Market Reaction around the Buyback Announcements in India: An Empirical Analysis of Market Efficiency

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Abstract

Volatility and uncertainty persists in the financial markets across the world. In this environment, each small and big event affects the markets. Therefore, it becomes essential to analyse the impact of events, which may affect the sentiments of the investors. The review of literature clearly indicates the unanimous agreement among researchers that information driven by political, social & financial events affects the sentiments of the investors. In this paper an important financial event buyback of shares has been analyzed with an aim to evaluate the impact of their announcement on stocks listed on National Stock Exchange S&P CNX 500 (index). Many studies have found numerous stock market effects associated with buyback of shares. We use the event study methodologies. The abnormal returns are calculated using the Single Index Pricing Model and then t-tests are conducted to test the significance.

1. Introduction

During the past few years metamorphic reforms have taken place in the Indian Capital Markets. Every segment of Indian Capital Market viz primary and secondary markets, derivatives, institutional investment and market intermediation has experienced impact of these changes.

In this vibrating world it is mandatory for investors to study the price movement in the stock market in the hopes of making profit and getting above average returns. Our market, today, is being recognized as one of the most transparent, efficient and clean markets. Several techniques /instruments are used by academicians, policy makers, practitioners and investors to test the extent of efficiency of the market. In this research paper, an attempt has been made to analyze impact of an information i.e buy-back of shares by the companies on stock price movements in India.

Often, we know what influences the stock market and the share prices but are usually unable to predict it. For this purpose the concept of market efficiency is introduced by Fama (1970) to the theoretical and empirical research in financial economics. A large number of studies have questioned whether major stock market

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world over are" Efficient" or "Inefficient" in pricing the listed securities. Market efficiency has basically two dimensions (a)the set of information to be reflected in prices and (b)the speed of adjustment of prices to new information. In this study informational efficiency of the Indian stock market is investigated by using publicly available information i.e. buy-back of shares and its impact of the stock returns behavior.

Review of Literature

In Australia, the study by Harris and Ramsay for the period 1989-93 found that although the announcement of share buy-backs is associated with a positive abnormal price performance, the effect is not statistically significant.

Some other studies support the study by Harris and Ramsay. They show that the stock market reacts positively to stock buyback announcements (e.g., Dann (1981), Vermaelen (1981), Lakonishok and Vermaelen (1990)).

Dann (1981) investigated that share buybacks led to share holders experiencing positive share returns of approximately 15% and that these positive returns were mostly permanent in that share prices did not return to their pre-buy back date levels.found that there are significant increases in firm values occurring within one trading day of the announcement. He attributes this to the disclosure of favorable information in the form of common stock repurchases.

Varmaelen (1981) undertaken very influencial study of buybacks in the USA. He examined 131 tender-offer buybacks and 243 open-market buybacks. The average premium offered to shareholders as part of the tender offer buyback was 23 per cent. The study attributes the positive share market reaction to an information signaling effect whereby management undertakes a buyback to convince investors that the shares of the company are undervalued.

Hess and Frost (1982) compared three hypothesis about how common stock prices react to new issues of seasoned securities. The underwriter and second hypothesis imply that there is inverse relationship between the rate of return of security and the size of the new issue of security j.in ,contrast the EMH asserts that there are no post announcement effect of a new issue on share prices or rate of return. These results have been found by using supply and demand analysis, the regression equations. In the whole analysis there is no evidence that would cause us to reject EMH.

David and Garrison(1989) examined the impact of common stock repurchasing firms common stock returns. We have many other studies undertaken in the past on the usage of event study methodology to measure the likely impact of buy-back announcements on share prices and their returns, however, this is a first study undertaken in Indian scenario.

The information signaling explanation for buybacks also receives support from the study of Wansley, Lane and Sarkar (1989). They conducted survey of 140 chief financial officers of USA companies which undertook share buybacks. The questionnaire asked the respondents to comment upon a number of possible explanations for why their companies had undertaken share buybacks. The only explanation for which there was significant agreement among respondents was that the buyback was undertaken to convey management's opinion of the company's present and future value.

Dann, Masulis and Mayers (1991) have found that abnormally high earnings by the companies follow buy-backs, according to this study managers aannounce buy-backs when they believe the shares of their company are undervalued.

Harris and Ramsay (1995) examined share buyback for the period 1989-93 in Australia. They find that although the announcement of share buybacks is associated with a positive abnormal price performance, the effect is not statistically significant.

Stephens and Weisbach (1998) find that on an average, companies announcing share buybacks repurchase almost 75% of the announced targeted level of shares. They also found that more than one half of the companies buyback at least the number of shares targeted in the initial announcement, while around 30% of the companies continue to repurchase shares after completing the initially announced buy- back level. They reject the anecdotal evidence provided in the financial press which suggests that the actual level of acquisition is small relative to companies announced intentions and on the market buy-backs are merely attempts by managing at raising their companies' stock price at a low cost.

In Canada, Ikenberry (2000) found that the initial market reaction to repurchase programs is small; the abnormal return is less than 1 % in the announcement month.

Lasfer (2002) and Rau and Vermaelen (2002) reported positive abnormal returns for buyback announcements in the UK.

The analysis by Dr. P. Thirumalvalavan and K. Sunitha used data of 22 firms in the BSE 500 index, which has announced stock repurchase option during the period 2002-2004. Stock repurchase programs recorded a high cumulative abnormal return of 3.2 percent within two days of the event.

Chen (2004) analyzed announcement effect of buybacks in Taiwan and found significant positive announcement returns. Hatakeda and Isagawa (2004) analyzed announcement effect for Japanese buybacks and found significant abnormal returns surrounding the announcements. Balachandran and Faff (2004) and Lamba and Ramsay (2005) analyzed Australian buybacks. Both the studies document positive abnormal returns on the announcement day.

Studies on Canadian buybacks also reported significant positive abnormal returns around the announcement of buybacks (Schmidt, 2006).

Kinsler (February 2008) et al tested the semi strong form of market efficiency by taking the stock repurchase announcements of 50 companies into consideration. The result of the study revealed a slightly negative market reaction prior to the firm's stock repurchase announcement and a significant positive reaction on the announcement. Thus the study results in supporting the semi strong form efficient market hypothesis and

suggests the possibility of trading on this information up to 27 days prior to the announcement.

Few empirical studies were conducted in India. Studies of Mohanty (2002); Kaur and Singh (2003); Gupta (2006); and Hyderabad (2009) reported positive abnormal returns around the announcement of buyback.

A study by Dr. Ishwar in Nov 2010 on the stock price responses to 106 buyback announcements in India revealed that the share buyback announcements have not provided any additional information to the market. The absence of any change in the movement of stock price reaction to buyback reveals that market anticipates the information provided by these announcements and incorporates this before the announcement.

Objectives of The Study

Primarily, the present study is an endeavor to investigate the effectiveness of announcement buy-back of shares which represents a test of validity of semi-strong form of efficient market hypothesis. Taking consideration of this notion, the tries to achieve the following objectives:

- To examine the impact of share buyback announcements on stock price behavior in India.
- To investigate the impact of mode of buy-back on the stock price behavior in India.

Hypotheses of the Study

The following hypotheses are to be tested in the study:

- Buy back of shares announcement have no significant influence on the stock prices of companies in India.
- The buy back of shares announcement contained information are not impounded instantaneously and correctly in the stock prices of companies

Research Methodology

Data Sources Used for the Study

The list of the firms that have made buyback announcements has been procured from the corporate database namely CapitaLine. The data of closing stock prices and closing index values of the sample companies have been taken from website of national stock exchange i.e www.nseindia.com.

The study contains 45 companies which have announced buyback and listed at S&P CNX 500 for the period 2006-2010. Criteria for selecting sample companies are as follows:

Sample Selection

i) Availability of dates of buy-back announcement during the above mentioned period.
ii) Availability of stock prices and market index on the respective dates.

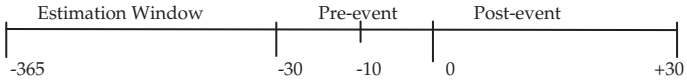
Test of the Market Efficiency Using Event Study Methodology

The benchmark methodology used to evaluate the reaction of share prices to public announcements is an event study, which was employed in (1933) by Dolley. So many researchers in India as well as in abroad have used and their sophistication improved by authors as Fama et al. (1969) and Brown and Warner (1980, 1985). To use event study, the event, event window, estimation window, estimation model, and investigation window should be determined.

The first step is to identify the event of surprise to investors to be studied and a sample of companies that had a surprise announcement of that event during the study period. It is well known that share prices change due to some announcement that is considered as a surprise by investors. Therefore, in this study, announcement of buy back of shares has been treated as a surprise to investors and this is giving a positive signal to the investors.

The next step is the specification of announcement date or the 'event date'. The event day for each company is public announcement date of buyback. This date is designated as t = 0.

This step is followed by the determination of event window period. In this study event window period of 61 days has been used. The window period is designated as –30, -29……prior to the event date, 0 as the event day, and +1, +2, +3…….+30 days after the event day.



The daily returns for each sample company have been computed for the 'event window period' and also for the estimation window period of 365 days:

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

Where Pit and Pit-1 are the respective daily prices for the time t and t-1. Analogously, the actual returns for the market portfolio are also computed using S&P CNX 500 as the market benchmark.

$$Rmt = Ln(I_t) - Ln(I_{t-1}) \quad (2)$$

Where It and It-1 are the respective daily index values at time t and t-1. As mentioned earlier, the study has used window period of 30 days; 30 days before the event day plus 30 days after the event. Therefore, for all these days the actual returns for each sample company for each day have been computed separately by using equation (1) above.

Different researchers have used different models for computing expected returns. There are several equilibrium models, such as the Capital Asset Pricing Model (CAPM), The Arbitrage Pricing Model (APT), etc. that could be used to estimate expected returns. In this study, the expected returns on a stock have been estimated by using market model given by Sharpe (1964).

$$R_{it} = \alpha_i + \beta_i R_{mt} + e_i \quad (3)$$

Abnormal returns for each sample company have been computed in the next step by using following equation.

$$AR_{it} = R_i - \alpha_i -- \beta_i R_{mt} \quad (4)$$

In event study method, we normally look at the average effect of

the announcement rather than examine each company separately, because other events are occurring and averaging across all companies should minimize the effect of these other events, thereby allowing a better examination of the event under study. Therefore, one should compute the average abnormal return on the event day t (AAR_t) by dividing the aggregate abnormal returns for all securities on day t by N, which is the sample size.

$$(AAR_t) = AR_{it}/N \quad (4)$$

For computation of Cumulative Average Abnormal Return (CAAR), the individual day's Average Abnormal Return (AAR_t) is added together from the beginning of the period for specified period and is tested for significance.

The Cumulative Average Abnormal Returns ($CAAR_d$) for event days t_1 through t_2 will be calculated by summing the average abnormal returns for these days:

$$(CAAR_d) = \Sigma AAR_t \quad (5)$$

Z-Test

The significance of the $\mathbf{AAR_t}$ is tested using the z-test as follows;

$$z_{stat} = SAR\,t/N$$

Where, AARt is the Average Abnormal Returns on time t, n is the number of Buy Back in sample and s is the Standard Deviation of Average Abnormal Returns.

Results and Discussions

Efficient market hypothesis states that all the new information regarding stock prices, corporate actions should be incorporated in the stock prices as instantaneously that no investor can expect abnormal return. The results of the event study concerning the publication date of buy-back of shares are presented in Table 1. It can be observed from the table 1 that at the announcement date itself average abnormal return is .0014 which is statistically insignificant. Another important finding worth mentioning here signifincant average abnormal return during t-30 to t-1. During the pre-event period the only two days t-30, and t-13 exhibit significant abnormal return. However on the following days market reacted negatively for continuous 4 days. On t+2 day after the announcement negative but significant returns has been observed. Thus, on the basis of results it can be concluded that the announcement of buy-back of shares could not make any significant impact on stock prices in India.

TABLE 1: Average Abnormal Returns and Cumulative Average Abnormal Returns around the Announcement of Buy-Back of Shares

Days	AAR	CAAR	z-values
-30	0.0051	0.0051	**2.3807***
-29	-0.0005	0.0045	-0.1622
-28	0.0010	0.0055	0.4758
-27	-0.0007	0.0048	-0.3057
-26	0.0010	0.0058	0.4431
-25	-0.0032	0.0026	-1.2183
-24	-0.0048	-0.0022	-1.6980
-23	-0.0019	-0.0041	-0.8075
-22	-0.0006	-0.0046	-0.2276
-21	0.0029	-0.0018	1.2801
-20	-0.0018	-0.0036	-0.9771
-19	-0.0011	-0.0047	-0.4391
-18	-0.0015	-0.0061	-0.6973
-17	-0.0027	-0.0089	-1.1617
-16	0.0004	-0.0085	0.1637
-15	-0.0016	-0.0100	-0.7985
-14	0.0010	-0.0091	0.5841
-13	0.0044	-0.0047	**2.1542***
-12	0.0021	-0.0026	0.5568
-11	-0.0006	-0.0032	-0.2597
-10	0.0024	-0.0008	0.9143
-9	0.0000	-0.0008	0.0124
-8	-0.0004	-0.0012	-0.1876
-7	0.0008	-0.0004	0.3502
-6	0.0011	0.0007	0.4345
-5	0.0032	0.0039	1.4326
-4	0.0024	0.0062	1.0177
-3	0.0002	0.0065	0.1346
-2	0.0041	0.0105	1.7761
-1	-0.0027	0.0078	-1.3464
0	**0.0014**	**0.0092**	**0.7332**
1	-0.0009	0.0083	-0.3096
2	-0.0043	0.0040	**-1.9657***
3	-0.0011	0.0029	-0.5434
4	-0.0021	0.0008	-1.0433
5	0.0029	0.0037	1.4946
6	0.0009	0.0046	0.3571
7	0.0025	0.0070	1.3729
8	0.0019	0.0089	0.8080

9	0.0058	0.0147	**2.7019****
10	-0.0018	0.0129	-0.9252
11	0.0006	0.0135	0.2763
12	0.0001	0.0135	0.0499
13	-0.0001	0.0135	-0.0516
14	0.0027	0.0162	1.4551
15	-0.0002	0.0160	-0.0668
16	-0.0012	0.0148	-0.5054
17	0.0003	0.0150	0.1583
18	0.0003	0.0153	0.1513
19	0.0011	0.0164	0.5065
20	0.0011	0.0176	0.7336
21	0.0020	0.0196	0.8623
22	-0.0012	0.0184	-0.7858
23	-0.0001	0.0182	-0.0621
24	0.0017	0.0200	1.2716
25	0.0002	0.0202	0.1969
26	-0.0004	0.0199	-0.2011
27	0.0010	0.0209	0.7082
28	-0.0033	0.0176	-1.9497
29	-0.0003	0.0173	-0.1648
30	-0.0004	0.0169	-0.2604

**Significance at 0.05 level of significance i.e. 1.96*
***Significance at 0.01 level of significance i.e. 2.58*

announcement. Positive but not significant market reaction has been observed on the -2days before the announcement date. Even on the announcement date positive but insignificant abnormal return (.56) is found. After +2 days of the announcement date, market reacted negatively for continuously 3 days and corrected its overreaction.

The result of the study indicates that the buy back is treated as positive signal by the investors but negative signal before and after the buy back is also a message for investors the buy back do not lead to a long term or permanent improvement in valuation of shares.

Average Abnormal Returns around the Announcement of Buy-Back of Shares

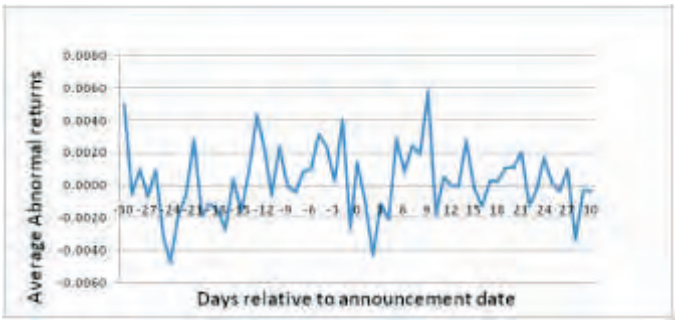
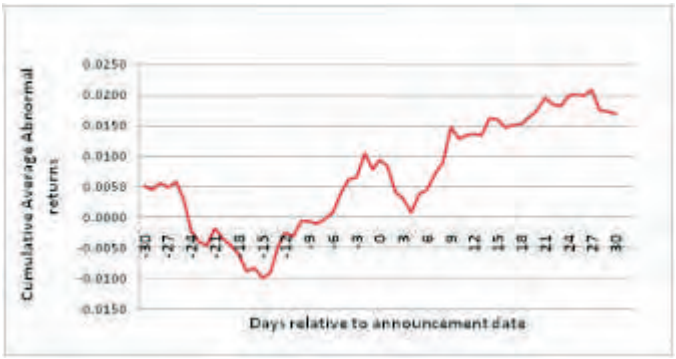


Figure 1: Cumulative Average Abnormal Returns around the Announcement of Buy-Back of Shares



If there are no unusual price movements prior to the announcement date, one would expect both AAR and CAAR to fluctuate about zero. However, leakage of insider information might be the reason of positive or negative movements in the returns around the event date.

CAAR initially shows a downward trend till 7th day prior to the event date and thereafter remains positive till +30th day. Such positive but insignificant movement in CAAR after the event date means that one can earn profit by buying after the event. This possibility is inconsistent with efficient market hypothesis.

Tender Offer vs Open Offer

The study has also investigated the impact of mode of buyback on investor's perception' in India. Open offer is commonly used mode of buy-back as in this study, there are 5 cases of buyback by tender offer and 40 cases of buyback by open offer were found. The results have been summarized in the table that follows:

Table 2: AAR And CAAR around the Buy-Back According to the Different Modes of Buy-Back of Shares

	Tender offer			Open offer		
Days	**AAR**	**CAAR**	**t-value**	**AAR**	**CAAR**	**t-value**
-30	0.0038	0.0038	0.8547	0.0052	0.0052	**2.2307***
-29	0.0019	0.0056	0.6640	-0.0008	0.0044	-0.2264
-28	0.0014	0.0070	0.3437	0.0010	0.0053	0.4110
-27	0.0022	0.0092	0.4831	-0.0011	0.0043	-0.4209
-26	0.0065	0.0157	1.5812	0.0003	0.0045	0.1112
-25	-0.0040	0.0117	-0.8148	-0.0031	0.0014	-1.0666
-24	0.0035	0.0152	0.7892	-0.0058	-0.0044	-1.8805
-23	-0.0025	0.0127	-0.4845	-0.0018	-0.0062	-0.7070
-22	0.0012	0.0140	0.3819	-0.0008	-0.0070	-0.2832
-21	-0.0035	0.0104	-0.8160	0.0037	-0.0033	1.4996
-20	-0.0038	0.0066	-1.1893	-0.0015	-0.0049	-0.7575
-19	-0.0017	0.0049	-0.4954	-0.0010	-0.0059	-0.3645
-18	0.0025	0.0073	0.5296	-0.0020	-0.0078	-0.8518
-17	0.0067	0.0141	1.2381	-0.0039	-0.0117	-1.5570
-16	0.0024	0.0164	0.4157	0.0002	-0.0116	0.0567

-15	-0.0017	0.0147	-0.4929	-0.0016	-0.0132	-0.7113
-14	-0.0020	0.0127	-1.1031	0.0013	-0.0118	0.7257
-13	0.0061	0.0188	1.1646	0.0042	-0.0077	1.8847
-12	-0.0083	0.0104	**-2.3801***	0.0034	-0.0043	0.8106
-11	-0.0019	0.0085	-1.0912	-0.0005	-0.0047	-0.1746
-10	0.0016	0.0101	0.2455	0.0025	-0.0022	0.8734
-9	-0.0023	0.0078	-0.8125	0.0003	-0.0019	0.1204
-8	0.0042	0.0120	0.9961	-0.0010	-0.0029	-0.4153
-7	0.0013	0.0133	0.3486	0.0008	-0.0021	0.2920
-6	-0.0094	0.0039	**-3.3398****	0.0024	0.0003	0.8930
-5	0.0057	0.0096	0.8951	0.0028	0.0031	1.1978
-4	0.0018	0.0114	0.5648	0.0024	0.0055	0.9406
-3	0.0000	0.0114	0.0102	0.0003	0.0058	0.1355
-2	-0.0002	0.0113	-0.0280	0.0046	0.0104	1.8566
-1	-0.0077	0.0035	-1.1633	-0.0021	0.0083	-0.9824
0	0.0010	0.0045	0.3064	0.0015	0.0098	0.6842
1	-0.0108	-0.0062	**-2.5110***	0.0003	0.0101	0.1038
2	-0.0083	-0.0145	**-2.4566***	-0.0038	0.0063	-1.5698
3	0.0004	-0.0141	0.1077	-0.0013	0.0050	-0.5787
4	-0.0027	-0.0168	-0.3635	-0.0020	0.0030	-0.9617
5	0.0063	-0.0105	1.3377	0.0025	0.0055	1.1742
6	-0.0109	-0.0214	**4.2266****	0.0023	0.0078	0.9013
7	-0.0003	-0.0217	-0.0784	0.0028	0.0106	1.4317
8	0.0052	-0.0165	**4.4786****	0.0015	0.0121	0.5642
9	0.0059	-0.0106	1.0433	0.0058	0.0179	**2.4816***
10	0.0008	-0.0098	0.1820	-0.0022	0.0157	-1.0002
11	0.0014	-0.0084	0.7682	0.0004	0.0162	0.1981
12	0.0058	-0.0026	1.3595	-0.0006	0.0155	-0.3689
13	-0.0032	-0.0058	-1.0179	0.0003	0.0158	0.1585
14	0.0034	-0.0023	1.0904	0.0026	0.0185	1.2677
15	0.0036	0.0013	0.9986	-0.0006	0.0178	-0.2293
16	0.0022	0.0035	0.8248	-0.0017	0.0162	-0.6078
17	0.0064	0.0098	0.8065	-0.0005	0.0157	-0.3173
18	-0.0024	0.0074	-0.6343	0.0006	0.0163	0.2892
19	-0.0029	0.0045	-1.4918	0.0016	0.0179	0.6591
20	0.0046	0.0092	0.7088	0.0007	0.0186	0.4427
21	0.0050	0.0142	**2.3313***	0.0017	0.0203	0.6308
22	-0.0057	0.0085	-1.8584	-0.0007	0.0196	-0.3989
23	-0.0003	0.0083	-0.0527	-0.0001	0.0195	-0.0490
24	-0.0058	0.0024	**3.5326****	0.0027	0.0222	1.8326
25	0.0008	0.0032	0.2245	0.0002	0.0223	0.1251
26	-0.0028	0.0005	-0.7666	-0.0001	0.0223	-0.0262
27	0.0006	0.0011	0.2273	0.0011	0.0233	0.6722
28	-0.0022	-0.0011	-1.4635	-0.0034	0.0199	-1.8115
29	-0.0003	-0.0014	-0.0372	-0.0003	0.0196	-0.1629
30	-0.0055	-0.0068	-1.1496	0.0003	0.0199	0.1998

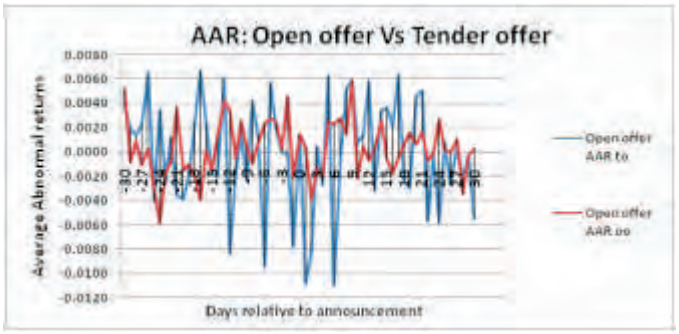
**Significance at 0.05 level of significance i.e. 1.96*
*** Significance at 0.01 level of significance i.e. 2.58*

Based on the following observations are made:

- AAR are negative for 13 days and positive for 17 days before the announcement date in case of tender offer vis-à-vis open offer which has it as 14 days negative and 16 days positive.
- During the whole period, tender offer has negative AAR's for 28 days and open offer has negative AAR's for 27 days out of 60 days.
- For both the modes of buyback, AAR's are positive and insignificant on the announcement date.
- In tender offer scenario, AAR's are statistically significant for 4 days out of 61 days at 99% confidence level and for 7 days at 95% confidence level.
- The values are quite different for open offer where AAR's are not statistically significant for any day at 99% confidence level while it is significant for 2 days in the whole period at 95% confidence level.

The following chart depicts the average abnormal returns for open offer mode and tender offer mode of buyback:

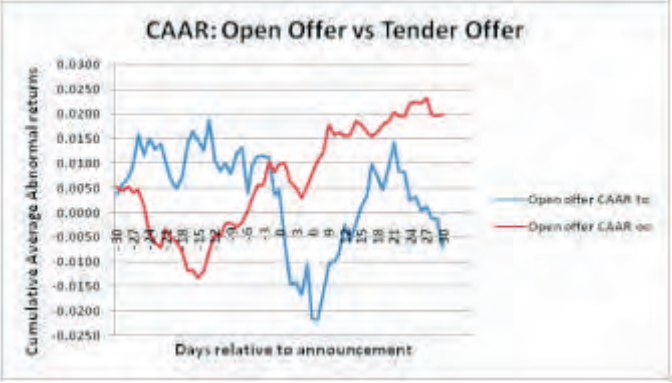
Chart 3



The given chart brings forward that while in tender offer the average abnormal returns have also fallen to negative levels for a number of days, it has remained positive for the majority of days in open offer suggesting that investors have better perception about open offers.

The next chart presents a clear and comprehensive examination of the two commonly used buyback modes:

Chart 4



It is apparent from the chart above that while tender offer provides abnormal returns before the announcement date, open offer has emerged as a more preferred mode of buyback in the eyes of the investors post the event date. This is evident from the fact that a large number of firms go for this mode of buyback.

Conclusion

In making investment decisions, individual and institutional investors use various sources for information and advice. Any corporate event can make difference to the opinion of the investors. In this study buy-back is taken as the important event which can influence the investor decision regarding investment in a particular firm. The primary motive of this paper is to explore the announcement effect of buy-back of shares on stock returns behavior in India. The present study could not find evidence of abnormal retunrs associated with the announcement of buy-back of shares in the Indian capital market. Overall findings support the stock market efficiency in semi-strong form. The stock market efficiency is not only concerned with the direction of change in the stock prices rather it is concerned with magnitude of change. For more analytical point of view, we calculated percentage CAAR. Percentage CAAR is started to be positive before the -6 days of the buy-back of shares and remain positive till the +2 day after the event date and percentage CAAR is on Peak on this date. Market reacted as per the expectation. So, it can be accepted that Indian stock market is, by and large, efficient in its semi-strong form.

Limitations of The Study

The following are the limitations of this study report:

- Other corporate events during the same period could not be included that may also have affected the stock performance during the studied period.
- The general economic conditions say the economic recession of 2008 may have affected the response of market to the share buyback announcements in 2008.

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