

ANNOUNCEMENT EFFECT OF STOCK SPLIT ON PRICE BEHAVIOUR AND MARKET LIQUIDITY OF SHARES: A STUDY

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ABSTRACT

Stock split generally creates a notional feeling of pride and happiness in the mind of investors that the company going to split is a better company and the good performance will continue in future also. The main motive of this study is to analyse the effect of stock split announcement on share price behaviour and market liquidity of stocks of some large cap companies in India. Event study methodology has been used for analysing the share price behaviour and it is observed that the share prices of most of the stock splitting companies under study decreased continuously all through the event window surrounding the announcement date. On the announcement date some nominal recovery has been seen but after that during the post announcement period more negative abnormal returns have been noticed. The control companies also performed bad during the pre announcement period but during the post announcement period their share price performance have been improved too much. For the different holding period within the event window the post announcement average control adjusted abnormal returns (AARca) are found significantly negative except for very short holding periods when the negative AARca are insignificant. Thus the negative impact of stock split announcement on share price behaviour can be clearly noticed here. Thereafter, the liquidity of stocks surrounding the stock split announcement have been analysed by using the measures like Volume of trade, Turnover and Turnover ratio and it is found that the percentage of stock splitting companies having significant positive change and having significant negative change in liquidity are higher than the percentage of control companies having significant positive change and significant negative change in liquidity respectively from pre to post split announcement period. But the percentage of stock splitting companies having significant negative change in liquidity is higher than the percentage of them having significant positive change in liquidity. Thus there is an impact of stock split announcement on liquidity of shares but the negative impact has been dominated here in this study.

Keywords: Stock Split; India; Large cap companies; Announcement effect; Abnormal return; Market liquidity

INTRODUCTION

Stock split is a procedure mainly undertaken by the management of a company to reduce par value of shares in order to make the shares more affordable to the small investors and to enhance the market liquidity of the stock when the share price become too high compared to the share prices of its peer companies. Due to the stock split, the number of outstanding share increases in a pre decided and approved distribution ratio and simultaneously the price will decrease by the inverse of this ratio that results in no alteration of ownership interest of the existing shareholders and the total market value of their holdings. Though stock split is considered by many earlier researchers as a cosmetic event or is just like an event of cutting a pie into small pieces that does not add any value indeed, investors get very much excited to hear that the stocks in which they have invested is going to be split. The feeling of pride and happiness is due to the possibility of increase in share price around the stock split that is itself a positivity. This positive market reaction and probability of price enhancement is mainly depends on two broad aspects of stock split: Liquidity aspect and Signalling aspect. According to BERVAS(2006), Liquidity is a relative concept, as more liquid the asset, the more it is easily traded for liquidity "par excellence": money, i.e. at low cost, at short notice and with no risk of notable change in price. Market liquidity is the primary consideration for an efficient market as market liquidity is the ability to settle transaction at current prices and at all time with no notable transaction costs. Liquidity of stocks may boost up due to more affordability of stocks after the stock split.

Further, the stock split is often perceived by the investors as a positive signal regarding the superior performance and better future prospect of a company which is specified as signalling aspect of stock split. This paper aims to examine the impact of stock split announcement on share price behaviour as well as on market liquidity of shares. This study is fully based on Indian stock market and only the large cap stock splitting companies have been analysed. The control sample methodology has been used in this study so that it will be possible to observe whether the stock splitting companies significantly differ from the non stock splitting companies or not.

The rest of the paper is organised as follows: section **II** consists of the review of earlier literatures on stock split. Section **III** presents the details of objective, database and methodology used in this study. Section **IV** includes the empirical findings of the study and summarisation and section **V** indicates the concluding remarks.

II. REVIEW OF LITERATURE

Earlier, many research studies had been carried on for examining and establishing the different aspects of stock split. The present research work also comes out of those previous research efforts and their findings. The review of some earlier studies is presented here below:

The pioneer and influential study on market reaction to stock split was conducted by Fama, Fisher, Jensen and Roll(1969). According to them stock split tends to occur during general boom period when the stock performs usually well. Their study reveals that return on splitting shares is usually high in the month immediately preceding a split and after the split, the returns on split securities immediately resume their normal relationships to the market return.

Copeland(1979), Lamoureux and Poon(1987) found a reduction in liquidity following a stock split due to increase in Bid-Ask spread and brokerage fee. According to Lamoureux and Poon(1987), market attaches positive value to the split because of its Tax Option impact.

Ohlson and Penman(1985) found that the splitted stocks found significant price reaction on announcement of splits.

Ikenbary, Reinkine and Stice(1996) observed highest excess performance for low book to market(or glamour) stocks. Firms voluntarily splitting to their shares to extremely low prices tended to generate positive announcement return but experienced negative long run performance i.e. sceptical market reaction by these firms.

Desai, Nimalendran and, Venkataraman (1998) suggested that the increase in the number of trades are predominantly noise motivated, or that is an increase in competition between informed traders having substantially similar information.

Tawatnuntachai and D'Mello(1999) suggested that stock split conveys favourable industry-wide information about earning improvement and industry characteristics.

Wulff(2002) argued that in Germany, the announcement effect of stock split was best explained by neglected firm effect.

Mishra(2007) documented a significantly negative effect of stock split on stock returns resulting significant reduction in shareholders wealth.

With respect to the signalling hypothesis, signals considered by the market are the unexpected component of the split factor and there is a statistically significant relation between abnormal returns around the split announcement and the surprise component of the split factor.[Yague,Sala and Fuents(2009)]

Joshi(2009) found that the positive Average abnormal returns observed on the announcement and effective days of stock split did not sustained and got reversed in less than a week.

Aduda and Carolin (2010) found significant positive liquidity and signalling impact of stock split.

Chavali and Zahid(2011) also found significant positive AAR on the Announcement date and the day immediately before and after the announcement.

Thirunellai (2014) found significant positive excess stock price return over the market in the pre-stock split period but insignificant post split excess return over the market and also found enhancement in liquidity of splitted stocks during short and long run.

WEAKNESSES OF THE EARLIER RESEARCHES

- i) Some of these studies did not control for the potential contamination of other information releases on the stock prices at the split announcement date.
- ii) Most of these studies did not undertaken the control sample methodology in order to specify whether there is any difference between the stock split announcing companies and the control companies.

III. OBJECTIVE OF THE STUDY

There are two basic objectives of this paper.

- i) To examine the share price reaction to the stock split around the stock split announcement.
- ii) To verify the impact of stock split announcement on stock liquidity.

DATABASE AND METHODOLOGY

The present research study is based on the secondary data which is collected from the official website of the respective sample companies under the study as well as the “Capitaline – 2000 Database package” is used for collecting data on daily share price, volume, turnover, market capitalisation, balance sheet and Account of profit and loss. The www.moneycontrol.com site has also been used in this study.

The sample under study consisted of 20 large cap BSE(Bombay Stock Exchange) listed companies that had undergone for stock split over the period of 10 years from F.Y. 2004-05 to F.Y. 2013-14 and that did not performed any other financial events within the financial year of stock split. Large cap companies have been selected based on their market cap greater than 1000 crore as on 31/3/2015. The study also includes same number of control companies of their respective stock splitting companies. Control companies of each stock splitting companies are selected on the basis of same industry and having approximately the same or next closest market capitalisation as on 31/3/2015. In some cases, the company that did not announce any stock split within the period of six years before and six years after the financial year in which stock split announced by the respective stock splitting company, has been selected as the control company of that stock splitting company. Thus the study is consisted of 20stock splitting companies and 20 control companies i.e. total 40 companies.

METHODOLOGY

Methodology for the analysis of share price reaction

The widely used standard event study methodology is to be applied in order to assess the impact of stock split. In this study the announcement date of stock split is to be defined as day 0. 20 trading days prior to the announcement date i.e. -20 to -1 is to be considered as pre-event period and 20 days after the announcement date i.e. +1 to +20 is to be taken as post-event period. Thus, the event window of 41trading days (including the announcement day as day 0) is to be considered for the study.

Now, prediction of expected return $E(R_{it})$ on each security for the test period has been done for the calculation of abnormal return if any. These predictions have based on the weekly data for the estimation period of 1 year prior to the event window. For the calculation of $E(R_{it})$ the Market Model has been used as it is the most popular benchmark employed in event studies.

As per the Market Model,

$$E(R_{it}) = a_i + b_i R_{mt} + u_i$$

Where, a_i = Intercept of a straight line or alpha coefficient of i^{th} security,

b_i = Slope of a straight line Beta coefficient of i^{th} security,

R_{mt} = Expected return on index (CNX Nifty-50 index) in this study during period “t”,

and u_i = The independent disturbance term at time t.

Then the abnormal returns are to be identified over the test period for each stock in the sample given by,

$$AR_{it} = R_{it} - E(R_{it})$$

Where, AR_{it} = abnormal return on security i at time t,

R_{it} = Actual return,

and $E(R_{it})$ = Expected return of security i.

In the next step, an Average Abnormal Return (AAR) across the sample is to be calculated for each day -20 to +20 days. It requires cumulating the abnormal returns of the company, each day over the test period and is given by,

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

Where, N = total number of splits in the sample

t = days surrounding the announcement day.

After that, in order to observe the impact of split announcement Cumulative Average Abnormal Return (CAAR) has been calculated as follows,

$$CAAR_t = \sum_{t=-20}^{+20} AAR_{it}$$

Now, to study the significance of Average Abnormal Returns t-test has been applied.

In order to analyse the behaviour of ARs during different event windows or different holding periods around the event date, the window test has been performed by considering event windows of 41 days (i.e. day -20 to +20), 31 days (i.e. day -15 to +15), 21 days (i.e. day -10 to +10), 15 days (i.e. day -7 to +7), 11 days (i.e. day -5 to +5), 7 days (i.e. day -3 to +3) and 3 days (i.e. day -1 to +1). For the above different event windows mean AAR and CAAR have been computed for the whole event windows and separately for the period before announcement date and period after the announcement date. Lastly, T- Test has been done again in order to test the statistical significance of mean AARs of different holding periods. All the above analysis has been performed separately for the Stock splitting companies, Control companies and also for the Control Adjusted stock splitting companies.

Methodology for the analysis of liquidity impact of stock split

To measure the change in liquidity of stocks around the stock split announcement, the liquidity indicators like daily volume of trade, day wise turnover and day wise turnover ratio are firstly calculated and then compared for 20 days before and 20 days after the stock split announcement date. As volume of trade and turnover are in absolute value, a relative measure of liquidity should be used. So the turnover ratio (i.e. turnover/market capitalisation *100) is also considered as a liquidity measure in this study. Thereafter, the same measures are also computed for the respective control companies and compared for the same period in order to see the real impact of stock split on liquidity. To judge the statistical significance of the change in liquidity measures, Paired T-test has been performed.

IV. EMPIRICAL FINDINGS

IV.1.A Share price behaviour of stock splitting companies around the announcement date of stock split

The cross sectional AARs and CAARs of the total stock splitting companies for the 41 days event window (i.e. day -20 to day +20) surrounding the announcement date along with statistics like T values, P values and along with the percentage of companies having positive ARs on each day of the event window have been shown in Table: 4.1.i. From the table it is clear that except day -12 and day 0 i.e. the announcement day, for all the days during the event window the AARs have been negative. During pre-announcement period, for 7 days (i.e. day -17, day -16, day -15, day -11, day -8, day -4, and day -2) the negative AARs are found statistically significant whereas, during the post announcement period, negative AARs have been seen significant for 6 days (viz. day +4, day +9, day

+12, day +13, day +17, and day +18). The positive AARs observed on day -12 (i.e. 0.06%) and on day 0 (i.e. 0.03%) are found insignificant. The highest i.e. 50% of the stock splitting companies having positive abnormal returns has been observed on announcement day of stock split whereas, the lowest percentage of stock splitting companies (i.e. only 15%) having positive abnormal returns has been noticed on day -8, day +9 and day +15. During the whole event window the CAAR remained negative. From day -20 to day -1, the CAAR has been found -17.33% that recovered nominally to -17.30% on the announcement day and up to day +20 i.e. up to the last day of the event window it become much more i.e. -38.11%.

From the window test results as presented in Table: 4.1.iii, It is observed that for all the different holding periods the mean AARs have been negative as well as significant except for the small holding periods of day -3 to -1, day +1 to +3 and day -1 to +1, the negative mean AARs have been found statistically insignificant. During the standard event window of day -20 to day +20 surrounding the announcement date, the pre-announcement mean AAR and CAAR (i.e. for the period of day -20 to -1) have been -0.87% and -17.33% respectively and during post announcement period (i.e. day +1 to +20) those are found -1.04% and -20.81% respectively. Similarly for all the shorter event windows, the post announcement mean AARs and CAARs have been more negative compared to those for the pre announcement period. Thus, it is revealed that market reacts negatively around the announcement day of stock split. Except for two days (day -12, and day 0), the shareholders wealth has been highly reduced all through the event window.

IV.1.B Share price behaviour of the control companies around the stock split announcement date

The cross sectional AARs and CAARs of the control companies for the 41 days event window surrounding the announcement date of stock split has been given also in Table: 4.1.i. From the table it has been seen that during the pre announcement period only for two days (i.e. day -19 and day -12) and during post announcement period only for 6 days (i.e. day +4, day +7, day +8, day +10, day +14, and day +15) the AARs have been positive though, none of them are significant. Out of the negative AARs during pre announcement period, for 4 days (i.e. day -15, day -11, day -7 and day -5) those are found significant and during the post split announcement period those are found significant for 3 days (i.e. day +12, day +17, and day +20). On the announcement day, the negative AAR of -0.32% has been noticed when 40% of the control companies have shown positive abnormal returns. Considering the CAAR, only for three days during the pre announcement period i.e. from day -19 to day -17 the CAAR has been positive but after that for all the days during the event window the CAAR remained negative. Up to the day immediately before the announcement day i.e. from day -20 to day -1, the negative CAAR has been -14.69% and up to the last day of the event window i.e. on day +20, it becomes -24.22%. The highest i.e. 55% of the control companies having positive abnormal returns has been observed on day -12 and the lowest i.e. only 15% of the control companies having positive abnormal returns has been noticed on the next day i.e. day -11. The comparative trend of AAR of the stock splitting companies and that of the control companies and comparative trend of CAAR of the stock splitting companies and that of the control companies for the 41 days event window can be clearly observed in Figure 4.1.a and Figure 4.1.b respectively.

Now considering the different holding periods as shown in the window test table 4.1.iii, it is seen that for all the different event windows, the post announcement negative mean AARs and CAARs have been found much lower than the pre announcement mean AARs and CAARs which is just the reverse of that has been observed in case of the stock splitting companies. Even for the standard event window of day -20 to day +20, the pre announcement negative mean AAR and CAAR have been -0.73% and -14.69% respectively those are found much lower i.e. -0.46% and -9.22% respectively during the post announcement period.

IV.1.C Control adjusted share price behaviour of the stock splitting companies around the stock split announcement date

In order to contaminate the industry specific factors and to see clearly the share price behaviour of the stock splitting companies as compared to their control companies, the analysis of control adjusted abnormal returns has been done in this study. The control adjusted AAR i.e. AARca, control adjusted CAAR i.e. CAARca along with other statistics for the 41 days event window surrounding the

announcement day of stock split have been given in Table: 4.1.ii and the trend of AARca for the above event window has been presented in Figure 4.1.c. From the table it is very clear that during the pre announcement period for 10 days out of 20 days (i.e. day -15, day -14, day -13, day -11, day -7, day -6, day -5, day -4, day -2, day -1) the AARca have been positive and also on the announcement day positive AARca of 0.35% has been noticed. During the post announcement period, only for last two days the AARca have been positive (i.e. on day +19 and day +20) but none of the positive and negative AARca has been found significant during the whole event window. Further, it is also observed that the CAARca remain negative for the whole event window. During the pre announcement period i.e. upto day -1, the negative CAARca of -2.64% has been noticed that nominally reduced to -2.29% on the announcement day but upto the last day i.e. day +20, it become much more negative i.e. -13.88%. This trend of CAARca has been graphically shown in Figure 4.1.d. Thus before the stock split announcement, the stock splitting companies have shown bad performance and after the stock split announcement, the stock splitting companies have lost their share holders wealth immensely i.e. much more destruction in their share price performance has been noticed compared to their control companies. The highest percentage of companies having abnormal returns more than their control companies i.e. positive ARca has been 75% that is observed on day -15 and the lowest of that has been 25% observed on day -20, day +4 and day +10.

There after considering the different holding periods as shown in the window test Table: 4.1.iii, it is seen that except the standard event window of day -20 to +20, for all the shorter event windows the pre announcement mean AARca and CAARca have been positive but for all the event windows, the post announcement mean AARca and CAARca have been negative even the AARca and CAARca for the pre announcement and those for the post announcement period have been widely differ. Only for the event window of 41 days, the negative mean AARca and CAARca have been significant. Whereas, for all the different event windows the pre announcement mean AARca have been insignificant but the post announcement mean AARca have been negative as well as highly significant except the very short event windows of day -5 to +5, day -3 to +3 and day -1 to +1.

IV.2 Announcement effect of stock split on liquidity of shares

The summary of paired T test result of change in liquidity measures like Turnover ratio, Volume of trade and Turnover of the stock splitting companies from 20 days pre to 20 days post the stock split announcement date has been presented in Table: 4.2. From the table it is clearly revealed that 45% of the stock splitting companies have shown insignificant change in the turnover ratio whereas, only 20% of them are having significant positive change and the remaining 35% of the stock splitting companies have shown significant negative change in their turnover ratio from pre to post stock split announcement period. On the other hand, the percentage of control companies having significant positive change, significant negative change and insignificant change in their turnover ratio, in their volume of trade and in their turnover are found same. Most of the control companies (i.e. 70%) have shown insignificant change in all the three measures where, only 10% of the control companies are having significant positive change and the remaining 20% of them are having significant negative change in all the above three measures of liquidity from pre to post announcement period.

Now, considering the change in volume of trade of the stock splitting companies it has been seen that 50% of the stock splitting companies have depicted insignificant change in their volume of trade where only 20% of them have shown significant positive change in their volume and the remaining 30% of them have shown significant negative change in their volume of trade.

Similarly in case of change in turnover, most of the stock splitting companies (i.e. 65%) are having insignificant change in their turnover. Whereas, again 20% of the stock splitting companies have shown significant positive change and the remaining 15% have faced significant negative change in volume. Thus, only in case of change in turnover of the stock splitting companies, the percentage of companies having significant negative change is less than the percentage of companies having significant positive change though, the percentage of stock splitting companies having insignificant change in turnover is much higher as that has been observed in case of change in turnover ratio and volume.

On average, the percentage of stock splitting companies having insignificant change in liquidity from pre to post split announcement period is 53.33% that is found much higher i.e. 70% in case of control companies. Whereas, the percentage of stock splitting companies having significant positive change in liquidity is 20% and also having significant negative change in liquidity is 26.67% are found higher than the percentage of control companies having significant positive change in liquidity (i.e. 10%) and the percentage of control companies having negative change in liquidity (i.e. 20%) respectively.

Thus there is an announcement impact of stock split on liquidity of the stock splitting companies has been noticed but the impact is both positive and negative. Even the negative impact of stock split on liquidity is dominating here in this study.

V. CONCLUDING REMARKS

A company conducts stock split generally to boost the liquidity of the shares as well as for so many reasons related to pricing. Stock split creates a notional feeling in the minds of the investors that the company going to split is certainly a very good company having higher share prices compared to its peer companies and after stock split, the shares of this well performing companies can be purchased in lower prices and thereafter the share price again will go up due to the companies better performance in future also.

Now, in this study the above aspects of stock split has been tried to explore by analysing the market reaction to stock split surrounding the announcement date of stock split as well as announcement impact of stock split on liquidity of shares. From the analysis of share price performance it is observed that all through the event window surrounding the announcement date, the share prices of most of the stock splitting companies decreased continuously. During the post announcement period more negative abnormal returns have been observed. In case of control companies also the share prices have been reduced highly during the pre announcement period but good recovery had been seen during the post announcement period as negative abnormal returns become much lower. The trend of AARca and CAARca clearly indicates bad share price performance of both the stock splitting companies and their control companies during the pre announcement period even the stock splitting companies have been worse than the control companies to some extent but during the post announcement period the share price performance of control companies have been improved too much whereas the abnormal returns of the stock splitting companies continued to decrease highly. Hence, the share holders wealth of the stock splitting companies have been highly diluted continuously during the post split period also. Therefore, an investor can not earn abnormal gain even, he has to lose his wealth significantly much more by investing or holding the shares of stock splitting companies for the different holding periods surrounding the announcement date of stock split especially during the post announcement period as compared to the investors those have invested or held the shares of non stock splitting companies during that period. Thus, negative impact of stock split announcement on share price performance of the stock splitting companies can be clearly noticed here.

Further, the percentage of stock splitting companies having insignificant change in liquidity is much lower than the percentage of control companies having insignificant change in liquidity which indicates that there is an impact of stock split announcement on liquidity shares but the domination of negative impact of stock split announcement on liquidity of shares has been noticed here in this study though the percentage of stock splitting companies having positive and negative change in liquidity is higher than the percentage of control companies having positive and negative change in liquidity of shares but the percentage of stock splitting companies having negative change in liquidity is found higher than the percentage of them having positive change in liquidity of shares.

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Table 4.1.i: Cross-sectional Average Abnormal Returns (AARs) and Cumulative Average Abnormal Returns (CAARs) with other Statistics of the Total Stock Splitting Companies and Total Control Companies surrounding the Stock Split Announcement Date

Days Relative to Split Announcement Date	Stock splitting companies					Control Companies				
	AAR	CAAR	t value	P value	% of companies having positive AR	AAR	CAAR	t value	P value	% of companies having positive AR
Day -20	-0.0092	-0.0092	-1.764	.094	35.00	-0.0044	-0.0044	-.598	.557	40.00
Day -19	-0.0094	-0.0186	-1.740	.098	20.00	0.0101	0.0057	.910	.374	50.00
Day -18	-0.0075	-0.0261	-1.833	.083	20.00	-0.0024	0.0033	-.506	.618	35.00
Day -17	-0.0191	-0.0453	-3.982	.001	25.00	-0.0015	0.0018	-.136	.893	25.00
Day -16	-0.0098	-0.0551	-2.390	.027	25.00	-0.0035	-0.0017	-.454	.655	50.00
Day -15	-0.0162	-0.0713	-3.603	.002	20.00	-0.0238	-0.0255	-4.254	.000	20.00
Day -14	-0.0076	-0.0789	-1.155	.263	25.00	-0.0099	-0.0354	-1.578	.131	35.00
Day -13	-0.0045	-0.0834	-.796	.436	40.00	-0.0050	-0.0404	-.611	.549	40.00
Day -12	0.0006	-0.0827	.102	.920	40.00	0.0013	-0.0390	.230	.821	55.00
Day -11	-0.0122	-0.0950	-3.078	.006	25.00	-0.0197	-0.0588	-3.890	.001	15.00
Day -10	-0.0107	-0.1057	-2.065	.053	25.00	-0.0022	-0.0610	-.261	.797	35.00
Day -9	-0.0112	-0.1169	-2.076	.052	25.00	-0.0078	-0.0688	-1.258	.224	30.00
Day -8	-0.0093	-0.1262	-2.442	.025	15.00	-0.0052	-0.0740	-.893	.383	40.00
Day -7	-0.0066	-0.1328	-1.012	.324	35.00	-0.0140	-0.0880	-3.429	.003	20.00
Day -6	-0.0009	-0.1337	-.101	.920	30.00	-0.0016	-0.0896	-.231	.820	35.00
Day -5	-0.0104	-0.1441	-2.343	.030	30.00	-0.0129	-0.1024	-2.228	.038	35.00
Day -4	-0.0002	-0.1442	-.049	.961	45.00	-0.0139	-0.1164	-1.409	.175	35.00
Day -3	-0.0144	-0.1586	-3.029	.007	20.00	-0.0100	-0.1264	-1.616	.123	25.00
Day -2	-0.0077	-0.1663	-.886	.387	30.00	-0.0115	-0.1379	-1.568	.133	40.00
Day -1	-0.0069	-0.1733	-1.682	.109	30.00	-0.0090	-0.1469	-1.396	.179	20.00
Day 0	0.0003	-0.1730	.036	.972	50.00	-0.0032	-0.1501	-.599	.556	40.00
Day +1	-0.0034	-0.1764	-.457	.653	30.00	-0.0015	-0.1515	-.163	.872	30.00
Day +2	-0.0143	-0.1907	-1.763	.094	30.00	-0.0112	-0.1627	-1.146	.266	35.00
Day +3	-0.0114	-0.2021	-1.519	.145	35.00	-0.0067	-0.1694	-1.485	.154	40.00
Day +4	-0.0112	-0.2133	-2.196	.041	35.00	0.0017	-0.1677	.286	.778	45.00
Day +5	-0.0024	-0.2157	-.343	.736	35.00	-0.0022	-0.1699	-.249	.806	40.00
Day +6	-0.0053	-0.2209	-1.027	.317	35.00	-0.0037	-0.1736	-.521	.608	45.00
Day +7	-0.0076	-0.2285	-1.800	.088	30.00	0.0046	-0.1690	.645	.527	50.00
Day +8	-0.0062	-0.2347	-1.068	.299	20.00	0.0018	-0.1672	.201	.843	35.00
Day +9	-0.0117	-0.2465	-3.406	.003	15.00	-0.0062	-0.1734	-.889	.385	30.00
Day +10	-0.0079	-0.2544	-1.964	.064	30.00	0.0012	-0.1723	.161	.873	45.00
Day +11	-0.0090	-0.2633	-1.462	.160	30.00	-0.0072	-0.1795	-.695	.496	35.00
Day +12	-0.0128	-0.2762	-2.408	.026	25.00	-0.0089	-0.1884	-2.174	.043	25.00
Day +13	-0.0176	-0.2938	-2.443	.025	20.00	-0.0076	-0.1960	-.978	.341	30.00
Day +14	-0.0137	-0.3075	-2.081	.051	15.00	0.0025	-0.1935	.267	.792	50.00
Day +15	-0.0095	-0.3169	-1.904	.072	30.00	0.0078	-0.1857	.687	.500	50.00
Day +16	-0.0114	-0.3283	-2.081	.051	25.00	-0.0073	-0.1930	-1.674	.110	30.00
Day +17	-0.0207	-0.3490	-2.880	.010	30.00	-0.0129	-0.2060	-2.252	.036	30.00
Day +18	-0.0184	-0.3674	-3.448	.003	20.00	-0.0108	-0.2168	-1.622	.121	40.00
Day +19	-0.0049	-0.3724	-.747	.464	30.00	-0.0134	-0.2302	-2.079	.051	40.00
Day +20	-0.0087	-0.3811	-1.729	.100	35.00	-0.0121	-0.2422	-3.023	.007	40.00

Note: Values in **Bold** indicates Statistically Significant at 5% level.

Table 4.1.ii: Cross-sectional AARca and CAARca with other statistics surrounding the Stock Split Announcement Date

Days Relative to Split Announcement Date	AARca	CAARca	Degree of Freedom	t value	p value	% of companies having positive AR
Day -20	-0.0048	-0.0048	19	-.552	.587	25.00
Day -19	-0.0195	-0.0243	19	-1.927	.069	35.00
Day -18	-0.0051	-0.0294	19	-.925	.367	45.00
Day -17	-0.0176	-0.0470	19	-1.542	.140	30.00
Day -16	-0.0063	-0.0534	19	-.835	.414	40.00

Day -15	0.0076	-0.0458	19	1.333	.198	75.00
Day -14	0.0023	-0.0435	19	.300	.768	60.00
Day -13	0.0005	-0.0430	19	.049	.962	45.00
Day -12	-0.0007	-0.0437	19	-.100	.921	40.00
Day -11	0.0075	-0.0362	19	1.687	.108	65.00
Day -10	-0.0085	-0.0447	19	-.908	.375	50.00
Day -9	-0.0034	-0.0481	19	-.452	.657	50.00
Day -8	-0.0041	-0.0522	19	-.699	.493	40.00
Day -7	0.0074	-0.0448	19	.988	.336	50.00
Day -6	0.0007	-0.0441	19	.118	.907	50.00
Day -5	0.0025	-0.0416	19	.292	.773	50.00
Day -4	0.0138	-0.0278	19	1.258	.224	55.00
Day -3	-0.0044	-0.0322	19	-.488	.631	45.00
Day -2	0.0038	-0.0284	19	.324	.750	40.00
Day -1	0.0021	-0.0264	19	.309	.761	65.00
Day 0	0.0035	-0.0229	19	.352	.729	60.00
Day +1	-0.0019	-0.0248	19	-.142	.889	50.00
Day +2	-0.0032	-0.0280	19	-.450	.658	45.00
Day +3	-0.0047	-0.0326	19	-.736	.471	30.00
Day +4	-0.0129	-0.0456	19	-1.936	.068	25.00
Day +5	-0.0002	-0.0458	19	-.019	.985	45.00
Day +6	-0.0016	-0.0473	19	-.211	.835	40.00
Day +7	-0.0122	-0.0595	19	-1.321	.202	55.00
Day +8	-0.0080	-0.0675	19	-.706	.489	50.00
Day +9	-0.0055	-0.0730	19	-.785	.442	45.00
Day +10	-0.0091	-0.0821	19	-1.563	.135	25.00
Day +11	-0.0017	-0.0838	19	-.138	.891	65.00
Day +12	-0.0039	-0.0877	19	-.648	.525	40.00
Day +13	-0.0100	-0.0978	19	-.903	.378	45.00
Day +14	-0.0162	-0.1139	19	-1.517	.146	30.00
Day +15	-0.0173	-0.1312	19	-1.454	.162	40.00
Day +16	-0.0041	-0.1353	19	-.567	.577	50.00
Day +17	-0.0078	-0.1431	19	-.796	.436	40.00
Day +18	-0.0076	-0.1506	19	-1.323	.201	35.00
Day +19	0.0085	-0.1422	19	1.094	.288	55.00
Day +20	0.0034	-0.1388	19	.578	.570	50.00

Figure: 4.1.a

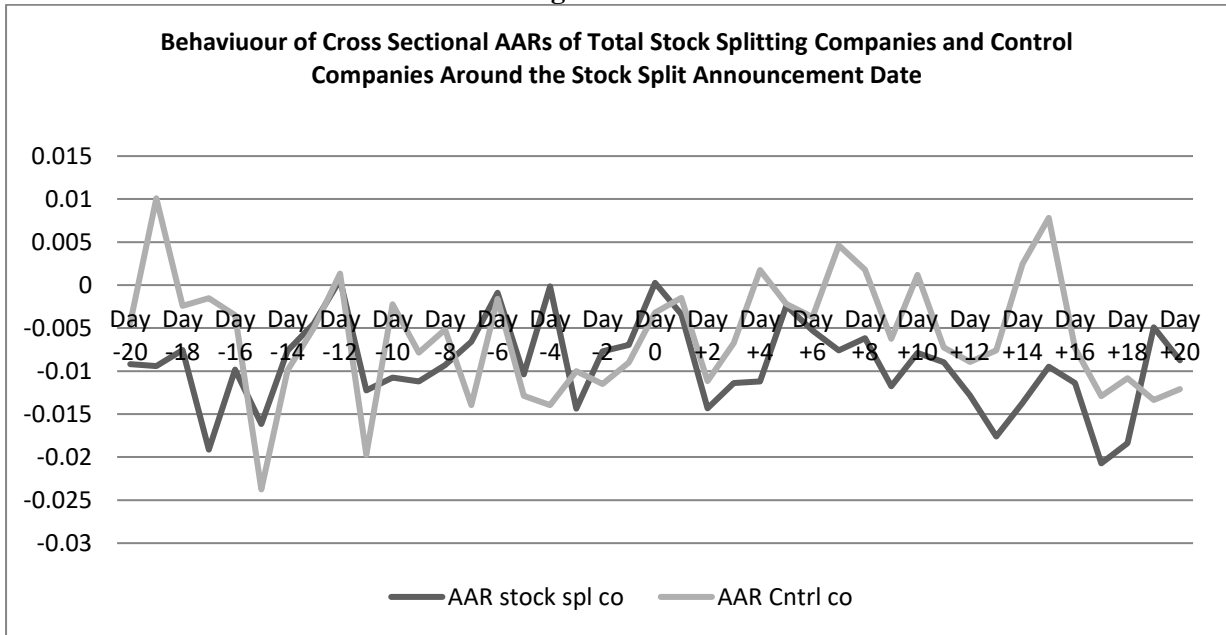


Figure: 4.1.b

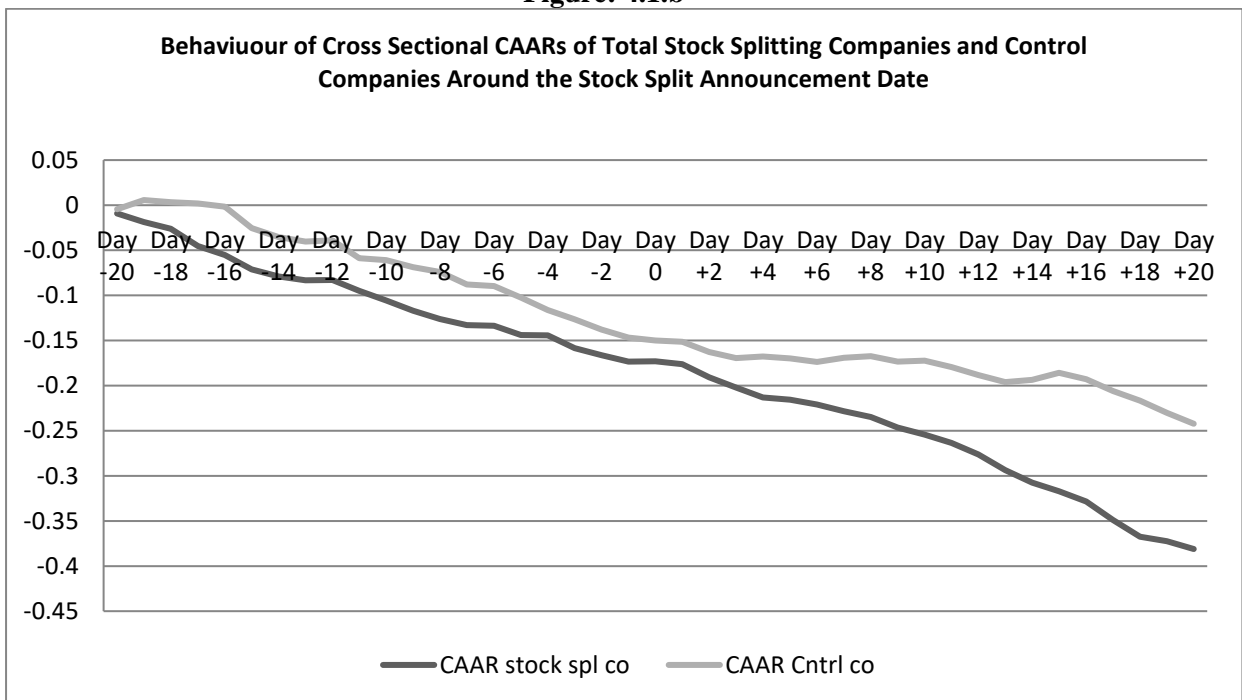


Figure: 4.1.c

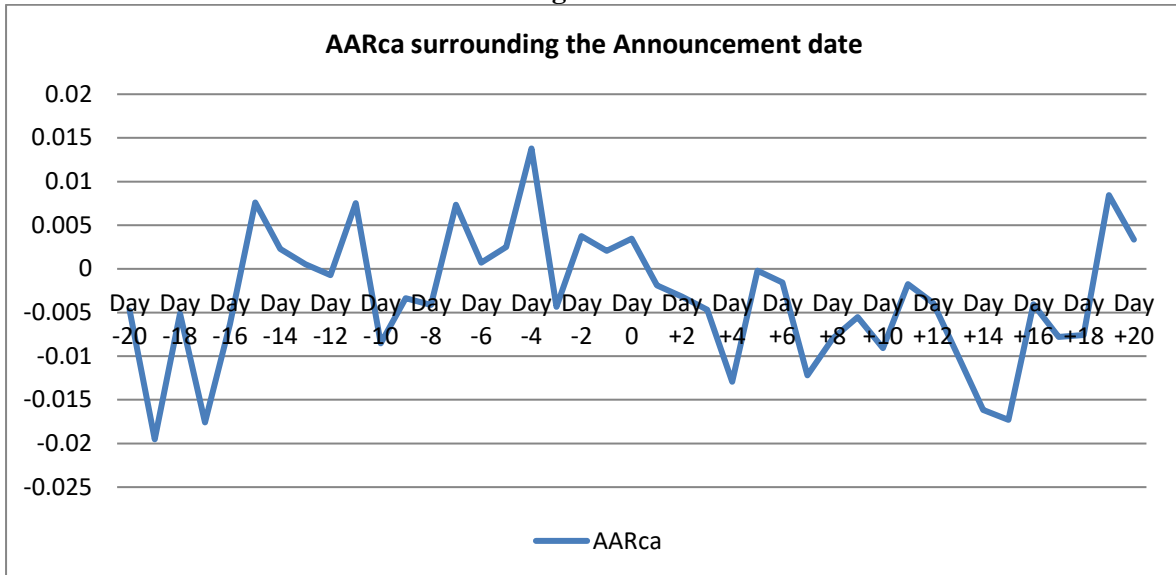


Figure: 4.1.d

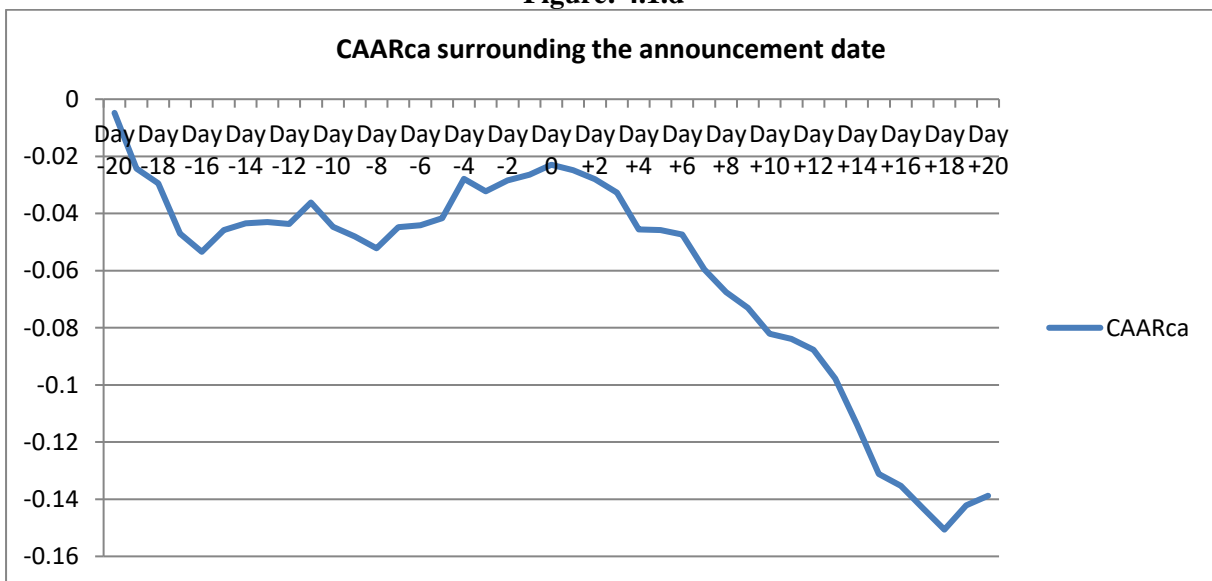


Table 4.1.iii: Mean and Cumulative Average Abnormal Returns of Total Stock splitting companies, Total Control Companies, and Control Adjusted for Different Holding Periods within the Announcement Date Event Window

Holding Periods	Number of Days	Stock Splitting Companies				Control companies				Control Adjusted			
		Mean AAR	t value	p value	CAAR	Mean AAR	t value	p value	CAAR	Mean AAR	t value	p value	CAARca
Day -20 to +20	41	-0.0093	-11.537	.000	-0.3811	-0.0059	-5.431	.000	-0.2422	-0.0034	-2.886	.006	-0.1388
Day -20 to -1	20	-0.0087	-7.757	.000	-0.1733	-0.0073	-4.306	.000	-0.1469	-0.0013	-.726	.477	-0.0264
Day +1 to +20	20	-0.0104	-9.393	.000	-0.2081	-0.0046	-3.274	.004	-0.0922	-0.0058	-4.115	.001	-0.1159
Day -15 to +15	31	-0.0084	-9.701	.000	-0.2618	-0.0059	-4.712	.000	-0.1840	-0.0025	-1.955	.060	-0.0778
Day -15 to -1	15	-0.0079	-6.086	.000	-0.1182	-0.0097	-5.553	.000	-0.1452	0.0018	1.215	.245	0.0270
Day +1 to +15	15	-0.0096	-8.755	.000	-0.1439	-0.0024	-1.660	.119	-0.0357	-0.0072	-5.064	.000	-0.1083
Day -10 to +10	21	-0.0076	-7.926	.000	-0.1594	-0.0054	-4.449	.000	-0.1135	-0.0022	-1.554	.136	-0.0459
Day -10 to -1	10	-0.0078	-5.529	.000	-0.0783	-0.0088	-6.099	.000	-0.0881	0.0010	.477	.645	0.0098
Day +1 to +10	10	-0.0081	-6.544	.000	-0.0814	-0.0022	-1.455	.180	-0.0222	-0.0059	-4.186	.002	-0.0592
Day -7 to +7	15	-0.0068	-5.434	.000	-0.1023	-0.0063	-4.127	.001	-0.0950	-0.0005	-.278	.785	-0.0073
Day -7 to -1	7	-0.0067	-3.558	.012	-0.0471	-0.0104	-6.369	.001	-0.0729	0.0037	1.719	.136	0.0258
Day +1 to +7	7	-0.0079	-4.658	.003	-0.0555	-0.0027	-1.369	.220	-0.0189	-0.0052	-2.662	.037	-0.0366
Day -5 to +5	11	-0.0075	-4.602	.001	-0.0820	-0.0073	-4.604	.001	-0.0803	-0.0001	-.074	.942	-0.0016
Day -5 to -1	5	-0.0079	-3.392	.027	-0.0396	-0.0115	-12.665	.000	-0.0573	0.0035	1.215	.291	0.0177
Day +1 to +5	5	-0.0085	-3.594	.023	-0.0427	-0.0040	-1.762	.153	-0.0198	-0.0046	-2.067	.108	-0.0229
Day -3 to +3	7	-0.0083	-3.960	.007	-0.0578	-0.0076	-5.083	.002	-0.0530	-0.0007	-.492	.640	-0.0048
Day -3 to -1	3	-0.0097	-4.105	.055	-0.0290	-0.0102	-14.095	.005	-0.0305	0.0005	.197	.862	0.0015
Day +1 to +3	3	-0.0097	-2.959	.098	-0.0291	-0.0065	-2.303	.148	-0.0194	-0.0032	-4.045	.056	-0.0097
Day -1 to +1	3	-0.0033	-1.604	.250	-0.0100	-0.0046	-2.000	.184	-0.0137	0.0012	.753	.530	0.0036

Note: Values in Bold indicates Statistically Significant at 5% level.

Table 4.2 : Summary of Paired T test results for announcement effect of stock split on liquidity

	LARGE CAP			
	STOCK SPLITTING COM.		CONTROL COM.	
Number of Companies	20		20	
Based on Turnover ratio	Number	%ge	Number	%ge
Significant positive	4	20.00	2	10.00
Significant Negative	7	35.00	4	20.00
Insignificant	9	45.00	14	70.00
Based on Volume				
Significant positive	4	20.00	2	10.00
Significant Negative	6	30.00	4	20.00
Insignificant	10	50.00	14	70.00
Based on Turnover				
Significant positive	4	20.00	2	10.00
Significant Negative	3	15.00	4	20.00
Insignificant	13	65.00	14	70.00
Average				
Significant positive		20.00		10.00
Significant Negative		26.67		20.00
Insignificant		53.33		70.00