

AN EMPIRICAL STUDY ON PRICE PRESSURE AND  
LIQUIDITY EFFECT OF STOCK SPLIT  
ANNOUNCEMENT” - EVIDENCE FROM INDIAN  
MARKET

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**Abstract**

*This paper investigates the market reaction to stock split announcement news, using an event study methodology for Nifty stocks from 1995 to 2011. There are several theories that have been advanced to explain why companies go for stock split. In previous studies, it is evident that stock returns are significantly affected negatively or positively around stock split announcement dates. Informed investors market wealth is affected to a greater extent around this event. The purpose of this study is to test whether the investor can gain or lose an above normal return by relying on public information impounded in a stock split announcement. Using risk adjusted event study methodology, this study tests where there is excessive abnormal return exists during event window of announcement. stock split sample observations S&P Nifty INDEX were analyzed using standard risk adjusted event study methodology. The event study methodology was employed in the determination of the effects of the stock split. Abnormal returns were calculated by using market model and t-tests were conducted to test the significance. We find the existence of significant positive abnormal returns on AD 0, but under a short run of AD+3 abnormal returns*

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*do not persist and dilutes to its normal return. The study found out that the Indian market reacts positively to stock splits. The study also shown an increase in volumes of shares traded around the stock splits date. There is also an increase in trading activity after the stock split announcement as compared to that before the announcement.*

**Keywords:** *Abnormal returns, market reaction, event study methodology*

## 1. Introduction and Literature review

When a publicly traded company issues corporate action information through any channel of communication, it is initiating a process that will bring actual change to its stock. By understanding these different types of processes and their effects, an investor can have a clearer picture of what a corporate action indicates about a company's financial affairs and how that action will influence the company's share price and performance. This knowledge, in turn, will aid the investor in determining whether to buy, sell or hold the stock in question. Corporate actions are typically agreed upon by a company's board of directors and authorized by the shareholders and informed to the shareholders from time to time. Informed shareholders generally understand the market as efficient and the daily stock prices reflect the market adjusted price for all available information of the corporate events. Such premises are hypothetical to believe that the market is efficient and are influenced by the corporate actions disclosure given from time to time. Under efficient markets corporate events should not show any abnormal return on or surrounding either announcement date or effective date of information, as it is absorbed by the market in the real time, and the current prices reflect the benefits associated with such corporate events, and discounts its future earning benefits. Grinblatt et al. (1984) document rising stock prices at the announcement of such a transaction and furthermore, at the execution date itself abnormal returns are observed. Liljeblom (1989) supports the findings of Grinblatt et al. (1984) in the Swedish stock market. A number of explanations for stock splits have been proposed in the earlier research works. The trading range hypothesis (Copeland (1979) argues that firms prefer to keep their stock price within a particular (lower) price range. This preference may be because of a specific clientele they wish to attract or a particular dispersion in ownership they

wish to achieve, but in either case it reflects the view that greater liquidity for stocks may arise in certain price ranges than in others. The clientele preferring a lower price range is usually thought to be uninformed or small investors. Overwhelming evidence that return volatility increases after splits casts doubt on this explanation. Another explanation is that a self-serving management wants diffused ownership since small investors cannot exercise too much control (Powell and Baker (1993/1994)). Commenting on Ikenberry and Ramnath (2002), Titman (2002) concurs that their study seems to provide strong support for the over confidence/under reaction hypothesis. A study by Partrick Dennis (2003) investigated the stock splits and liquidity in the case of the Nastaq -100 Index Tracking Stock and found that the average daily turn over before the split was 23.95 percent and after the split was 22.81 percent. Evidence from India” by Amitabh Gupta and Gupta.O.P (2007) maintains that stock splits are associated with positive abnormal returns around the announcement. Lukose Jijo and Narayanan Rao.S (2002) have examined the reaction of stock prices around the date of announcement of stock splits and ex-split date. It was found out that on the date of announcement, there was an abnormal return of 5.27 percent and on day +1, 2.42 percent. The result of abnormal returns around the ex-split day shows that much of the abnormal returns take place on day 0 (3.68%) and day +1 (2.04%).

Lifan Wu and Bob Y. Chan (1997) in their paper titled “On Existence of An Optimal Stock Price: Evidence from Stock Splits and Reverse Stock Splits” analyzes a sample of stock splits and reverse stock splits on the Stock Exchange of Hong Kong (SEHK) over the period 1986 through 1992. Consistent with studies on stock splits and reverse stock splits made in the U.S. capital markets, the analysis shows that stock splits are associated with a positive and significant stock market response while reverse stock splits are associated with a negative but statistically insignificant price effect. The researchers also investigated the “optimal price range” hypothesis, which states that firms choose the split factor (SF) as a device to return the stock price to a “preferred price range.” Patrick Dennis & Deon Strickland (1998) in their paper titled “The effect of stock splits on liquidity: Evidence from shareholder ownership composition” states that the traditional view of stock splits as cosmetic transactions that simply divide the same pie into more slices is inconsistent with the significant wealth effect associated with the announcement of a stock split. Yılmaz, Işıl Sevilay & Seza Danişoğlu Rhoades (2003), in their paper titled “An analysis of stock splits in the Istanbul Stock Exchange” tested the validity of the trading range hypothesis as a basis for stock split decisions of Turkish companies. In the first part, the liquidity

effects of stock splits on Turkish stocks are examined. Second, the optimal trading ranges for different-sized firms and firms with different investor bases are determined. Finally, the main empirical question of the study is analyzed by testing whether or not Turkish firms whose share prices rise above their optimal trading ranges are more likely to split their stock compared to firms whose share prices are at or below their optimal trading ranges. Jorge Farinha & Nuno Filipe Basilio, Universidade do Porto (2006) in their research paper titled “Stock Splits: Real Effects or Just a Question of Maths? An Empirical Analysis of the Portuguese Case” states that Stock splits are conceptually a very simple corporate event that consists in the division of each share into a higher number of shares of smaller par value. The paper “The Impact of Stock Splits on Price and Liquidity on the Stock Exchange of Thailand” by Pantisa Pavabutr, & Kulpatra Sirodom, (2008) explores the impact of stock splits on stock price and various aspects of liquidity using daily and intraday data from the Stock Exchange of Thailand between 2002-2004. We provide evidence that reductions in trade frictions and increases in split-adjusted price levels are associated with the size of split factors and post-split trading range. Stocks with high split factors have better post-split adjusted price performance and lower trade bid-ask spreads and price impact. The empirical findings lend support to the trading range hypothesis of stock splits. Dr. Josiah Omollo Aduda & Chemarum Caroline S.C (2010) in the paper “Market Reactions to Stock Splits: Empirical Evidence from the Nairobi Stock Exchange” states that there are several theories that have been advanced to explain why companies split their stock. The most common ones are to achieve an optimal price range for liquidity, to achieve an optimal tick size and to signal managements’ confidence in the future stock price. The paper “Dilemma of Corporate Action: Empirical Evidences of Bonus Issue vs. Stock Split “by Srinivas Shirur, (2008), analyses the reasons for the issue of bonus shares and stock splits. An effort is made to find distinguishing conditions under which a company has to decide whether to issue bonus shares or to go for stock splits. Five variables have been considered for the study, viz., rate of growth of sales, profit and share price, and beta and promoter stake. Effort has been made to explore whether there is any significant difference in these variables as applicable to stock split and bonus shares. The study was initiated with the hope that a predictive model could be developed for predicting corporate actions likely to be initiated by the companies. The study reveals that top management of the companies decide to issue bonus shares when the investors undervalue the company while they go for stock split when the investors overvalue the company for a long time and promoters have to

step in to correct these anomalies. Mihi Dash & Amaresh Gouda (2008) in the paper titled “A Study on the liquidity effects of stock splits in India Stock Market” states that Stock splits are a relatively new phenomenon in Indian markets, especially since early 2005 with the bull phase in Indian stock markets, with many companies’ stock prices shooting far beyond the normal trading range. The objective of the study is to analyze the overall impact of stock splits on returns. To do so, the returns in the period prior to the announcement are compared with the returns after the execution of the split, in terms of mean returns and variance of returns. The results of the study indicate strong evidence for an increase in the liquidity of the stock after the split. The paper titled “Market Reaction Around the Stock Splits and Bonus Issues: Some Indian Evidence” by Dr. Satyajit Dhar, & Ms. Sweta Chhaochharia, (2009), states that it is often argued that stock splits and bonus issues are purely cosmetic events. This paper examines the effects of these two types of events for the Indian stock market. The abnormal returns are calculated using the Capital Asset Pricing Model and then t-tests are conducted to test the significance. Consistent with the existence literatures, the two events are associated with significantly positive announcement effect. For bonus issues, the abnormal returns were about 1.8% and for stock splits, it was about 0.8%. On a whole, the paper finds evidence of semi-strong form efficiency in the Indian stock market. In the paper “Testing the Semi-Strong form Efficiency of Indian Stock Market with Respect to Information Content of Stock Split Announcement – A study in IT Industry” by M.Raja, J.Clement Sudhahar & M.Selvam (2009) states that An efficient market as a market in which price fully reflect all information. This means that no possibility exists of making sustainable excess returns and the prices follow a random walk. The paper “Effect of Stock Splits on Price and Return of the Stock” by Sumit Kumar Singh (2010) states that Stock Splits essentially serve the purpose of rationalizing the share price and fundamentally have no relation with company’s performance. Stock splits reduce the share price by split factor and increase the outstanding shares by the same. Hence, the performance of the stock in terms of price, liquidity and volume should have no relation with stock split.

## 2. Motivation

Thou earlier researchers have made attempts to study the effect of stock split announcements on shareholders wealth, but there is no specific research conducted on nifty, since its inception period. Also few attempts were made earlier to study the wealth effect around announcement dates, but not on liquidity changes around announcement dates. Hence, to bridge this gap of

knowledge motivated to research in this area under this study. In addition, generally investors are unaware about the stock split announcements and its effects on their share prices. It is observed in the previous research investigations that, there is a change in the risk and return pattern of shares around the stock split announcements dates. By understanding stock split announcements and their effects, an investor can have a clearer picture of what a corporate action indicates about a company's financial affairs and how that action will influence the company's share price and performance. This knowledge, in turn, will aid the investor in determining whether to buy or sell the stock in question and understand how material news released by a company might affect the value of its securities or influence investors' decisions. In this research paper, an attempt has been made to investigate stock split announcements effect for a data period of 15 years from 1995 taking CNX Nifty Stocks as benchmark.

### 3. Objectives of the study

The following major objectives are set for the study.

1. To verify Presence of any abnormal returns on or surrounding stock split announcements.
2. To find the Presence of any abnormal volume variance on or surrounding stock split announcements. (Trading volume is taken as stand-in to liquidity).
3. To investigate efficiency of the market in absorbing the material information in stock split announcements.

### 4. Scope of the study

This study covers the wider range of shares from sectors comprised in Nifty index and investigates stock split announcements effects of Nifty companies by studying the abnormal change in the price movements and liquidity around the announcement and effective date of stock split announcements. It gives scope for further studies in Indian market on corporate actions like dividend announcements, mergers news, consolidation etc in indexes or other sectors stock.

### 5. Description of the research work

#### Data and Methodology:

##### 5.1 Data source

a). As the Corporate announcement data is not published directly in any of the leading business dailies, to find out effective announcement date of the event, data available on nseindia.com, Capital line and CMIE's Prowess database has been used.

### 5.1.2 Data sample

To test the above objectives the companies that went for stock split in last 15 years (Announcement Date Between April 1995 to December 2011) has been taken from a sample frame of current constituents of CNX Nifty.

### 5.2 Methodology:

Hypothesis tests of stock split announcements:

There are several hypothesis put forwarded by previous researchers to explain price and liquidity changes associated with corporate events. To test each hypothesis a window is designed and effect of event is measured.

H<sub>1</sub>: There are no abnormal returns present in pre event window.

H<sub>2</sub>: There is no abnormal return present on announcement date.

H<sub>3</sub>: There is no abnormal return in post event window.

H<sub>4</sub>: There are no abnormal volumes present in pre announcement window.

H<sub>5</sub>: There are no abnormal volumes present on announcement date.

H<sub>6</sub>: There is no abnormal volumes in post event window.

#### 5.2.1 Effect on price and volume

The approach used to achieve above mentioned objective is known as "event study" which is a standard approach in the area of financial economics ever since it has been published by Fama (1969). An event study is designed to examine market reaction of any event under observation using abnormal return criteria. For this study, data is divided into various windows. It has been always a debatable issue when it comes to choosing window length and different researchers for the study use different lengths. However, here I propose to use following different windows to test some of the above mentioned hypothesis.

a). Pre event window (AD-21 to AD): This window is selected to test Neglected firm hypothesis and any information content associated with corporate actions announcement or leakage of

corporate actions information before the formal announcement been made. In case any information content is associated with corporate actions announcement as suggested by neglected firm hypothesis, an abnormal return should be present on announcement day but should not be present on effective day. If any significant abnormal return is found in this window prior to announcement, date there is a case of insider information or leakage of sensitive information in the market place before the announcement.

b) Announcement date effect (AD-1 to AD+1): If market did not anticipate change then abnormal return should not be present in the pre announcement window but it may appear in run up window, specially if any positive wealth effect is associated with stock split announcements, as it has been explained by market maker hypothesis and the same is anticipated by the market.. As number of days between AD and ED is different in each of the stock split announcements, the length of this window may vary from stock to stock.

c) Post announcement window (AD to AD+21): As per tradable range hypothesis, small investors can only participate after stock split, issue becomes officially announced, hence, a significant improvement in liquidity along with abnormal positive return due to substantial demand from number of small investors from AD to about AD+21 days as the stock becomes more affordable but later on abnormal return starts reversing from thereon. But in case if that abnormal return sustains through the window it indicates positive wealth effect associated with liquidity premium and market maker hypothesis.

#### 5.2.2 Measuring Wealth effect:

Price or wealth effect has been analyzed, with the equilibrium model for the normal stock return that is the expected return if the event did not happen. Estimation window of AD-21 to AD-201 days which is the standard practice in most such studies has been developed. The forecast errors over the event window +21 to -21 measures the abnormal performance of returns associated with the event. The normal model most widely used in the event-studies is the market model, which can be expressed as

$$AR_{i,t} = R_{i,t} - \alpha_i - \beta_i R_{m,t}$$

Daily return of a security (firm) at a particular date,  $R_{it}$  is computed by using formula

$$R_{it} = \ln \frac{P_{it} - P_{io}}{P_{io}}$$



Where,

$P_{it}$  = Price of the stock I on day t.

$P_{i0}$  = Price of the stock I on day 0.

The NIFTY is used as market portfolio ( $R_{m,t}$ ). The coefficients alpha and beta are estimated by using period of AD-21 days to aAD-201 as mentioned above. Regression was run to obtain the coefficients for the estimation window. The expected returns for security j at day t are defined as,

$$ER_{jt} = \alpha_i + \beta_i R_{mt}$$

Where  $\alpha_i, \beta_j$  are OLS estimators of  $(\alpha_i, \beta_j)$

The daily abnormal return is measured as

$$AR_{jt} = R_{jt} - ER_{jt}.$$

For each event date t, the cross sectional average abnormal returns for all firms are defined as:

$$AAR_t = \frac{1}{n} \sum_{i=1}^n \varepsilon_{it}$$

To analyze the price effects, the Cumulative Average Abnormal Returns (CAAR) for the 42 days centered in the announcement dates has been calculated. The use of CAAR is a common methodology. CAAR for event days  $t_1$  to  $t_2$  were obtained as follows:

$$CAAR = \sum_{t=1}^{t_2} AAR_t$$

### 5.2.3 Test of significance:

To compute the t-statistic, first, all abnormal returns are standardized as:

$$SAR_{it} = \frac{AR_{it}}{S_i(AR)}$$

Where,  $S_i(AR)$  is the standard deviation of the abnormal returns of stock 'i' in the estimation period. The t-statistic for the sample of N observations for each day 't' in the event window is calculated as:

$$t(\text{SAR}) = (\sum_{i=1}^N \text{SAR}_{it}) / \sqrt{n} \dots \dots \dots (1)$$

$$\text{Students 't' test} = \frac{\sum \text{AAR}_t / \text{SD}_t}{\sqrt{n}} \dots \dots \dots (2)$$

The cross-sectional t-test using cross-sectional variance as proposed by *Brown/Warner* (1985) to take cross sectional correlation into account is calculated as follows: is calculated as

$$t_i = \frac{\text{AAR}_i}{S^2 / \sqrt{N}} \dots \dots \dots (3)$$

Under the assumption that the abnormal returns are cross sectional independent and identically normally Distributed, Mayank Joshipura (2008) where  $S^2$  is equal to

$$S^2 = \frac{1}{N} \sum_{i=1}^N \frac{(\text{AR}_{it} - \text{AAR}_t)^2}{N - 1}$$

5.2.4 Normality of Data:

Many statistical tests require that your data follow a normal distribution. Sometimes this is not the case. In some instances it is possible to transform the data to make them follow a normal distribution; in others this is not possible or the sample size might be so small that it is difficult to ascertain whether or not the data a normally distributed. In such cases, it is necessary to use a statistical test that does not require the data to follow a particular distribution. Earlier studies documents that (Brown and Warner (1985) that mean excess returns in a cross-section of securities converge to normality as the sample size increases and in this study the sample size is 28 so there won't be a problem of non normality of returns. Still to support the parametric test results of this research finding a Non-parametric sign test is also calculated. A nonparametric sign test based on sign of abnormal return is also employed. The hypothesis is abnormal returns are independent across securities and that the expected proportion of positive abnormal returns under the null hypothesis is 0.5. The test statistic is computed as

$$\theta = \left\{ \frac{N_+}{N} - .05 \right\} \frac{\sqrt{N}}{.05} \sim N (0,1)$$

Where N is the sample size and N+ is the number of cases where the abnormal return is positive.

### 5.2.5 Liquidity Measure:

Stock's trading volume represents liquidity and any change in its volume around event window above its normal trading range indicates the volume variance. Ceteris paribus, Amihud and Mendelson, (1986). Any change in volume variance is change in liquidity. To verify whether there is any abnormal trade volume around event window a mean and market adjusted volume measure similar to those of Harris and Gurel (1986), Liu (2000) and Elliott and Warr (2003), Mayank Joshipura (2008) and as adopted by to examine abnormal volumes around the event days.

The change in raw trading volume (VOL) for security i is computed as:

$$VOL_{i,t} = \ln(VOL_{i,after}) - \ln(VOL_{i,before}) \text{-----}(1)$$

The abnormal volume variance ratio is computed as follows for N observations for  $S_{it}$

$$AVVR_{i,t} = \frac{V_{it}/V_i}{V_{mt}/V_m}$$

## 6. Empirical Results:

It is found that of the 28 observations of stock split announcements 17 (61%) companies were having positive cumulative abnormal returns during event window and 11 (39%) companies have negative cumulative abnormal returns. INFOSYS has reported statistically significant cumulative abnormal returns at 1% level of significance and JINDAL MM and STERLITE has reported statistically significant cumulative abnormal returns at 5% level. Similarly, HCL has statistically significant cumulative abnormal returns at 10% level. It is apparent that 17 companies (i.e 61% of the total sample) have positive mean return and 11 (i.e. 39% of the total sample) companies have negative mean return around event window. It also observed that 18 (i.e 65% of the sample) companies have reported positive mean return on announcement date. On announcement date there is insignificant negative abnormal return of -2.096, and negative average abnormal return(AAR) of -7.484, which is significant at 1% level. It is observed that there is 14 times positive AAR present in the pre event window of which 12 are significant and 7 times negative

AAR of which four are significant. In the post event window the table reveals that there is 11 times positive AAR present of which 9 are significant and 10 times negative AAR of which 7 are significant for the event.  $W_{STAT}$  results indicate that there are statistically significant abnormal returns on pre-event announcement window on -15<sup>th</sup> day only. On announcement, date there is a significant negative abnormal return of -2.096 and it is significant at 10% level. On post-event announcement, window 2, 3, 9, and 11<sup>th</sup> day there is significant positive abnormal returns. It is observed that there is statistically highly significant positive abnormal return in the pre event window of  $t_{-10} - t_{-2}$  and  $t_{-21}$  to  $t_{-2}$ . It is significant at 1% level with 5.70 and 4.32 values respectively. On announcement date there is negative abnormal return on event window of  $t_0$  to  $t_1$ , with significance value of -18.76 at 1% level and on  $t_{-1}$  to  $t_1$  insignificant value respectively. On Post Event window of  $t_2$  to  $t_{21}$  there is negative abnormal return with statistically insignificant value of -10.58. It also documents that the short run price impact of stock split announcement for a three-day event window. It shows that in the 3 days pre event there is statistically highly significant positive AAR on day -3 and -1. In the post event it is highly significant with positive AAR on day+1 and+3. It is noticed that event window null hypothesis is rejected and alternative hypothesis is accepted. That is,

There is significant abnormal return present in pre announcement window for Stock Split announcement; there is significant abnormal return present on announcement date for Stock Split announcement; there is significant abnormal return present in post announcement window for Stock Split announcement.

With regard to liquidity effect of the stock split announcements, it is observed that 6-time significant positive abnormal volume variance ratio present in the pre event window of stock split announcements. Therefore, null hypothesis is rejected. It means that Alternative hypothesis ( $H_4$ : There is significant abnormal volume present in pre announcement window for stock split announcement) is accepted. Non-parametric sign test also confirms the results with significance at 5% level, therefore null hypothesis is rejected. There is significant (at 5% level) positive abnormal volume variance ratio of 4.490 present on announcement date for stock split announcement. Therefore, null hypothesis is rejected. It means that Alternative hypothesis ( $H_5$ : There is significant abnormal volume present on announcement date for stock split announcement) is accepted. Non-parametric sign test also confirms the results with significance at

5% level. It is noticed that 10-time significant positive abnormal volume variance ratio present in the post event window of stock split announcements. Therefore, null hypothesis is rejected. It means that Alternative hypothesis (H1: There is significant abnormal volume present in post announcement window for stock split announcement) is accepted. Non-parametric sign test also confirms the results with significance at 5% level.

## 7. Conclusions:

In this study, it is evident that stock prices react positively for split announcement in Indian market. Companywise positive mean return for nifty stocks were found around event window and on announcement dates. Majority of the observation stocks have documented significant positive abnormal return and positive cumulative abnormal returns in the event window. Paradoxically on announcement date, it is found that there is insignificant negative abnormal return and significant negative average abnormal return for the event. Stock split event reacts positively with significant abnormal return in the pre and post event window. However, the ratio between positive and negative returns on daily basis between pre and post event is not equal and there is dilution of returns in the post event window. There is statistically highly significant positive abnormal return in the pre event window of for short run of 10 days window. On announcement, date there is negative abnormal return. On short run 10 days Post Event window of there is negative abnormal return with statistically insignificant value. The short run price influences of stock split announcement for a three-day event window observed that in the 3 days pre-event there is statistically highly significant positive AAR. In the post event, it is highly significant with positive AAR. Hypothesis test results rejects null hypothesis Alternative hypothesis is that is, there is significant abnormal return present in pre and post event announcement window for Stock Split announcement is accepted and there is significant negative abnormal return present on announcement date for Stock Split announcement. This statement is also supported by non-parametric test results. The study also documents that there is significant positive abnormal volume present in event window. Null hypothesis is rejected based on parametric test statistics. The results are also confirmed with non-parametric test statistics. There is a significant abnormal volumes measured by volume variance ratio between pre and post observed and on announcement day of the stock split.

Exhibits:

**Table - 1**  
Average abnormal return for stock split announcement around 42 day's event window

Window	AAR%	t(AAR)%
-21	0.328	<b>2.872*</b>
-20	-0.612	<b>-4.928*</b>
-19	0.037	0.266
-18	0.405	<b>2.595*</b>
-17	-0.167	-1.201
-16	0.066	0.544
-15	0.538	<b>2.036**</b>
-14	0.195	<b>1.951**</b>
-13	-0.025	-0.259
-12	-0.260	<b>-2.394**</b>
-11	0.174	<b>1.884**</b>
-10	0.271	<b>2.124**</b>
-9	-0.496	<b>-3.932*</b>
-8	0.346	<b>2.170**</b>
-7	0.420	<b>3.485*</b>
-6	0.446	<b>3.757*</b>
-5	0.693	<b>5.264*</b>
-4	-0.128	-0.738
-3	0.695	<b>3.803*</b>
-2	-0.207	<b>-1.798**</b>
-1	0.145	<b>1.432***</b>
0	-7.484	<b>-3.271*</b>
1	0.468	<b>2.751*</b>
2	-8.277	<b>-3.662*</b>
3	0.605	<b>2.893*</b>
4	-0.270	<b>-2.484*</b>
5	-0.265	<b>-3.149*</b>
6	-0.135	-1.030
7	0.297	<b>2.399**</b>
8	-0.210	<b>-1.661***</b>
9	0.377	<b>2.521*</b>
10	-0.035	-0.331
11	0.069	0.243
12	-0.508	<b>-3.489*</b>
13	-0.834	<b>-6.884*</b>
14	-0.289	<b>-3.592*</b>
15	0.937	<b>7.309*</b>

16	0.537	<b>4.774*</b>
17	0.083	0.611
18	-0.553	<b>-5.403*</b>
19	0.509	<b>4.044*</b>
20	0.498	<b>4.414*</b>
21	0.238	<b>1.559***</b>

Note: t values in bold shows the significance at \*1%, \*\*5% and \*\*\*10% level.

**Table - 2**  
**Companywise Cumulative abnormal return (CAR) for stock split announcement around 42 days event window**

Observations	Mean Return	Cumulative Abnormal Return	t test
1	0.002	0.092	0.997
2	0.009	0.398	1.217
3	-0.001	-0.026	-0.209
4	0.002	0.072	0.390
5	0.007	0.318	<b>1.401***</b>
6	-0.003	-0.112	-0.663
7	0.004	0.153	<b>2.005</b>
8	-0.054	-2.316	-1.016
9	0.002	0.089	1.054
10	0.001	0.033	0.413
11	0.011	0.456	<b>2.584*</b>
12	0.003	0.146	0.618
13	0.011	0.485	1.256
14	-0.006	-0.270	<b>-1.713**</b>
15	0.001	0.033	0.308
16	-0.005	-0.215	<b>-1.707**</b>
17	-0.002	-0.078	-1.098
18	0.001	0.037	0.338
19	0.001	0.030	0.419
20	0.004	0.174	0.855
21	0.001	0.045	0.355
22	0.001	0.063	0.325
23	-0.014	-0.607	<b>-1.787**</b>
24	0.002	0.090	1.123
25	-0.001	-0.055	-0.654
26	0.000	0.000	0.000
27	-0.052	-2.222	-0.984

28	0.000	0.000	0.000
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Note: t values in bold shows the significance at \*1%, \*\*5% and \*\*\*10% level.

**Table - 3**  
**Average volume variance ratio for stock split announcement**

Event Window	AVVR	t(AVR%)	(N) Positive	(N) Negative	Theta
-21	1.197	<b>1.723**</b>	11	17	<b>2.87*</b>
-20	1.367	<b>-2.957*</b>	17	11	<b>-4.93*</b>
-19	1.022	0.160	18	10	0.27
-18	1.243	1.557	13	15	<b>2.59*</b>
-17	1.100	-0.721	20	8	-1.20
-16	1.040	0.326	19	9	0.54
-15	1.323	1.222	20	8	<b>2.04**</b>
-14	1.117	1.170	12	16	<b>1.95**</b>
-13	2.015	-0.156	13	15	-0.26
-12	3.156	-1.437	23	5	<b>-2.39**</b>
-11	1.104	1.131	20	8	<b>1.88**</b>
-10	1.162	1.274	11	17	<b>2.12**</b>
-9	1.298	<b>-2.359**</b>	19	9	<b>-3.93*</b>
-8	2.208	1.302	22	6	<b>2.17**</b>
-7	1.252	<b>2.091**</b>	19	9	<b>3.49*</b>
-6	2.268	<b>2.254**</b>	21	7	<b>3.76*</b>
-5	1.416	<b>3.158*</b>	15	13	<b>5.26*</b>
-4	1.077	-0.443	21	7	-0.74
-3	1.417	<b>2.282*</b>	15	13	3.80
-2	2.124	-1.079	17	11	<b>-1.80**</b>
-1	3.087	0.859	17	11	1.43
0	4.490	<b>-1.963**</b>	16	12	<b>-3.27*</b>
1	1.281	1.651	11	17	<b>2.75*</b>
2	4.966	<b>-2.197**</b>	18	10	<b>-3.66*</b>
3	1.363	<b>1.736**</b>	13	15	<b>2.89*</b>
4	1.162	-1.490	13	15	<b>-2.48*</b>
5	1.159	<b>-1.889**</b>	12	16	<b>-3.15*</b>
6	1.081	-0.618	17	11	-1.03
7	1.178	1.439	14	14	<b>2.40**</b>
8	1.126	-0.996	17	11	-1.66
9	1.226	1.513	15	13	<b>2.52*</b>
10	1.021	-0.198	16	12	-0.33



11	1.042	0.146	13	15	0.24
12	1.305	<b>-2.094**</b>	10	18	<b>-3.49*</b>
13	1.500	<b>-4.130*</b>	12	16	<b>-6.88*</b>
14	1.173	<b>-2.155**</b>	18	10	<b>-3.59*</b>
15	1.562	<b>4.385*</b>	18	10	<b>7.31*</b>
16	1.322	<b>2.864*</b>	16	12	<b>4.77*</b>
17	1.050	0.367	9	19	0.61
18	1.332	<b>-3.242*</b>	18	10	<b>-5.40*</b>
19	1.305	<b>2.426**</b>	18	10	<b>4.04*</b>
20	1.299	<b>2.648**</b>	15	13	<b>4.41*</b>
21	1.143	0.935	8	8	1.56

Note: t values in bold shows the significance at 1% and 5% level.

Table - 4

Characteristic of sample companies for stock split announcement in the estimation period

Observations	Event Date	Beta	Alpha	S.E	R <sup>2</sup>	Adj.R <sup>2</sup>	Significance F
1	20/04/2005	0.945	0.000	0.015	0.303	0.300	0.000
2	29/04/2009	-0.071	-0.002	0.034	0.004	-0.001	0.399
3	23/03/2004	0.152	0.003	0.021	0.010	0.005	0.156
4	31/07/2001	0.510	0.001	0.023	0.133	0.128	0.000
5	24/10/2000	1.508	0.000	0.048	0.297	0.293	0.000
6	30/01/2001	0.363	0.000	0.028	0.063	0.059	0.000
7	12/07/2005	0.905	-0.001	0.014	0.290	0.286	0.000
8	05/07/2000	0.823	0.000	0.027	0.294	0.290	0.000
9	03/05/2010	0.948	0.000	0.015	0.460	0.457	0.000
10	17/06/2005	0.502	0.001	0.015	0.107	0.103	0.000
11	30/11/1999	0.605	0.002	0.061	0.034	0.029	0.009
12	15/10/2007	1.128	0.001	0.022	0.354	0.351	0.000
13	23/10/2003	0.914	0.004	0.026	0.225	0.222	0.000
14	21/11/2007	1.483	0.003	0.026	0.308	0.304	0.000
15	11/05/2010	1.359	0.000	0.017	0.562	0.560	0.000
16	25/01/2010	0.808	0.004	0.030	0.244	0.240	0.000
17	16/12/2010	0.600	0.000	0.014	0.158	0.153	0.000
18	28/04/2005	0.619	-0.001	0.015	0.166	0.161	0.000
19	03/01/1996	1.361	0.000	0.023	0.309	0.305	0.000
20	28/04/2008	1.148	0.002	0.029	0.405	0.402	0.000
21	27/01/2006	0.610	0.003	0.019	0.112	0.107	0.000
22	26/04/2000	0.299	0.002	0.023	0.020	0.016	0.043
23	10/02/2006	1.008	0.006	0.039	0.169	0.164	0.000
24	28/10/2002	0.472	0.001	0.014	0.106	0.102	0.000

25	24/09/2010	0.279	0.000	0.015	0.043	0.039	0.003
26	03/01/1996	0.781	0.001	0.012	0.459	0.446	0.000
27	22/05/1996	0.279	0.000	0.015	0.043	0.039	0.003
28	03/01/1996	1.576	-0.005	0.012	0.780	0.775	0.000

Note: t values in bold shows the significance at 1% and 5% level.

**Table - 5**

**Impact of stock split announcement on share price performance**

Stock Split	No. of companies	%
Companies having positive mean return during event window	17	61
Companies having negative mean return during event window	11	39
Companies having positive return on announcement date	18	65
Companies having negative return on announcement date	10	35
Positive Abnormal Return on announcement date	18	64.28
Negative Abnormal Return on announcement date	10	35.71
Companies having positive CAR during event window	17	61
Companies having negative CAR during event window	11	39
Total	28	

**References**

1. Admati, A., and P. Pfleiderer, 1988, A theory of intraday patterns: Volume and price variability, *Review of Financial Studies* 1, 3-40.
2. Angel, J. (1997): "Tick Size, Share Prices, and Stock Splits," *The Journal of Finance*, 52(2):655-681.
3. Anshuman, V.R., Kalay, A. (2002), "Can split create market liquidity? Theory and evidence", *Journal of Financial Markets*, Vol. 5 pp.83-125.
4. Arbel, A. and G. Swanson, 1993, The role of information in stock split announcement effects, *Quarterly Journal of Business and Economics* 32, No. 2, 14-25.
5. Balachandran, Balasingham and Tanner, Sally, "Bonus Share issues and announcement effect: Australian evidence. [http : //ssrn.com /abstract=288743](http://ssrn.com/abstract=288743). 2001
6. Ball, R, Brown P and F.J Finn. "Share Capitalization Changes, Information and the Australian Equity Market." *Australian Journal of Management*. 2, 105-126, 1977.
7. Brennan, M.J. and P.J. Hughes, 1991, Stock prices and the supply of information, *Journal of Finance* 46, 1665-1691.

8. Kryzanowski, L. and H. Zhang, 1993, Market behavior around Canadian stock-split exdates,
9. Lakonishok, J. and B. Lev, 1987, Stock splits and stock dividends: Why, who and when, *Journal of Finance* 42, 913-932
10. Lamoureux, C.G. and P. Poon, 1987, The market reaction to stock splits, *Journal of Finance* 42, 1347-1370.
11. Mayank, Joshipura, (2008), Price and liquidity effects of stock split: (An Empirical evidence from Indian stock market) *NSE India* 2-20.
12. McNichols, M. and A. David, 1990, Stock dividends, stock splits and signaling, *Journal*
13. Mishra, A.K. "An Empirical Analysis of Market Reaction around the Bonus Issue in India." *The ICAFI Journal of Applied Finance*. Aug. 21-37, 2005.
14. Muscarella, C.J. and M.R. Vetsuypens, 1996, Stock splits: Signaling or liquidity? The case of ADR „solo splits“, *Journal of Financial Economics* 42, 3-26.
15. Obaidullah, M. "How do stock prices react to bonus issues?" *Journal of Financial Economics*. 17-22, 1992.
16. of *Finance* 45, 857-880.
17. Ohlson, J.A. and S.H. Penman, 1985, Volatility increases subsequent to stock splits, *Journal of Financial Economics* 14, 251 - 266.
18. Pilotte, E. and T. Manuel, 1996, The market's response to recurring events. The case of stock splits, *Journal of Financial Economics* 41, 111-127.
19. Satyajit Dhar. Dr. Ms. Sweta Chhaochharia (2006), Market Reaction Around the Stock Splits and Bonus Issues: Some Indian Evidence, <http://ssrn.com/abstract=1087200> pg 10 - 16. *Journal of Empirical Finance* 1, 57-81
20. Schultz, P. (2000): "Stock Splits, Tick Size, and Sponsorship," *The Journal of Finance*, 55(1):429-450
21. Singh, Balwinder, and Mittal, R.K. "Under pricing of IPOs: Indian Experience." *The ICAFI Journal of Applied Finance*. Vol. 9(2), March 29-42, 2003.
22. Wulff, C. (2002): The Market Reaction to Stock Splits {Evidence from Germany," *Schmalenbach Business Review*, 54(3):280-290