

An Empirical Analysis of Market Reaction Around the Stock Splits in India

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Indian stock markets, one of the oldest in Asia has its history dating back to nearly 200 years ago. It is one of the fastest growing emerging markets of the world. At present there are total 24 recognized stock exchanges across the country. India has the second largest number of listed securities after USA.

The present study has been undertaken with three objectives. First, it examines the announcement and Ex-date effects of stock splits on equity prices during the period October 1, 2009 to December 31, 2011. Second, it studies whether stock splits result in change in liquidity in the market. And finally, the study investigates whether the 'trading range' and the 'neglected firm hypothesis' could be associated with stock splits in India. Study works with 57 sample companies announcing stock splits during October 1, 2009 to December 31, 2011. Data pertaining to samples are collected from secondary sources. Data are analyzed using functions of packages like SPSS Evolution Version 18 and Microsoft Excel. The study examines price and liquidity effect associated with stock splits surrounding its announcement and execution date by using standard Event Study methodology, which measures significance of abnormal returns and changes in liquidity associated with an event.

The results of study suggest that there is an announcement effect associated with stock splits in India. It also provides evidence that there exists a pronounced ex-day effect. Further, it is evident that positive abnormal returns associated with announcement and ex-split day of stock split gets reversed in just a few days after the event day and ultimately generates significant negative abnormal returns. As per the results there is a significant positive abnormal return of 1.2% on the announcement date and 1.1% on the ex-split date. By and large splits are found to improve trading volume of shares but do not increase daily turnover and consequently the liquidity of stocks in India. The study finds no evidence for the neglected firm hypothesis as a possible explanation for stock splits in India, as majority of shares underwent stock splits were trading at high market prices. Thus, it appears that the reasons for stock split by companies in India could be the trading range hypothesis, which appears to be valid for Indian stock market. An important result of the study is the presence of information leakage before the formal announcement of stock splits in India. Last but not the least it was found by the study that for Indian stock market semi-strong form of market efficiency does not hold valid.

The study has serious policy implications for the market regulators. It is quite evident from the results that there is an information leakage. The securities and exchange board of India (SEBI), the Indian capital market regulator, will have to strengthen its surveillance and monitoring system of securities transactions by insider, in order to enhance the effectiveness of its regulations on insider trading.

Keywords : Stock market, stock split, liquidity.

Introduction

A Stock split simply involves a company altering the number of its shares outstanding and proportionately adjusting the share price to compensate. The balance sheet items remain same except that the total number of outstanding shares of the company increases proportionately to the ratio of split. Split can occur at any ratio. The most commonly used ratios are 2:1, 3:2, 5:4, 4:3 etc. After a two for one (2:1) split, each shareholder has twice as many shares but each represents a claim on only half as much of the corporation's assets and earnings. Also they can happen in reverse, e.g. 10:1 which are called reverse split. The announcement of a reverse split has been found to elicit a negative stock market response (Wooldridge and Chamber, 1983). Reverse split is not common among Indian companies.

In a stock split, the company announcing a stock split notifies the stock exchange, the record date, after completing the legal and procedural formalities. The stock exchange accordingly fixes the ex-dates, which generally comes few days

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earlier the record date. On the ex-date and thereafter, the only market is in the post split shares. Section 94(1)(d) of the Companies Act, 1956 allows every limited company to subdivide all or any of its shares into shares of smaller amount than is fixed by the memorandum. The Ministry of Finance, vide Circular No. 1/7/SE/81 dated January 22, 1983 had restricted to change the face value at a denomination lower than Rs. 10 keeping them fixed at Rs. 10 or Rs. 100. This concept of fixed par value was abolished by the SEBI vide Circular No. SMDRP/Policy/Cir-16/99 dated June 14, 1999 that provided companies freedom to issue shares in any denomination to be determined by them as long as it is not fractional by amending their Memorandum and Articles of Associations. Thereafter, it was observed that several companies were resorting to frequent splitting and consolidation within a short span of time. To fill the existing loopholes, the Secondary Market Advisory Committee (SMAC) has been set by SEBI as a standing committee to advice on matters related to secondary market. The committee was reconstituted under the chairmanship of Dr. R.H. Patil. The SMAC in its meeting held on October 9, 2003 discussed with many other things, the issue of frequent changes in face value by listed companies.

The EMH of near perfect capital markets that renders only fleeting and non-systematic gain and loss opportunities to investors has been criticized in recent years by the behavioral finance literature. Because according to the behavioral finance, stock transactions are often executed (in relation to known events such as stock issues, stock split, share buy-back) at price levels that imply predictably high or low risk adjusted return. If these findings are factually correct, they pose a challenge to the EMH, which predicts a lack of capital market profit or loss opportunities due to the ability of investors to interpret information rapidly and unbiasedly according to correct assessments of the underlying economic process. The behavioral literature attributes its findings to various investors' biases. Supporters of efficient market argue that risk adjustment methods in behavioral finance are imperfect, data mining may have occurred. According to them all the behavioral anomalies taken together suggest an unbiased market at work and they asked for behavioral models that explain a broader range of evidence (see Fama, 1998).

Although stock split, unlike most capital structure changes do not directly affect the corporate cash flows, a large number of studies in Finance give evidence on positive stock price reactions in response to such announcements. Still, very little is known about the exact explanation for the positive announcement effect.

Literature Review

Lakonishok and Lev (1987), have postulated the signaling hypothesis as a plausible explanation for stock splits. It is argued that stock splits are resorted to by managements to reveal information about future earnings to the market. On the other hand, Copeland (1979), suggested the 'trading range hypothesis' as a plausible explanation for stock splits. Accordingly, it is suggested that firms may prefer their shares to be traded within a particular price range when the stock prices are too high.

Shares could also be split to improve the liquidity of the stock by expanding the investor base due to reduced share price (Lamoureux and Poon, 1987). Recently Angel (1997), also suggested that firms split shares to improve their liquidity. He argued that greater liquidity occurs because the splits generate a higher (optimal) tick size relative to stock price.

The neglected firm hypothesis is proposed by Arbel and Swanson (1993). It states that if there is little that is known about a firm, its shares could trade at a discount. Thus, firms may use stock splits to draw the attention of investors and to ensure that information about the company is widely recognized than before.

Fama et al., (1969), observed that stock split announcements are often accompanied by or closely followed by dividend announcements. In another study, Grinblatt et al., (1984), reported an excess return of 3.4% during the three days surrounding stock split announcements during 1967 to 1976. Ohlson and Penman (1985), Lakonishok and Lev (1987) found that firms that split their stocks had better than average earnings growth following the split. Asquith et al., (1989), reported that the price response to splits was positively related to pre-split but not post-split earnings changes. In another study, McNichols and David (1990), found that analysts' one-year-ahead earnings forecasts errors were positively correlated with announcement abnormal returns.

Maloney and Mulherin (1992), and Conrad and Conroy (1994), associate the ex-day price reaction to market microstructure phenomena. Ikenberry et al., (1996), find that the post-split stock returns for firms that split their stocks are higher than those of a control sample of firms that do not split their stock.

Pilotte and Manuel (1996), have found that, when firms split their stock multiple times the abnormal return at the announcement of the second split is directly proportional to the earnings surprise following the first split. Muscarella

and Vetsuypens (1996), show that liquidity after the split improves, accompanied by wealth gains to investors. Desai and Jam (1997), have found excess returns in the years following a split announcement. Brennan and Copeland's (1988), signaling model suggests that managers may communicate their positive information to the market by means of a stock split. Koski (1998), provides enough evidence that in the US, stock splits are associated with positive abnormal returns around the announcement and the execution day. They found excess returns of 3.4% on the announcement date.

Objectives of the Study

1. To check Presence of any abnormal returns on or surrounding split announcement and execution.
2. To check effect of split on liquidity. (Liquidity is measured in terms of Trading Volume and Daily Turnover in Rupees.)
3. To found whether the 'trading range' and the 'neglected firm hypothesis' could be plausible reasons for stock splits in India.

Research Methodology

Sampling

Target Population of the study is the stock splits on recognized stock exchanges i.e. Bombay stock Exchange (BSE) and National Stock Exchange (NSE), during period of October 2009 to December 2011. The study had the target population of 154 stock splits by the companies listed on these two exchanges.

Population Parameters of Interest for the study is the stock splits taking place at National Stock Exchange (NSE) during the period of study i.e. October 2009 to December 2011. This consists of total of 110 stock splits during above period at NSE.

Sampling Frame is from where the information on the sample is gathered. The study generates required information on sample from two secondary sources, namely www.moneycontrol.com and www.nseindia.com. All information about sample is drawn from these two sources only.

Sampling Method represents the method of selecting samples for study; it may be probability or non probability. My study used Non-Probability Convenience Sampling method to select the sample out of population of interest.

Sample Size is the total number of sample used in the study. In my study, out of the total available list of 110 companies which went for stock split during the study period 57 companies are selected as the eligible sample for the study based on the certain criteria stated in sample selection method. Annexure 1 shows the sample size finally used for study and annexure 2 list the names of sample companies along with their face values after and before split as well as the announcement and ex-split dates.

Sample Selection Method used in the study is self defined and stated here. In the process of sample selection, Out of the total available list of 110 companies which went for split during the study period, following companies are omitted from the list of sample.

- The companies for which data on announcement date is not available with accuracy, at both sources.
- The companies for which trading data over the period from 225 days before to 30 days after the announcement date and Ex-split date are not available from the selected sources.
- The companies going for reverse splits.

This process produces the sample of 57 companies splitting their share. And the same is selected as sample for the study.

Data Collection Method and Sources of data :

The data required for the study are collected from the two secondary web sources, names of which are www.moneycontrol.com and www.nseindia.com. Stock Split announcement and execution dates of Indian publicly listed companies for the period from October 2009 to December 2011 were collected using these two data sources. First, the Moneycontrol.com was used to identify Indian public companies that Splits stock during the period covering October 2009 to December 2011. Second, the announcement dates for stock splits were extracted from the Moneycontrol.com and the same is verified with the corporate announcements of each company at NSE website. Similarly, all other data pertaining to the daily price of sample companies and of Nifty index are taken from NSE website.

Data Analysis

Data are analysed using statistical functions of packages like SPSS Evaluation version 18 and Microsoft Excel.

Methods used for Data Analysis is generally those used in past by many other researchers. For analysing data, researcher has used various methods and the same are discussed here.

1. To find Effects of Stock Splits

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 et al (1969). An event study is designed to examine market reaction of any event under observation using abnormal return criteria.

In short, the study used event study methodology to examine the market reaction to stock splits on share prices by using daily adjusted prices for sample stocks for 225 days before and 30 days after the board meeting date (event or announcement date). Similarly, the market reaction around the ex-split date is also analyzed. The respective board meeting dates for announcement of stock splits and the ex-split dates are obtained from www.moneycontrol.com and the same is cross checked with the dates on NSE website. The necessary share price data and the values of the S&P CNX Nifty are obtained from NSE website.

In order to carry out the event study, the event date, event window, and estimation window should be determined. Regression analysis is used to estimate the relationship between a firm's returns (dependent variable) and stock returns of a benchmark group such as a portfolio of similar firms, returns across an industry, or some estimate of market returns. The event dates in the study are the date of announcement of stock splits by the sample firms and the ex-split date. The event window is taken as $t = -30$ to $t = +30$ relative to the event day $t = 0$ (announcement or ex-split date) and S&P CNX Nifty Index is used as a proxy for the market portfolio. The estimation window is taken from $t = -225$ to $t = -31$ relative to event date $t = 0$. The procedure for using event study is discussed analysis part.

1. To find Effect on Liquidity

The study follows the approach of several studies of the US-market to examine the changes in liquidity around the ex-split date. Accordingly, two measures of trading activity are used—(a) trading volume which is the daily number of shares traded, (b) daily turnover. The study also used Paired Sample T test to find the effect of liquidity due to stock splits.

2. To test 'Trading Range Hypothesis' and 'Neglected Firm Hypothesis'.

There is no specific test to be used so as to find the validity of these two hypotheses. Thus, the study uses the results and interprets the significance of these two hypotheses in India.

Further details of all these methods are given with the analysis part on so as to have more clarity in understanding the results.

Hypotheses Tested

The study tests the following hypotheses:

- There are no significant abnormal returns around stock splits announcement date.
- There is no ex-split day effect on stock splits in India.
- Stock splits do not increase liquidity of Indian stocks.
- Trading range hypothesis does not hold for stock splits in India.
- Neglected firm hypothesis does not hold for stock splits in the Indian context.

1. Findings from the Data Analysis

Findings of the study are summarised in respective headings of the study and are as follows.

Market Reaction to Stock Splits

1. Average Abnormal Returns Around the Stock Split Announcements

- It was found that stock splits announcements in India have a significant impact on share price of the companies. On the announcement day there is a significant positive AAR (Average Abnormal Return) of 1.2 % which is high.

- The study finds clear run up in the prices before the announcement of splits. The run up in AARs was generated on -1, -2, -3, -5, and -6 days before the announcement of splits which is 0.3%, 0.5%, 0.7%, 0.3% and 0.3% respectively. On t -7, t-14, and t-22, a high positive AAR of 1.1%, 1.1% and 0.8% respectively was found. The results are significant with test statistics (Z values) too.
- On days t+3, t+17, t+25, t+28, t+29, and t+30 a significant negative AAR was found as observed Z values have exceeded the critical values. There are no significant positive returns run up after the announcement date except for day t+1 and t+2 which are also not significant.
- CAARs for various periods before the announcement are found to be statistically significant. CAARs for two days (-1, -2) is 0.78% with a statistically significant Z value of 1.9594; for (-1, -6) it is 2.14% which is also significant at 1%; for (-1, -10) it is 3.58% with Z=3.49 and for (-1, -30) days it is 8.20% with statistically significant Z value of 4.13.
- The build up in CAARs over a period of one month before the split announcement was found. The presence of the insider trading in Indian Capital Market was also found. CAARs for various periods after the announcement are found to be negative and insignificant. For (0, 1) it is 1.65% with Z value of 3.01 which is significant; for (1, 30) it is negative 12.52% which is significant at 1%. For rest of the intervals it is insignificant and negative.
- Lastly, it was observed that the information on coming announcements was leaked before the formal announcements were made. And there does exist the significant positive abnormal returns around the split announcement date.

2. Average Abnormal Returns Around the Ex-Splits Date

- Results show a significant excess return of 1.08 % on the ex-split day. It was observed that positive abnormal return is generated from day t-2 and is the highest at t=0, it continues to build up to two days after the ex-split day, i.e., on days t+ 1 and t+2. Significant positive AARs are also reported on day t-4.
- Significantly negative excess returns were observed on days t-13, t+6, t+7, t+8, t+9, t+13, t+14, t+15 and t+24. This leads to a conclusion that the Indian stock market reacts positively to ex-splits and there appears pronounced existence of ex-split effect on stock splits in India.
- The run up in the price after and before the ex-split date indicates that the markets was inefficient in its semi strong form of market efficiency.
- CAAR for two days i.e., t=0 and t+1 was found to be 1.26% which is significant at 5% (Z=2.39) and CAAR for six days from t+1 to t+6 is -2.43% which is significant at 1% (Z=-2.74). CAAR for two days after the ex-split was also found to be positive indicating positive effect.
- There appears to be a pronounced existence of an ex-day effect on stock splits in India.

Effect of Liquidity

1. Effect on Trading Volume

- It was observed from the analysis that out of a sample of 57 stock splits, the average total trading volume increased in case of 55 companies in percentage terms after the ex-split date, whereas in two cases it decreased. For most companies the change has been phenomenal.
- Highest increase was of 6313% for JM Financial and lowest of 3% for Gokaldas Exports Ltd was observed in trading volume.
- Paired t-test found that there is a significant difference between trading volume before and after stock splits (with t=3.104), thereby implying that trading volume increased significantly after splits.

2. Effect on Daily Turnover

- Results show increase in average daily turnover in case of 23 companies after the stock split, whereas for 34 companies, it declined.
- The increase in daily turnover after stock splits was found to be statistically insignificant as the observed t value was only 0.377 and the significance value is higher than 0.05. Thus, the result reflects that stock splits do not improve daily turnover and consequently the liquidity of stocks in India.

Trading Range Hypothesis

- Market prices of Indian companies were found to be high and beyond the affordable range of investors. In fact, for most companies the market prices are too high.

- It was found to be highest at Rs. 10,081 for Jindal steel & power ltd. Further, it was found that for total of 45 companies prices were above Rs. 400 (I here take the price up to Rs. 400 as affordable price by investors) on the announcement date.
- 10 companies were found in the price range of greater than Rs. 400 and equals to Rs. 600. The number was 20 in the price range of greater than Rs. 600 to Rs. 1000. And it was 15 for the companies having prices above Rs. 1000 on the day of announcement. 12 companies were having relatively low prices and thus can't justify the trading range hypothesis as a plausible reason for split.
- The hypothesis holds good for the 45 high priced companies. Thus, a trading range hypothesis could be a possible reason of the stocks splits in India.

Neglected Firm Hypothesis

- The price results suggest that this hypothesis appears to be invalid in the Indian stock market as the number of companies splitting shares at relatively low price is less i.e. only 12 companies.

Conclusion

To sum up all the conclusions in short, it can be said that there exist a significant positive returns around the stock splits announcement in India. There is also significant effect of ex-split date on the returns of the companies in India. The information leakage of split before formal announcements is there in India. Indian stock market is inefficient in the semi strong form of market efficiency. Trading volume does increase significantly after the ex-split, but this increase alone is not sufficient to prove the improvement in liquidity after stock splits. Changes in daily turnover have to be taken into consideration for this purpose. When these changes are also taken into account the result appears that stock split does not improve liquidity after ex-split date in India.

Recommendations

Based on the findings of the study, researcher comes to the following recommendations to investors and to the regulatory body of India.

- As it is strongly evident from the results that the announcement of stock splits are followed by AAR of 1.2% on that day and on following day also there is a positive abnormal returns. Thus, it is recommended to the investors, in order to have profits in short time, to buy the shares of a split announcing companies on the day of announcement and sell them off on the 2nd day of the announcement. This will enable them to have an above average return of 2% in just 3 days holding in these shares.
- It is also recommended to all those investors who have the holdings in the split announcing companies that they should sell off their holdings on the 2nd day of announcement because on the very next day of that a series of negative returns are observed which may reduce the wealth of the investors. So in order to save wealth it is advised to sell off the holding on the 1st or 2nd day of announcement.
- The investors have another chance of getting abnormal returns on the ex-split day too. This can be reap by buying the shares of these companies before three days of split execution i.e. ex-split day and sell them off on the 2nd day of the ex-split day they can have positive abnormal returns of about 2% in just five days only. Thus, it is recommended to take this low risky opportunity and have increased wealth.

The study has serious policy implications for the market regulators. It is quite evident from the results that there is an information leakage. The securities and exchange board of India (SEBI), the Indian capital market regulator, will have to strengthen its surveillance and monitoring system of securities transactions by insider, in order to enhance the effectiveness of its regulations on insider trading.

Annexure

Annexure 1 : Sample Size finally used for study	
Total companies announce stock split during study period	110
Data not found fully or partially	32
Announcement Date and other details not available.	14
Ignored due to reverse split	7
Sample used for the study	57

Annexure 2: List of Sample Companies Announcing Stock Splits					
Sr. No.	Company	Face Value Before split	Face Value After split	Announcement date	Ex-split date
1	ABB Ltd	10	2	16-02-2010	28-06-2010
2	ACE Ltd	10	2	25-10-2010	13-03-2011
3	AIA ENGINEERING Ltd	10	2	04-06-2011	13-10-2011
4	AMARA RAJA BATTERIES Ltd	10	2	22-06-2010	19-09-2010
5	ASIAN ELECTRONICS Ltd	10	5	05-07-2010	22-10-2010
6	B. L. KASHYAP AND SONS Ltd	10	5	30-07-2010	22-10-2010
7	CITY UNION BANK	10	1	28-04-2010	23-01-2011
8	CLASSIC DIAMONDS (INDIA) Ltd	10	2	9-11-2011	11-01-2011
9	DCH Ltd	10	2	19-01-2010	13-03-2010
10	EASTERN SILK INDUSTRIES Ltd	10	2	08-01-2010	27-06-2011
11	EASUN REYROLLE Ltd	10	2	30-05-2010	31-07-2010
12	ELECTROSTEEL CASTINGS Ltd	10	1	23-07-2010	17-09-2010
13	EMCO Ltd	10	2	17-01-2011	14-03-2011
14	EVEREST KANTO CYLINDER Ltd	10	2	22-05-2010	21-08-2010
15	EVINIX ACCESSORIES Ltd	10	1	10-03-2011	29-04-2011
16	FINOLEX CABLES Ltd	10	2	18-10-2009	08-01-2010
17	GEMINI COMMUNICATION Ltd	5	1	19-05-2011	17-09-2011
18	GLENMARK PHARMACEUTICALS	2	1	11-06-2010	10-09-2010
19	GOKALDAS EXPORTS Ltd	10	2	30-04-2010	08-11-2010
20	GUJARAT FLUOROCHEMICALS	10	5	28-10-2009	08-01-2010
22	GMDC Ltd	10	2	23-02-2010	15-05-2010
23	GVK	10	1	06-12-2010	08-02-2011
24	ICSA (INDIA) Ltd	10	2	30-08-2010	23-10-2010
25	INDIA INFOLINE Ltd	10	2	26-04-2011	08-08-2011
26	JAGRAN PRAKASHAN Ltd	10	2	29-10-2010	09-01-2011
27	JP ASSOCIATES Ltd	10	2	15-10-2010	17-12-2010
28	JINDAL DRILLING & INDUSTRIES	10	5	30-06-2011	06-11-2011
29	JINDAL STEEL & POWER Ltd	5	1	21-11-2010	21-01-2011
30	JM FINANCIAL Ltd	10	1	28-05-2011	08-09-2011
31	MADRAS CEMENTS Ltd	10	1	30-06-2011	01-10-2011
32	MAN INDUSTRIES (INDIA) Ltd	10	5	31-07-2010	09-10-2010
33	MARICO Ltd	10	1	12-01-2010	21-02-2010
34	MAX INDIA Ltd	10	2	24-01-2010	12-03-2010
35	MIC ELECTRONICS Ltd	10	2	19-05-2011	27-06-2011
36	NECTAR LIFESCIENCES Ltd	10	1	28-08-2011	12-11-2011
37	NIIT Ltd	10	2	05-06-2010	24-08-2010

38	NRB BEARING Ltd	10	2	31-01-2010	26-03-2010
39	ORIENT PAPER	10	1	14-11-2010	01-02-2011
40	PENINSULA LAND Ltd	10	2	27-07-2010	16-10-2010
41	PROVOGUE (INDIA) Ltd	10	2	13-08-2011	03-10-2011
42	PUNJ LLOYD Ltd	10	2	06-02-2010	29-03-2010
43	RAJESH EXPORTS Ltd	2	1	22-10-2010	29-01-2011
44	RATNAMANI METALS	10	2	19-06-2011	06-11-2011
45	RUCHI SOYA	10	2	14-06-2010	29-10-2010
46	SESA GOA Ltd	10	1	28-04-2011	08-08-2011
47	SHREE RENUKA SUGARS Ltd	10	1	23-01-2011	10-04-2011
48	SUN TV NETWORK Ltd	10	5	05-04-2010	23-07-2010
49	SUZLON ENERGY Ltd	10	2	23-10-2010	21-01-2011
50	TAKE SOLUTIONS Ltd	10	1	25-08-2011	18-09-2011
51	TANLA SOLUTIONS Ltd	2	1	17-03-2011	02-05-2011
52	MLCO	10	2	16-05-2011	17-07-2011
53	THE PAPER PRODUCTS Ltd	10	2	31-01-2010	25-05-2010
54	TIME TECHNOPLAST Ltd	10	1	27-06-2011	29-10-2011
55	TRICOM INDIA Ltd	10	2	04-05-2011	15-07-2011
56	USHA MARTIN Ltd	5	1	17-05-2010	29-08-2010
57	WEST COAST PAPER MILLS	10	2	26-07-2010	26-10-2010

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