifty is a well diversified 50 stock index accounting for 22 sectors of the economy where 18 stocks have announced stock dividend during the selected study period. Stocks that have any price sensitive or lack of information during the event window (-30 days to +30 days) are eliminated from the study. Stocks with industry name and date of stock dividend announcement during the selected study period are listed in the Annexure.

Data

Three sets of data have been used in this study.

- The first set of data consists of bonus share announcement made by the sample stocks which was collected from capitaline database. This includes the dates on which bonus shares were announced by the stocks.
- The second set of data consists of daily-adjusted closing prices of the selected stocks from NSE. Daily-adjusted closing prices are assumed to reflect the consensus of the market participants regarding price of the stock at the end of the trading.
- The third set of data consists of CNX 500 index of ordinary share prices compiled and published by NSE on daily basis. These data have been collected from NSE website (<http://www.nseindia.com/>).

6. Methodology

The study is descriptive in nature and secondary data has been used. In this study, the two stage approach is used. The

first stage consists of estimation parameters like beta based on the ex-post returns on stocks, market index and expected returns on each of the stocks based on the market model. In the second stage, the estimated parameters are used to calculate abnormal returns around the source date. In this research, the date of stock dividend announcement is defined as day 0 or source day. If source day is a non-trading day then the immediately following trading day is considered as source day. It can also be mentioned as event day. Pre-announcement period includes 30 trading days prior to the stock dividend announcement i.e. days -30 to -1. Post-announcement period includes 30 trading days after the stock dividend announcement i.e. days +1 to +30. Thus, the event window of 61 trading days (including day 0 as the source day) have been considered for the study. The estimated ARs are averaged across securities to calculate Average Abnormal Returns (AARs) and AARs are cumulated to ascertain Cumulative Average Abnormal Returns (CAARs). In this study, the following simplified model of regression is used for estimating the **expected returns** on each security by taking the actual returns on market.

$$\text{ExpectedReturn} = E(Rit) = \alpha_i + \beta_i Rmt$$

Where,

E (Rit) = Expected return on security 'i' during time period 't'

α_i = Intercept of a straight line or alpha coefficient of i^{th} security

β_i = Slope of a straight line or beta coefficient of i^{th} security

Rmt = Expected return on index (CNX Nifty index in this study) during period 't'

Following are the models used for calculations:

Abnormal returns (ARs)

$$ARit = Rit - E(Rit)$$

Where,

Rit = Actual returns

E (Rit) = Expected return on Security

Average abnormal returns (AARs)

$$AARit = \frac{\sum_{i=1}^N ARit}{N}$$

Where,

i = Number of securities in the study

N = Total number of securities in the portfolio

t = Days surrounding the event day

Cumulative Average Abnormal Returns (CAAR)

$$CAARt = \sum_{t=-30}^k AARit$$

Where,

t = -30, ..., 0, ..., +30

t Value for AAR

$$t(AAR) = \frac{AAR}{\frac{\sigma}{\sqrt{n}}}$$

Where,

σ = Standard deviation

n = Number of records

7. Data Analysis and Discussion

The abnormal returns of individual security are averaged for each day surrounding the event day i.e. 31 days before the event day and 30 days after the event day. The AAR is the average deviation of actual returns of a security from the expected returns. CAAR provides information about the average price behavior of securities during the event window. CAAR is calculated by cumulating the average abnormal returns. To study the significance of returns and to test the hypotheses, t test is used. The Calculated AAR, CAAR and t value of AAR is presented in the Table 1. The following hypothesis is formulated to find out the impact of bonus share announcements on stock prices

H1: There is significant impact on stock prices around the announcements of bonus shares.

Table 1 shows Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAARs) around bonus shares issues for 61 days event window. In the Pre-announcement window of 30 days AAR is found to be positive for 15 days and negative for 15 days. In the Post announcement window AAR is found to be positive for 11 days and negative for 19 days. On the Event Day AAR is found to be positive with a return of 0.61%.

The AAR on -15 day is found to be 1.17% positive and significant at one percentage level. This shows that there is leakage of information of bonus share announcements. The CAAR is also found to be positive from -15 days to +7 days in the event window which shows that stock dividend announcements has conveyed positive signals about the company to the stock market participants. Thus the study is consistent with signaling hypothesis documented by Foster & Vickrey (1978) [4], Woolridge (1983) [18], Grinblatt, *et al* (1984) [5], Lakonishok & Lev (1987), McNichols & David (1990) [12].

The CAAR is found to be increasingly negative from +8 day to +30 day in the event window. Usually, after the bonus issue, the share price of the company gets adjusted according to the bonus ratio. For example, if the price before bonus is Rs 200 and a company issues bonus shares in the ratio of 1:1, the post-bonus share price will be Rs 100, which means that the total market value (2 x Rs 100 = Rs 200) remains the same. This is because the declaration of the bonus shares will increase the paid up share capital and reduce the reserves and surplus (retained earnings) of the company. The total net worth (paid-up capital plus reserves and surplus) is not affected by the bonus issue. In fact, a bonus issue represents a recapitalization of reserves and surplus. It is merely an accounting transfer from reserves and surplus to paid-up capital.

Table 1: Volatility of Stock Prices around Bonus Share Announcements(Returns in Percentage)

Days	AAR	CAAR	t (AAR)	Sig. (2-tailed)	Days	AAR	CAAR	t (AAR)	Sig. (2-tailed)
-30	0.1249	0.1249	0.22	0.83	0	0.6188	3.6233	1.04	0.31
-29	-0.2261	-0.1013	-0.68	0.51	1	-0.2223	3.4011	-0.43	0.67
-28	0.0292	-0.0721	0.09	0.93	2	0.3246	3.7256	0.39	0.70
-27	-0.669	-0.7411	-2.54**	0.02	3	-0.2349	3.4908	-0.39	0.70
-26	-0.5102	-1.2513	-0.98	0.34	4	-0.9994	2.4914	-2.39***	0.03
-25	-0.2810	-1.5323	-0.52	0.61	5	-0.7492	1.7422	-1.91***	0.07
-24	1.0105	-0.5218	1.57	0.13	6	0.5875	2.3297	0.82	0.42
-23	0.3837	-0.1381	0.82	0.43	7	-1.8710	0.4587	-0.63	0.54
-22	0.7207	0.5825	1.52	0.14	8	-0.8085	-0.3498	-0.94	0.36
-21	-0.2590	0.3236	-0.56	0.58	9	-0.7170	-1.0668	-1.50	0.15
-20	0.7107	1.0342	0.75	0.47	10	-0.3460	-1.4128	-0.90	0.38
-19	-0.2189	0.8153	-0.36	0.72	11	0.5852	-0.8276	0.85	0.41
-18	-0.4677	0.3477	-1.22	0.24	12	-2.1785	-3.0061	-0.84	0.41
-17	-0.1023	0.2453	-0.30	0.77	13	-0.0630	-3.0691	-0.17	0.87
-16	-0.3343	-0.0890	-1.07	0.30	14	-0.5772	-3.6463	-1.26	0.22
-15	1.1736	1.0846	3.36***	0.00	15	0.5648	-3.0815	1.20	0.24
-14	-0.1368	0.9478	-0.42	0.68	16	-2.4493	-5.5308	-1.33	0.20
-13	-0.1910	0.7567	-0.51	0.62	17	1.2350	-4.2959	1.25	0.23
-12	0.2380	0.9947	0.47	0.64	18	-0.2245	-4.5203	-0.36	0.73
-11	0.1766	1.1714	0.36	0.72	19	-0.8609	-5.3812	-2.97***	0.01
-10	0.0494	1.2208	0.11	0.91	20	-0.5765	-5.9577	-1.11	0.28
-9	0.4586	1.6794	1.26	0.22	21	-0.8418	-6.7995	-1.51	0.15
-8	0.1497	1.8291	0.47	0.65	22	0.3555	-6.4440	1.02	0.32
-7	0.5372	2.3663	0.91	0.38	23	0.3661	-6.0779	0.48	0.64
-6	0.8508	3.2171	1.51	0.15	24	-0.0719	-6.1498	-0.16	0.87
-5	-0.2961	2.9210	-0.98	0.34	25	-0.9597	-7.1095	-0.74	0.47
-4	0.5999	3.5209	1.48	0.16	26	0.1259	-6.9837	0.24	0.81
-3	-0.1098	3.4110	-0.20	0.84	27	0.5604	-6.4232	0.91	0.38
-2	-0.2690	3.1420	-0.48	0.64	28	0.1381	-6.2851	0.27	0.79
-1	-0.1375	3.0046	-0.24	0.81	29	-1.7809	-8.0661	-1.00	0.33
0	0.6188	3.6233	1.04	0.31	30	1.2409	-6.8251	1.76*	0.10

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

Thus the stock market is efficient enough to absorb the information content of bonus share announcement and adjust the share prices. Hence the results are consistent with trading range hypothesis suggested by Grinblatt *et al* (1984)^[5] that

stock dividends help the share prices to move in a preferred price or normal range. This will enable more investors to trade in the share, thereby, increasing liquidity.

Table 2: CAAR around Bonus Share Announcements for different Event Windows(Returns in Percentage)

Event Window	CAAR	t	Sig. (2-tailed)	Event Window	CAAR	t	Sig. (2-tailed)
-30 to +30 days	-6.83	-1.149	0.255	-10 to 0 days	2.45	1.829*	0.097
-20 to +20 days	-6.28	-1.243	0.221	-5 to 0 days	0.41	0.390	0.713
-10 to +10 days	-2.58	-0.852	0.404	-2 to 0 days	0.21	0.256	0.822
-5 to +5 days	-1.47	-0.888	0.395	0 to +30 days	-9.83	-1.914*	0.065
-2 to +2 days	0.31	0.361	0.737	0 to +20 days	-8.96	-2.070*	0.052
-1 to +1 days	0.26	0.323	0.777	0 to +10 days	-4.42	-1.794	0.103
-30 to 0 days	3.62	1.369	0.181	0 to +5 days	-1.26	-0.839	0.440
-20 to 0 days	3.30	1.595	0.126	0 to +2 days	0.72	0.975	0.432

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

Table 2 shows CAAR for different event windows. The CAAR is found to be high of 3.62% in the event window (-30, 0) days. However CAAR is found to be positive and significant at 10% level in the event window (-10, 0) days with a return of 2.45%. This could be because of the positive sentiments that bonus share issues have brought into the market. In the event windows (0, +30) days and (0, +20)

days CAAR is found to be negative and significant at 10% level. This is because of the adjustment of share prices with the issue of stock dividends. The Figure 1 shows the movement of AAR and CAAR around bonus share announcements in the 61 day event window. Thus the hypothesis H1 can be accepted since there are significant returns around bonus share announcements.

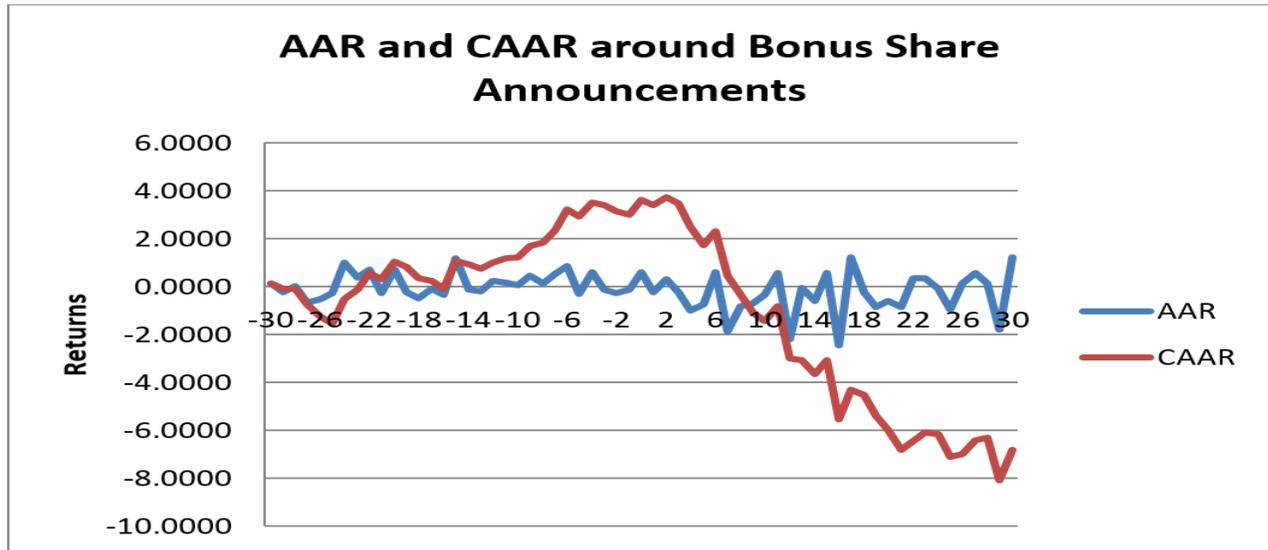


Fig 1:

Results of Paired T –test of AAR and CAAR for Bonus Shares

To find out whether is significant difference in AAR and CAAR in the pre-announcement window and the post announcement window paired t- test is used and the following hypothesis is formed.

H2: There is significant difference in excess returns in the pre-announcement and post announcement period around bonus shares

Table 3 shows that the mean AAR in 61 days event window to be 0.01% and Mean CAAR to be 7.76%. The standard deviation of AAR is found to be 0.26% whereas standard deviation of CAAR is found to be 7.76%. The results of paired t test shows that there is no difference in excess return in the pre-announcement and post announcement period for AAR. But the paired t test results shows that there is significant difference in excess returns in the pre-announcement and post announcement period in the CAAR.

Table 3: Results of Paired T –test of AAR and CAAR for Bonus Shares

	Paired Differences					t	Df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Before AAR - After AAR	0.01569	0.26467	0.04832	-0.08314	0.11452	0.325	29	0.748
Before CAAR - After CAAR	7.76280	0.79577	0.14529	7.46566	8.05995	53.430***	29	0.000

*** Significant at 1% level

Thus, the hypothesis H2 can be accepted for Cumulative Average Abnormal Returns (CAAR) and rejected for Average Abnormal Returns (AAR). This implies that if an investor holds a stock that issues bonus shares for a period of 61 days they can witness the difference in returns in the pre event window and in the post event window.

8. Conclusion

This paper studied the stock price reaction to the announcement of bonus shares of CNX 500 companies of National Stock Exchange for the period 2013 and 2014 using event study methodology. The significant results of AAR on -15 day and positive trend of CAAR around the announcements shows that the investors has anticipated the bonus share announcements which supports the signaling hypothesis. The significant negative returns of AAR and trend of CAAR in the post announcement period shows the stock price adjustment to bonus issues which supports the trading range hypothesis and liquidity hypothesis.

Annexure

Announcement of Bonus Shares by CNX Nifty Stocks during 2013 and 2014

S. No.	Company Names	Announcement Day
1	MothersonSumi	11/1/2013
2	Omaxe	30-10-2013
3	Alembic	8/9/2013
4	Ajanta Pharma	29-07-2013
5	Container Corp	25-07-2013
6	Sun Pharma	28-05-2013
7	Heritage Foods	17-07-2013
8	Torrent Pharma	30-05-2013
9	Larsen	22-05-2013
10	AshokaBuildcon	5/10/2013
11	Emami	5/6/2013
12	BalmerLawrie	26-03-2013
13	Rasoya Protein	2/11/2013
14	Infosys	10/10/2014
15	Nitin Fire Prot	30-09-2014
16	Gruh Finance	4/11/2014
17	Mindtree	16-04-2014
18	Raj Television	28-01-2014

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