Effect of Stock Splits on Price and Return of the Stock

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15th March 2010

Executive Summary

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. Yet it has been observed that there is deviation in the share price of the stock after the announcement of the split and also around the ex-date. The objective of this study is to observe whether stock splits lead to an occurrence of abnormal returns around the ex date and 60 days before and after the split. It will also enable the investor to know the company's intentions or motives behind declaring the split.

Stock split is a relatively recent corporate event in Indian financial market that intends to increase the "affordability" factor of the stock price among small investors and thus enhance the liquidity in the market. Though several studies have been conducted in the developed economies, testing the impact of stock split on different market parameters, there have been handful studies on the subject in Indian market. One such study by A.K.Mishra (2006), taking the span of 1999-2005, concluded *a negative effect on price and return of stock splits*. This finding is contrary to the several other studies in developed economies, such as US, Spain, Canada etc, where positive relation was established between stock splits and return.

In our empirical study we have taken the study of A.K.Mishra (2006) forward and extended our observation time span from 2002 to 2009 when Indian capital market witnessed a robust growth, ranging from bull market in 2005 - 2008 to bear market in late 2008 - early 2009 and a solid recovery thereafter. As the previous study on stock split was concluded in 2006 when stock split was a recent phenomenon in Indian market, we believe that our new findings may align with that of other scholars who studied the developed market.

Finally, we targetted the companies listed on the NSE and narrowed our samples where the stock split phenomenon is relevant.

Hypothesis: Stock Split has no impact on the Price and Return of a stock

Independent Variables: Stock Splits, Split Factor

Dependent Variables: Price and return/capital gain

Control Variables: Industry

Literature Review

The purpose of the empirical study is to test whether stock split has any impact on the price and return of a stock in the Indian capital market. In this approach, we have studied the works of various studies conducted in the past on stock splits. This has helped us in getting various perspectives in this issue and enable us to do an in depth literature review. There have been studies which have been conducted in the U.S. context. Although markets react differently to stock splits in U.S. (according to empirical findings), the methodology of these cases has helped us do a case study on Indian companies and develop an effective theory for our study in the Indian context

There have been numerous researches on the effect of stock splits on different parameters of capital markets. One such research paper advocates considering the three different market efficiencies (weak form, semi-strong form, and strong form) that *the investor can make an above normal return by relying on public information impounded in a stock split announcement* [1]. This study agrees that according to the semi-strong form market efficiency, the stock split announcement do impact the company stock price. The sample of the companies under study was taken from S&P500 index.

The study done by Desai, Jain (1997) elaborates more on long-run performance of common stock following stock splits announcement and thence conclude that the capital market doesn't fully reacts to the information conveyed in the stock split announcement. Considering the ignored studies of small firms, the paper examined firm portfolio of different sizes and more diversity in terms of industries. Taking a large sample of stock information for a period of 1976 – 91, the research paper concluded that *the market does not incorporate the full effect of the stock split announcement in the month of announcement* [2]. Ikenberry and Ramnath (2002), in their paper related to corporate news events, too suggest the *prior*

studies that report abnormal return drifts subsequent to splits do not appear to be spurious, nor a consequence of misspecified benchmarks [17]. The findings supported that fundamental operating performance of a firm is somehow results the splitting process in the anticipation of increase of earnings in future.

Few studies went significantly far to capture the signs a stock split announcement leave with the change of short interest. One such study was done by Padma, Vetsuypens (2002) that suggests that corporate events such as stock split that are alleged to convey favorable inside information should be associated with a decline in short interest. Positive stock returns at split announcements cannot be distinguished between signaling and liquidity effects because stock splits are generally believed to be liquidity enhancing. Therefore, *short interest increases significantly for firms that experience post-split liquidity improvements* [3]. On the other hand, one document [4] that put up a strong negative relation between split-adjusted share price and subsequent returns was released by Brown, Pfeiffer (2007). It states that split-adjusted share price as a deflator in misleading and should be dealt with caution in empirical financial accounting and capital market research.

It is evident that managers believe that stock split results in optimal trading price of a stock that attract small investors and hence enhances liquidity. The research paper by Dennis, Strickland (2003) establishes a link between stock splits, liquidity and abnormal stock returns. Considering the role of institutional investors in the given stock scrip, the article concludes that *the abnormal return is positive and negative related to the proportion of institutional ownership before the split* [5]. Primarily based on NYSE, NASDAQ and AMEX listed firms with the time span of 1990 – 1993 calendar years, the research paper puts forward some compelling conclusions that suggests the huge impact of ownership of institutions on both liquidity and returns [23].

In an all together different geographical location of Spanish stock market, the paper by Reboredo (2003) supports the much researched hypothesis in US markets that stock splits indeed reduce stock return and increase stock volatility and volume. Testing the several stock split hypotheses about optimal price range, Signaling, Tax-option, Tick size, and

ownership structure, Reboredo concludes that *stock splits have reduced the wealth of shareholders* [6].

The former financial papers have given emphasis to the importance of bid-ask spread and a decline in proportional spread post-split. The paradox of non-existence of liquidity decline was offset by the theory of the increase of number of trades. Huang and Weingartner (2000) countered the common belief and suggested that *the spread-setting behavior of the market does not change after a split* and *forms that splits their shares outside into the preferred price range experience more pronounced effects* [7]. These findings suggest that market participants regard stock split into an optimal price range as a nonevent. On the other hand, a research paper by Conroy, Harris, and Benet (1990) takes a stand and fully favors the stock splits in view of increased liquidity. It states that the *percentage spreads increase after splits, representing a liquidity cost to investors* [8]. The decrease in share price following splits is a result of increased spread and thus consequently be a part explanation of increase in return variability after splits.

A general outlook of the stock market is that stock split announcement is attributed to increase in either future earnings or near-term cash dividend. The market believes that the stock split is executed because a sudden increase in earnings of the firm may shoot-up the stock price and consequently makes it untradeable to small investors. Asquith, Healy and Palepu (1989) claims to rule out this misconception with their research paper and advocates that there is a negative relation between stock split announcement and firm's future earnings.[9]

Signaling as anticipation is still caught up with the phenomenon of stock split. Future earnings have thus always been associated not only with the stock splits but also with the split factor. Research paper by McNichols and Dravid (1990) supports the belief and advocates that *the management's choice of split factor signals private information about future earning and that investors revise their beliefs about firm value accordingly* [10]. It tells that the correlation between split announcements and split factor and earnings forecasts errors is significantly high.

In yet another study, Josef and Baruch (1987) attempted to answer the question of *why firms split their stocks or distribute stock dividends and why the market reacts favorably to these distributions* [16]. The findings clearly distinguish between the effects of stock splits and stock dividends on financial markets and maintain the common conclusion that stock splits indeed restore the stock price to its optimal trading range.

For now it clear from almost all the empirical studied that there has been an increase in volatility and volume during the announcement and ex-date of a stock split [24, 25, 26, 27, 28, 29, 30]. Volatility to the extent of around 28% around the ex-dates of the split has been found by Ohlson and Penman [31].

The effect on price and return of the stock has conflicting empirical evidence in Indian and US context. The positive abnormal return of US stock splits has been experienced and reported by many empirical studies. Few of the papers reported that splitting firms experience about 3% positive excess return after the announcement of the stock splits [18][19][16][21][10]. US markets have seen a 7–8% excess return in a year after the announcement of stock split [11]. Similarly for markets outside too, a significant increase in return and price has been found [12] [13] [14]. In India, empirical findings puts forward that the effect of stock split announcement on price is negative. Mishra (2007) explained the effect of stock splits in financial markets by five possible hypotheses developed in the financial literature: Signaling, Trading range, Liquidity improvement, Tax timing, and Tick size (for optimal trading price) [21][22]. He thereby concluded that *managers' decisions about realigning the unit price of their shares to a different price range have induced brokers to revise their optimistic valuation about equity and about future firm performance* [15].

Data

Initial sample data of stock splits was taken from CMIE's Prowess database. Splits for firms listed on the National Stock Exchange (NSE) was taken and closing stock prices on 60 days post and pre split were captured manually from the NSE website. Nifty closing prices on the same dates were also extracted.

Along with the split records (company, X date and Return on X date), the associated industry and sector, Stock Beta and return on X date was also taken from the Prowess database.

Following filters were applied –

a) The company should be listed on NSE.

b) The Split (X-Date) should be after 2002.

c) Stock Price and Nifty Prices should be available on both the dates (X date+60, X date – 60)

d) Stock Beta should be available.

The final sample had 187 records (translating to 748 data points).

Table 1 report the year and sector wise summary of the sample.

Sector/Year	2002	2003	2004	2005	2006	2007	2008	2009	Total
Automobiles		1	1	1	1	2	1		**7**
Electrical & Electronics		1		1	3	3	2	1	**11**
Financial Services				1	1	2	4	2	**10**
Hospitality				1	3	2			**6**
Infrastructure					4	3	5	1	**13**
IT/ITES				5	1	1	2	6	**15**
Manufacturing	2	4	7	19	16	19	14	4	**85**
Other			1	3	3	2	3	3	**15**
Pharmaceuticals		4	2	8	3	1	2	1	**21**
Textiles				2			2		**4**
Total	**2**	**10**	**11**	**41**	**35**	**35**	**35**	**18**	**187**

As evident from the table, manufacturing sector witnessed the maximum number of splits. And as reported earlier, post 2005/06, the number of splits in the Indian Capital markets have increased significantly.

An analysis of the number of splits by split ratio reveals that stocks with face value of 10 have witnessed more splits than those having a face value of 5. Table 2 details the split factor wise count of the same.

Split Ratio	# of Splits
10:1	51
10:2	57
10:5	18
100:10	2
2:1	13
4:1	1
5:1	44
5:2	1
Total	187

In terms of the returns on the X-Date, there was no clear trend barring Textiles which showed an extra-ordinary return. But since Textile sector witnessed only 4 splits during the period, this can be ignored as an aberration. Table 3 summarizes these findings.

Sector	Average of Returns on X Date
Automobiles	2.80
Electrical & Electronics	6.11
Financial Services	4.17
Hospitality	6.88
Infrastructure	-0.20
IT	3.86

Manufacturing	**1.98**
Other	**2.25**
Pharmaceuticals	**1.57**
Textiles	**248.01**
Average	**7.76**

Statistical Tests

To investigate the impact of stock split, we used the Student's t-test to compare the mean return observed over a 120 days period to the mean return expected by the CAPM theory. Actual Return was calculated based on the return on the stock price. Expected return was calculated by using the following formula.

Expected Return = Nifty Return (over the period) * Stock's Beta

A summary of the average returns observed and expected is shown in Table 4.

Sector	# of Splits	Average of Expected Return	Std Dev of Expected Return	Average of Actual Return	Std Dev of Actual Return
Automobiles	**7**	**7.28%**	**20.10%**	**2.39%**	**22.94%**
Electrical & Electronics	**11**	**11.76%**	**28.28%**	**41.09%**	**98.83%**
Financial Services	**10**	**-1.00%**	**26.23%**	**-5.11%**	**59.13%**
Hospitality	**6**	**20.29%**	**8.52%**	**38.98%**	**29.99%**
Infrastructure	**13**	**-4.03%**	**29.38%**	**21.18%**	**74.54%**
IT	**15**	**5.90%**	**16.31%**	**4.67%**	**66.13%**
Manufacturing	**85**	**8.23%**	**20.60%**	**35.74%**	**99.63%**
Other	**15**	**5.91%**	**14.69%**	**-1.82%**	**34.85%**
Pharmaceuticals	**21**	**8.82%**	**16.23%**	**57.77%**	**200.81%**
Textiles	**4**	**0.83%**	**16.36%**	**-40.40%**	**6.67%**
Total	**187**	**6.98%**	**20.70%**	**27.05%**	**103.81%**

The hypothesis –

H_0 – Stock Split do not affect the returns on stock prices.

H_1 – Abnormal returns are observed because of stock split.

Using the t-test, the P value found was .98%.

Empirical Results

The P value observed was .98% and hence it can be said with 99% confidence that stock split do affect the return on stock. Also as mentioned in the literature review, it is observed that the volumes around the ex-Date see a significant rise.

However the exact effect of stock split on returns is still unpredictable. While some sectors gave abnormally higher returns that the expected returns, it has been the opposite for the others. Furthermore, we could not find any conclusive relation between split factor and abnormal return of the stock.

Conclusion

This study has analyzed the market effect of stock splits on stock price and return around the split ex-dates for a sample of stock splits undertaken in the Indian market during 2002- 2009. Though finance theory predicts that stock splits have no effect on the market behavior around the announcement, our study has concluded that stock splits make a positive impact on stock's return, as compared to index return, over the period of time. This new finding is contrary to the study done by Mishra in 2007 where he concluded that *stock splits have reduced the wealth of shareholders.*

Discussion

The findings of this study rely heavily on the assumptions of Capital Asset Pricing Model. However it is not always true, stock returns do give abnormal returns as compared to those predicted by CAPM. Another limitation of the study is the small sample size, even though the number of stock splits in India has increased over the years, the number is not sufficient to give a sector wise impact of stock splits.

Taking the findings provided by Mishra[15] forward, it is evident that stock split do effect the return. But the exact effect on the return cannot be concluded with certainty.

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