IMPACT OF STOCK SPLIT ON PRICE AND LIQUIDITY: EMPIRICAL EVIDENCE FROM INDIAN STOCK MARKET

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Abstract

Stock splits are aesthetic events that simply divide pie into difference slices and do not impact the underlying cash flows and market capitalization of the firm. There are several motives of stock splits like increasing liquidity, to achieve optimum tick size, management confidence in future stock price etc. The objective of the study is to analyze impact of stock splits on price and liquidity of the share in the Indian Stock Market. To do so, event window of 61 days, consisting 30 days before and 30 days after the stock split considered of 20 companies in the year 2011 whose stock split ratio is 10:1.The returns in the period prior to the announcement compared with the returns after execution of the split in terms of mean returns and variance of returns. The empirical evidence suggests that there is clear evidence about changes in the liquidity after the split. The Wilcoxon Pair test was used to test the significance of the stock returns.

Keywords: Liquidity, Mean returns, Stock split, Stock market, Variance of returns

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1. Introduction

Stock split is simple process of divide the shares into different parts without affecting to the firm. It involves the process of converting share into number of shares and reduction in the trading price. There is no change in shareholder's shareholding and their wealth, overall capital structure after stock splits. A stock split is not adding any value to the company. But market reaction would major approach of the company. The stock splits affect stock price, trading activity around announcement and execution date.

There are two theories to support the stock split. One is optimal trading range theory and other one signaling theory. The optimal trading range theory considered that stock split adjusts the stock price at optimum range. There is an improvement in liquidity due to optimal price range. This theory supported by Baker and Gallagher (1980) and Baker and Power (1993). They believed that stocks affordable to the small investor by lowing the share price. Lakonishok and Lev (1987) found that stock price move up after split and average price is comparable to other firms.

The Signaling theory suggests that split of shares are used for good performance, future growth and favorable information. This theory supported by Asquith, Healey, and Palepu (1989) that announcement of stock split for the purpose of future earning information. Brennan and Coperland (1988), Brennan and Hughes (1991), and Schultz (1999) suggest that reduction in price leads to higher commission and analyst given more attention because to generate more firm specific information.

An increase in trading volume due to stock split. There is a positive return and increase in trading volume around announcement date of stock splits. Fama (1969) and Desai and Jain found that increase in returns after announcement of stock splits. Grinblatt, Masulis and Titman (1984), McNichola and Dravid (1990), Maloney and Mulherin (1992), Ikenberry, Rankine and Stice (1996), Ikenberry and Ramnath (2002), Byun and Rozeff (2003) found that positively significant reaction in the market after stock split.

An increase in number of trades per day also found after stock splits. Lakonishok and Lev (1987) found that significant increase in number of trades as a proportion of total outstanding shares.

Maloney and Mulherin proved that increase in volume and number of trade after stock splits. Muscarella and Vetsuypens (1996) found that liquidity improved after stock split with increase in wealth. Mayank joshipura (2008) found that liquidity improves but no positive effect on wealth.

One of the neglected firm hypotheses suggests that firm themselves perceived to be undervalued because of the negligence of market participants. The firm tries to catch the attention of market participant by way of stock splits. Stocks are traded at discount to draw attention.

2. Literature Review

There are several studies done on stock split. Stock split became quite common in the international market in the beginning of nineteenth century. Around 150 stocks had been split once or more between 1921 and 1930, among 837 listed on the New York Stock Exchange as of December 31, 1930. It has been found that stock splits have picked up in a big way in India from the beginning of 21st century and especially from the beginning of year 2005.

Another complementary hypotheses that stock split improves the liquidity. Irwan Adi Ekaputra and Basharat Ahmad studied the impact of reduction in tick size on liquidity. They found that it reduces bid ask spread and enhanced liquidity. Patrick Dennis and Deon Strickland (1998) measured the impact of liquidity through ownership composition. The results indicate the firms with low institutional ownership prior to the split achieve largest liquidity benefit following the split. Lilith P. Samarakoon (1999) studied a new measure of market liquidity of shares in the Colombo Stock Exchage and found that top ten trading firm account 44% of number of trades while top 25 firms account 70% of them.

Jose yague guirao and J.Carlos gomez sala (2002) used transaction size, order submission and price preference to measure the liquidity and result show a decrease in trading volume and depth while increase in the relative bid-ask spread. There are not significant changes in the percentage of orders that provide liquidity to the market. Maria Mercedes Miranda (2005) studied on signaling versus liquidity motives in public energy utility industry, liquidity motive seems to predominate in explaining the abnormal announcement return of utility stock splits. Tak Yan Leung, Oliver Meng Rui and Steven Shuye Wang (2006) analyzed the effect of stock split using

intraday data. The study reveals that stock splits improve corporate liquidity and also suggest that firm use stock split to signal in order to increase liquidity.

David Michayluk and Ruoyun Zhao (2007) compared risk of bond and equity after stock split. The result shows that company risk declines following a share stock split. Vladimir Benic and Ivna Franic (2008) compared liquidity of Croatian and other six regional markets and result indicate a substantial level of illiquidity in the Croatian and other developing markets. Liang Ding (2009) worked on the pattern of stock splits by signaling and liquidity. They used principal components to measure the abnormal returns and trading volume after stock splits. The study shows 93.87% variance due to signal and liquidity. Dhanya Alex, Dr. K.B. Pavithran, Eapen Rohit Paul (2011) suggested that significant improvement in traded volume (turnover) but there is no clear evidence about positive wealth effect after stock splits from Indian Stock Markets, particularly S&P Nifty.

There are several interesting fact has been found from the literature related to the stock splits. Most of the studies have used event methodology and the findings from the studies tend to be mixed, and often contradictory.

3. Data and Methodology

The study was carried out in two phases. In first phase, the impact of stock split on share price and in second phase impact on liquidity through returns from stock. The data used for the study was collected from twenty stock splits for stocks listed on the Bombay Stock Exchange (BSE), Mumbai, India which took place in year 2011. The sample stocks were those whose stock split ratio is 10:1. To avoid abnormal returns due to announcement and execution of the split, a 30 days window was taken prior to the announcement of the split and after the execution of the split. To study the effect on price, all twenty stocks were taken and use daily adjusted prices for the event window of 61 days, consisting of 30 days before and 30 days after the stock split was made.

4. Analysis and Interpretation

4.1 Price Effects of stock split

The stock splits do not create any value to the company but from the shareholder's point of view, but it increases the number of shares. The focus of the shareholder is to measure the changes in the price after the stock splits. Generally investors believe that fundamentally sound companies price rise after stock split. The impact of stocks splits on price is given below.

Table: 1 Price effects of stock split

Company	Old FV	New FV	Market Price (Rs)			Change in price (%)	
			One month before Split	On Split	One month after Split	One month pre split	One month post split
Banas Finance	10	1	217.7	276	382.5	26.78%	38.59%
Blue Circle Ser	10	1	401.85	569.5	677	41.72%	18.88%
Chandni Textile	10	1	44.25	57.5	52.7	29.94%	-8.35%
CRISIL	10	1	7872.95	8400.5	8780	6.70%	4.52%
Dazzel Confi	10	1	16.69	24.5	36.6	46.79%	49.39%
Grauer and Weil	10	1	72	82	69	13.89%	-15.85%
Innovative Tech	10	1	101.4	136.5	130	34.62%	-4.76%
Intellivate Cap	10	1	821.15	867	987	5.58%	13.84%
Khaitan Chem	10	1	155.3	162	174	4.31%	7.41%
Le Waterina Res	10	1	87	122	145.5	40.23%	19.26%
LS Industries	10	1	131.5	74.5	60.1	-43.35%	-19.33%
Mah Polybutenes	10	1	139	138.5	76.6	-0.36%	-44.69%
Nicco Parks	10	1	89.5	102.5	100.6	14.53%	-1.85%
Nouveau Global	10	1	172.9	221	187	27.82%	-15.38%
Prism Info	10	1	445	471.5	469.5	5.96%	-0.42%
Rallis India	10	1	1530.3	1529.5	1664.5	-0.05%	8.83%
Tata Power	10	1	1046.95	972	1017	-7.16%	4.63%
Titan Industrie	10	1	4225.9	2290.5	2217	-45.80%	-3.21%
Tuni Textile	10	1	228.15	345	411.5	51.22%	19.28%
Volant Tex	10	1	64.45	30.5	27.2	-52.68%	-10.82%

The result shows interesting fact that out of 20 companies studied, 14 companies recorded gain and 6 companies recorded loss in the month prior to the split may be due other factors. Out of 20 stocks, fourteen recorded moderate to significant losses in the month post the stock split. The reason of decreasing in the price after stock split may be fact that short term investors were booking profits.

4.2 Liquidity Effects of stock split

There are number of ways to measure the liquidity like Bid Ask Spread, Trading Volume, Stock Return, Relative Liquidity ratios etc. The split ratio of sample twenty stock splits was 10:1. The preliminary investigation shows that high variability in terms of price. Hence the study focused on share price volatility to measure the liquidity effect of stock splits.

Share price volatility was estimated using the distribution of stock returns. The daily returns were calculated using the formula $r = \frac{S_1 - S_{t-1}}{S_{t-1}}$ for the thirty day period prior to the pre announcement window and for the thirty day period after the post execution window. The sample mean and sample standard deviation of returns in the two periods were calculated as usual and the compared using standard statistical hypothesis test.

H1: There is no difference in the return of stock before and after split.

H2: There is no improvement in liquidity of stock after split compared to before.

To test the hypothesis, Wilcoxon Signed Paired Test was used. The reason to use this test was that the data not normally distributed. To check whether data were normally distributed or not, researcher has used Kolmogorov-Smirnov Test. The significant probability value was statistically insignificant.

The mean and standard deviation of returns of the sample stocks in the thirty day period prior to the pre-announcement window and in thirty day period after the post-execution window are compared in Table 2 below.

Table: 2

Comparison of mean and standard deviation of daily returns before and after split

Stocks	Return (r) Before	Return (r) After	Standard Deviation Before	Standard Deviation After	Wilcoxon Signed Paired test
Banas Finance L	0.0173	0.0165	0.0103	0.0080	0.110
Blue Circle Ser	0.0167	0.0097	0.0062	0.0081	0.000
Chandni Textile	0.0114	-0.0034	0.0222	0.0343	0.086
CRISIL	0.0024	0.0025	0.0103	0.0266	0.936
Dazzel Confi	0.0171	0.0227	0.0407	0.0200	0.744
Grauer and Weil	0.0058	-0.0089	0.0362	0.0352	0.199
Innovative Tech	0.0136	-0.0020	0.0239	0.0334	0.147
Intellivate Cap	0.0282	-0.1349	0.0308	0.3745	0.180
Khaitan Chem	0.0030	0.0039	0.0232	0.0325	0.420
Le Waterina Res	0.0160	0.0080	0.0231	0.0247	0.573
LS Industries	-0.0497	-0.0102	0.0002	0.0462	0.002
Mah Polybutenes	0.0060	-0.0261	0.0159	0.0581	0.001
Nicco Parks	0.0103	-0.0008	0.0447	0.0188	0.469
Nouveau Global	0.0072	-0.0081	0.0248	0.0494	0.372
Prism Info	0.0036	-0.0475	0.0109	0.2067	0.173
Rallis India	-0.0010	0.0047	0.0177	0.0305	0.823
Tata Power	-0.0032	0.0023	0.0167	0.0202	0.523
Titan Industrie	0.0009	-0.0014	0.0232	0.0202	0.476
Tuni Textile	0.0171	0.0106	0.0245	0.0400	0.948
Volant Tex	-0.0320	-0.0090	0.0337	0.0331	0.008

It was found that the mean returns decreased overall after the split (expect for five stocks), but this decrease was found to be statistically insignificant. It was also found that the standard deviation of returns increased overall after the split and this increase was found to be statistically significant.

The tests of the hypothesis were using all sample stocks simultaneously is given in table 3.

Table: 3

Wilcoxon Signed paired test for mean and standard deviation of daily returns before and after split

	Returns before & after	S.D. before & after
Z	-1.829	-2.277
Asymp. Sig. (2-tailed)	0.067	0.023

For testing hypothesis one, the researcher fails to reject the null hypothesis that there is no difference in return of stock before and after stock split. This was statistically insignificant as the significant probability value 0.067 (greater than 0.05).

For testing second hypothesis, the researcher fails to reject the alternative hypothesis that the liquidity improved after stock split as compared to before. This was statistically significant as the significant probability value 0.023 (less than 0.05).

5. Findings and Implications

The results of the study indicate strong evidence for an increase in the liquidity of the stock after the split. Though the decrease in mean returns was not found to be statistically significant, the standard deviation of return increased after stock split with statistically significance. The result support the previous studies like Muscarella and Vetsuypens (1996), Patrick Dennis and Deon Strickland (1998), Oliver Meng Rui and Steven Shuye Wang (2006), David Michayluk and Ruoyun Zhao (2007), Mayank joshipura (2008).

The application different theories or hypotheses found from the study. The trading range applied to few stocks like Tata Power, Titan Industries and CRISIL. The neglected firm hypotheses applied for those whose returns increased after stock split like Dazzel Confindive Ltd , Khaitan Chemical & Fertilizers Ltd, and Rallis India. The signaling hypotheses could apply for two stocks whose volatility decreased after stock split like Bansal Finance, Nicco Parks.

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