

# An Event Study Analysis of Stock Splits in Indian Stock Market: Sectoral Response

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## Abstract

The event studies examine share price movements around a corporate event. A stock split is one of the corporate events that refers to the division of stock of a specific firm. The division can either be forward or reverse split and in this study only forward splits are deliberated. Most of the times the splits are considered as the mechanism in the hands of the corporates to make new prices more attractive to the prospective small retail shareholders. The review of the literature reveals that in a not-so-efficient capital market like India having asymmetries in information flow, the stock split announcement affects shareholder wealth. However, very scarce efforts have been made so far to know the stock split behavior of firms in India of various sectors. The present study is a small step in this direction. This paper attempts to analyze the effect of the share split on different sectors of industries and to study the variation in return of the stocks of the selected firms during the pre and post-split. The average abnormal return is used by applying the event study methodology. The sectoral indices will comprise of nine indexes: Auto, Bank, Financial Services, FMCG, IT, Media, Metal, Pharma, and Realty. The data for the paper is secondary from the sector-based index by National Stock Exchange which is designed to offer a single value for the collective performance of various companies demonstrating a collection of connected businesses or within a sector of Indian economy and the analysis of the data is performed by using appropriate statistical techniques.

**Keywords:** Share Split, Corporate Event, Share Price, Sector Analysis.

## Introduction

The study has taken into account the sector-based index by National Stock Exchange which is designed to offer a single value for the collective performance of a various companies demonstrating a collection of connected businesses or within a sector of Indian economy.

The sectoral indices further comprises of eleven index: Auto, Bank, Financial Services, FMCG, IT, Media, Metal, Pharma, Private Bank, PSU Bank and Realty. The Sector-based index are aimed to offer a lone value for the collective enactment of a number of firms representative a group of connected industries or within a segment of the economy. However, it is observed that bank index comprises of both private and public sector banks, which is repeated in the bank index, in order to

avoid the duplication the bank index is retained and both private & public sector banks were excluded for the analysis.

The consequence of a financial event on the worth of a firm. Classical events are firm-specific actions like earnings, mergers & acquisitions, stock-splits declarations, or economy widespread events like inflation, trade deficient, and interest rate. Also, influences of declarations in variations of regulatory situations or the events that may disturb the companies' value. The event studies have a long past [1] explored the influence of stock splits.

There are studies conducted in developing economies like Sri-Lanka where the researcher have found that that stock-splits have a substantial signal and information content in the Colombo Stock Exchange. According to the study the market has reacted positively and significantly to the announcement [2]. Also, studies have observed that after a split new investors get attracted in buying the stock as it is available at a lower price. Though, the stock split may have no impact on the value of the investment as the fundamentals of the company remain unchanged [3]. Also, there are studies that indicate a significantly positive impact of stock splits on the returns of stock around the announcement day, whereas actual split day return is not significant under the assumption of significance level 10% [4]. Many researcher have employed various methodologies like [5] employed Harris and Gurel's metric that takes account of market volume and the individual security's volume.

Besides, this is an event study having a sectoral specific insights and analysis to provide a holistic view of whether the stock splits are sector specific or is it uniform in across all the sectors of the economy. Going further, we have thoroughly analyzed the past literature available on the corporate actions with specific reference to the stock splits.

### Literature Review

The researchers have examined the reaction of trading volume activity and security return variability to annual earnings announcement with a sample of 143 New York Stock Exchange firms. The results obtained indicated that a 33 percentage increase in trading volume and 61 percentage increase in security returns in earnings announcement week over the non-announcement week [6]. According to [7], in their study found that the announcement of a split sets off a chain of events such as an increase in the daily number of transactions which in turn increases the noise-ness of the security return process.

While, [8], analyzed the role of information in announcing of stock splits by Companies plays an important role in price determination. They have defined information as

“Pure Information” (i.e., which contains details only about the stock splits) for the purpose of the study. The results have shown that the market anticipation of split announcements is related to the stock's information richness.

Also, there are studied [9] 1131 stock splits between 1983-1989. There is an increase in the number of trades as well as a decrease in the mean trade size following the split. The number of liquidity trades also increases after a split. Further, changes in the numbers of individual and institutional shareholders are positively related to the split factor. Abnormal announcement returns are positively correlated with changes in the total number of shareholders. These findings support the signaling hypothesis [10].

There are studies [11] that have examined changes in trading activity around stock splits, and their effect on the volatility and the adverse information component of the bid-ask spread. Even after controlling for microstructure biases, it is found that there is a significant increase in the volatility after the split. Changes in total volatility and in its permanent component are positively related to changes in the number of trades. The study [12] has provided 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 percent on the announcement date.

The occurrence of stock split doesn't affect cash flows of the firm and there is no change in the capital structure of the company, so the net worth of the firm is not be affected by the stock split. However, the empirical research on splits by [13], [14], and [15] find abnormal return around announcement day which is explained as the support to the hypothesis of split announcement effect. Not making use of the event of a stock split and adapting the signaling model of [16], [17] and [18] propose that financial decisions of the management convey information about the firm value.

Evidence have been found to support this hypothesis, [7] found the daily number of transactions along with the raw volume of shares traded increase after the split. The research [19] made use of the trading volume to measure the small and large traders' activities and found that small traders transact more frequently after the stock split and the trade direction changes significantly from sell to buy. The study [20], [21], and [22] also supported the trading behavior change after the stock split.

However, why companies want to attract the small or uninformed traders to invest in their stocks? One of the most popular explanations is that the enlarged investor base will increase the liquidity of the stock. Liquidity refers to

the frequency and ease with which an asset can be converted to cash. The study [23] defines it as “accommodation of trading with the least effect on price”. The motivation of managers to split stocks is to enhance the liquidity. From the viewpoint of liquidity, the trading range hypothesis is also called “liquidity hypothesis”.

### Research Gap

In past, many empirical studies have been conducted to establish the impact of stock splits on price and liquidity across different countries. There have been many studies conducted in U.S. and other developed countries. Although market reacts differently to stock splits in U.S., the methodology of such studies has helped to develop an effective theory for the study in the emerging economic particularly in Indian context. As the subject has not received much attention amongst researchers in many of the emerging economies especially in countries like India, there is very little understanding on the effects of stock splits in the Indian context. Therefore, the study in emerging economies particularly in Indian context should be conducted to analyse and interpret the effect of a stock split.

### Methodology

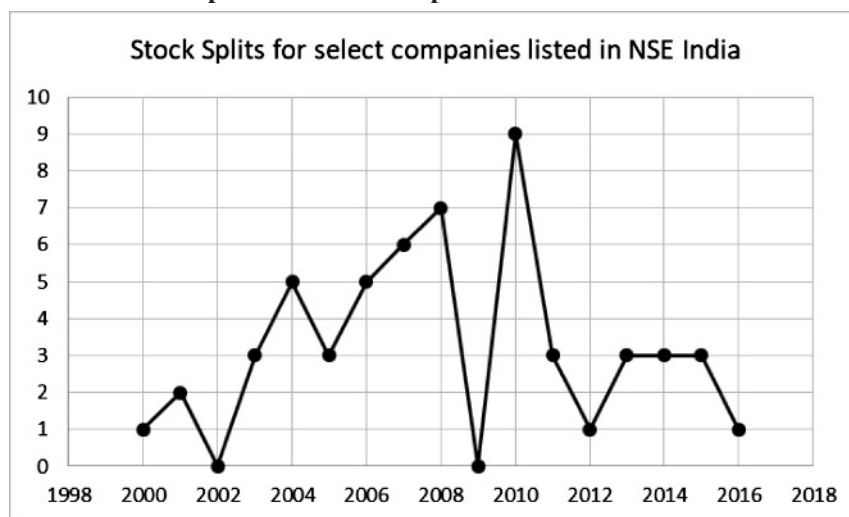
The study takes into account the listed 123 companies that comprises of sectors ranging from Energy, Reality, Banking to Metal. Since the study involves the analysis of a

corporate action which is stock splits in India we examined 54 companies based on random sampling technique with confidence level at 95%, confidence interval of 0.1 that have gone for the stock splits. We found that at the end of fiscal 2017, 67 companies have gone for the stock splits. So, for the purpose of the stock split events (54 companies) listed on the National Stock Exchange of India is selected which covers during the period of 2000 to 2016 which were selected by using judgmental sampling. This choice of the sample period is administered by the accessibility of data. Overall rational care has been used in order to choice a sample to stem more effective conclusions. The concluding selection standard is the accessibility of the daily closing price that is essential for the application of the event study methodology.

### Results & Discussion

The data was first analyzed to check the overall trend for the stock splits based on the sample of this study. We found that the number of stock splits is not having a specific trend of going up or down over the period of sixteen years, the period chosen for the study. Also, it is observed that most of the companies have gone for splits in the year 2010 and followed by 2008. While, the year 2002 and 2009 witnessed the lowest or none of the listed companies went for the splits. And since 2010, the companies going for the stock splits have gone significantly down as can be seen in (Fig. 1).

**Fig. 1. Year-wise chart showing number of companies those who have gone for stock splits for select companies listed in NSE India.**



It is also observed that there is a uniformity across sector with regard to the percentage of companies who have undergone the stock splits as can be observed from the (Tab. 1). The pharma sector having the highest stock splits at 80% during the period of the study followed by auto at

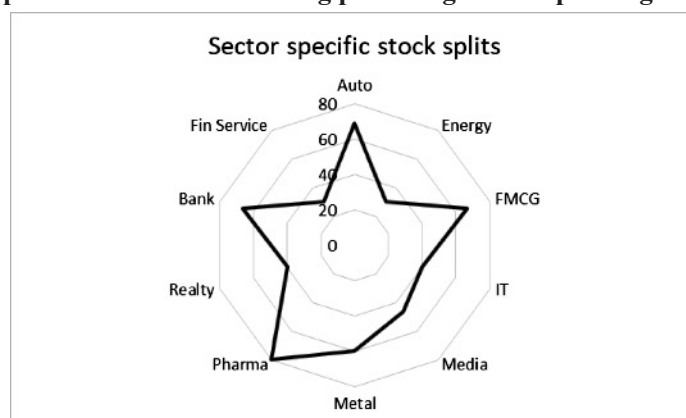
68.75 percent. While, the FMCG and bank sector have similar percentage of the stock splits followed by metal at 60%. Both IT and reality sector are at 40% each. Also, the energy and financial services sector are the two at lowest each at 30%.

**Table 1.** Sector specific percentage of companies gone for stock splits

Sector	Cos. in index	No. of Cos. having stock splits	Percentage
Auto	16	11	68.75
Energy	10	3	30
FMCG	15	10	66.66
IT	10	4	40
Media	15	7	46.66
Metal	15	9	60
Pharma	10	8	80
Realty	10	4	40
Bank	12	8	66.66
Fin Service	10	3	30

The select sample of the companies for the study reveals that there is a uniformity or in other words there is regularity in the corporate action particularly specific to the

stock splits in Indian market as also can be seen from the sector specific radar chart showing percentage of companies in the (Fig.2).

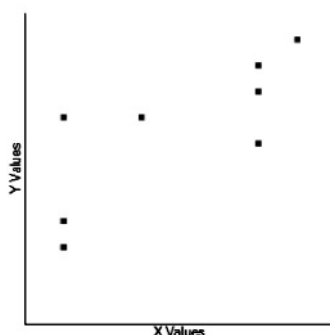
**Fig. 2.** Sector specific radar chart showing percentage of companies gone for stock splits.

To check if there is a correlation between the two variable we calculated the Pearson correlation coefficient and we found out that the two variable are highly correlated and can be seen in the (Fig.3).

Also, it is found that value of R is at 0.8209. This is a strong positive correlation, which means that high X variable

(number of the companies in the sector index) scores go with high Y variable (number of companies gone for the stock splits).

While as the value of R<sup>2</sup>, the coefficient of determination, is at 0.6739 and the P-value is 0.003604 and the result is statistically significant at  $p < 0.10$ .

**Fig. 3.** Plot showing value of X and Y variable based on the companies gone for stock splits.

The calculation for the Pearson correlation coefficient, R2 and P-value are mentioned below:

X Values:  $\sum X = 123$

Mean =  $12.3$  and  $\sum (X - M_x)^2 = SS_x = 62.1$

Y Values :  $\sum Y = 67$

Mean =  $6.7$  and  $\sum (Y - M_y)^2 = SS_y = 80.1$

X and Y Combined

$N = 10$

$$\sum (X - M_x)(Y - M_y) = 57.9$$

R Calculation

$$r = \frac{\sum (X - M_x)(Y - M_y)}{\sqrt{SS_x} \sqrt{SS_y}}$$

$$r = 57.9 / ((62.1)(80.1)) = 0.8209$$

Whereas :

X : X Values

Y : Y Values

$M_x$  : Mean of X Values

$M_y$  : Mean of Y Values

$X - M_x$  &  $Y - M_y$  : Deviation scores

$\sum (X - M_x)^2$  &  $\sum (Y - M_y)^2$  : Deviation Squared

$\sum (X - M_x)(Y - M_y)$  : Product of Deviation Scores

Also, the R value of the Spearman test is 0.87346 and the two-tailed value of P is 0.00096. By normal standards, the association between the two variables would be considered statistically significant.

## Conclusion

The findings of the study based on the sample data suggest that there is a uniformity with regard to the stock splits among the sectors of the companies listed on the National Stock Exchange of India. So, we can safely say that the corporate action particularly, the stock splits is not sector specific.

Also, based on the findings it is observed that the stock splits during the past sixteen years haven't been uniform rather it has witnessed high volatility. Apparently, the companies have made the decisions based on the market conditions.

Additionally, there are certain sectors that have undergone stock splits more than 50% like pharma, auto, FMCG, metal and banking sectors while rest of the sectors like energy, IT, media, reality and financial

services companies have less than 50% of the stock splits. The study concludes that the corporate action: stock splits is not sector specific and this is marked from the results and discussions in this paper.

## Limitations

The research is based on thin sample compared to the all of the stock split that have taken place during the period of 2000 to 2016. Also, the results may be affected by a potential range bias as the companies can be more careful around the type of announcements made during start and growth of the market. And, all the limitations of the event study methodology are inherited in this paper as well.

## Future Research

This paper has many limitations that can be the basis of future research. In Indian context, only limited research works is available wherein the stock split and sector specific impact is analyzed. There is an enormous prospect of further research covering sectoral analysis of other corporate actions, and macroeconomic decisions on the industry specific study.

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