Stock Splits: A Futile Exercise or Positive Economics?

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Abstract

Stock splits are actions whereby the company splits existing units of its stock into more number of units. It means that a share which is trading for Rs.100 if when split into a ratio of 1:1 would be divided into two equal parts of Rs. 50 each. Hence, the market capitalization of the company does not change but only the number of shares increase. Many financial theorists have termed this activity by the companies as futile as there is no increase in the real value of shares. In fact, Warren Buffet has not split the share of Berkshire Hathaway even once since its inception. So this paper strives to explore the reasons which drive a company for stock splits. Can the company really increase its value through a split or is it only a gimmick to stay in the news? Three major justifications have been given by literature for stock splits. Firstly, stock splits help to decrease the nominal value of shares so that investors are able buy more number of shares of a given company. The second reason is increase in liquidity and the third reason is a psychological feeling of owning more number of shares for the same price. The aforementioned reasons would imply that the market activity in the given stock would increase thereby influencing its value in real terms also. This paper aims to understand the impact of share splits on the value of share before and after the announcement in different time periods in the Indian Stock Markets.

Key Words: Stock splits, split ratio, market capitalization, value, returns.
JEL Classification: G32, G34, G35
1. Introduction

Stock splits are a baffling phenomenon. They are a way by which companies are able to increase the total number of shares traded in the market without raising any new funds or changing the value of the firm. The existing share of the company is split in a ratio as desired by the company. That means that a share trading for $50 if split into a ratio of 1:2 would be divided into two shares of $25 each. This action increases the number of shares traded in the market but does not lead to any increase in the net worth of the company. Hence, Finance managers and academicians have been trying to answer the question about the utility of Stock Splits.

The apparent advantage of stock split would be that the liquidity of that stock increases. The reduction in nominal value would give a psychological motive to the shareholder to buy the scrip because now, one would be able to purchase more number of shares with the same amount of money. As in, the share costing $50 would seem expensive but the same share for $25 would seem a plausible buy. Besides this, the news about the announcement of a stock split would put the company on the news radar for a few days and people would take notice of the shares. This could lead to a positive interest in the scrip. As per the signaling hypothesis, a split could also give a positive signal to the market that the past earnings have been good and these earnings are not temporary in nature.

However, there have forever been questions whether stock splits are able to add any value to the firm and its shareholders. If stock splits really did not make any difference to the shareholders’ value or to the company’s performance, then over a period of time, occurrences of stock splits would have seen a decreasing trend. But when the time series data of number of stock splits of the last 15 years for Indian companies listed on the National Stock Exchange was studied, instead of a decreasing trend, a stationary series was found. That means, the total number of stock splits do not decrease. Hence, this study was undertaken to understand and examine stock market returns and company performance with respect to the occurrence of Stock Splits in India.

The main aim of this study is to ascertain the nature of stock splits and its impact on the company. The study has three parts: (i) To understand the behaviour of the EPS\(^1\) of the company before and after the stock split. (ii) To understand the relationship between EPS change and its impact on the stock split ratio of shares. (iii) To examine the pre and post split daily average stock returns and compare them. The first and second part concerns the fundamental performance factors of the companies and the third part has more to do with the technical aspect of daily stock price movement in the market.

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\(^1\) Earnings per share (Unit: Rupees)
2. Review of Literature

The breakthrough paper by Healy, Palepu and Asquith documents that stock splits convey earnings information. They examined 121 firms listed on the American stock exchanges, which went for a stock split between the years 1970 and 1980. Their paper found significant positive relationship between increase in earnings and stock splits for the given firms. The split announcement also leads the investors to believe that the earnings of the firms are not temporary (1989).

A survey was conducted on 100 US firms in 1978, selected randomly to understand the managers’ motives for stock split and it was found that the main reason which motivated managers to go for stock splits was to decrease the stock price so as to increase in trading range. The enhanced liquidity would lead to more number of people investing in the scrip hence the investor base would improve (Baker & Gallagher, 1980).

A study conducted on Canadian listed companies in 1997 conjectured that the market reacted positively with CAARs of 4.3 percent on the first trading day post the announcement (Masse, Hanrahan, & Kushner, 1997).

Millar and Felitz concluded in their study of 122 US firms that whenever there is a stock distribution of 20 percent or more (either splits or stock dividends), then it results in positive shareholder wealth creation (1973).

The returns of stock split companies have shown phenomenal increase in 4-5 years prior to the split as compared to companies that did not go for stock splits and this gap narrowed gradually after the split and after a period of one year after the split, no difference was found in the returns of both the groups (Lakonishok & Lev, 1987).

A study conducted to examine the difference between information and liquidity effects of splits could find that larger abnormal returns were found in cases where the management announced larger split factors. It was also found that analysts forecasted larger earnings when the split factor announced was more than anticipated. The study also throws some light on the optimal trading price of a share i.e. the price which is most accepted by the investors. It was found that managers would announce split factors which would bring the market price closer to the optimal trading price (McNichols & Dravid, 1990).

Hence, most of the studies on stock splits have been able to establish that there is a valid significant relationship between stock splits, share value, returns and EPS.

This paper aims to establish and confirm these relationships in context of Indian firms.

3. Research Methodology

3.1 The Main Objectives of the Study

To examine the pre and post stock split EPS of companies and study the post split change in EPS.
To understand the relationship between earnings increase in previous years and its impact on the stock split ratio.

To examine the difference between pre and post stock split daily market returns.

3.2 Sample

Indian companies listed on the National Stock Exchange (NSE) which went for stock splits between the years 2010 to 2015 have been considered for this study. For the first objective, the mean EPS of the companies five year prior to and one to five years post Stock split has been compared. (for the years 2012, 2013, 2014 mean EPS of 3, 2 and1 year post split has been considered) A sample of 137 companies has been analysed for this purpose.

For the second objective, the EPS of two years prior to the split have been compared and either increase or decrease has been noted. The stock split ratio for companies was calculated. 192 companies were included in this sample.

The daily stock price for all companies one year before and one year after split was taken. The returns were calculated and adjusted for market correction. The total number of companies in this sample is 150.

All the data was taken from the Capitalline Database for companies.

3.3 Statistical Techniques Used

Wilcoxon Matched pairs test was used for the event studies in objective no. (i) and (iii). Logistic regression has been used to understand impact of the change in EPS on the stock split ratio.

4. Analysis and Discussions

The main puzzle for financial analysts while studying stock splits is to understand the behaviour of EPS before and after the split. It has been established in previous researches that an improved EPS leads to stock splits(Lakonishok & Lev, 1987). However, one of the main reasons why managers opt for stock splits is to increase the trading range of the scrip due to the reduced prices. The result of a stock split would be increased number of shares and hence a reduced nominal EPS. Though many researches revolve around the post split behaviour of EPS. Studies in the past have suggested and found that the EPS after stock splits increases(Asquith et al., 1989). The reason for an increase in EPS lies in the fundamental performance of the company. Hence, an increase in EPS would be because of improved performance. Hence, it is important to understand this phenomenon in this manner: the companies go for a stock split because EPS (or in general financial performance) improved. The fact that the EPS increases even after the split, indicates that the performance improvement is not of temporary nature. In this case, it can be definitively said that improvement in performance results in stock splits and the announcement of a stock split signals good financial performance which leads the investors to invest more in the stock. This
paper has tried to examine the pre and post split EPS of Indian companies listed on NSE. All the stock splits have occurred between the financial years 2010 and 2015. The average of pre split EPS of past five years have been compared with average post split EPS of the companies. (post split EPS data has been taken upto the year end 2015)

4.1 The Hypothesis

H1: There is a significant difference between post stock split EPS and pre stock split EPS of companies.

Since the data does not confirm to normality, the Wilcoxon Matched pair test has been used for the pre split and post split comparison of EPS.

The Wilcoxon test for comparison of median scores of pre and post split EPS gives a t-value of 2.39 and it is significant at 95 percent confidence interval as the p-value is 0.018 which is lesser than 0.05. Hence, the null hypothesis is rejected and so it can be said that for Indian companies listed on the NSE which went for a stock split between the years 2010 to 2015, the EPS after the stock split showed a positive significant increase.

The mean EPS of (2 to 5 years after split) has shown an increase. This also confirms that the improvement in EPS is not temporary.

Past researches have suggested that there is a relationship between earnings and stock splits. Many economists have tried to establish a relationship between increase in earnings and stock splits. An increase in EPS can lead to greater demand of the stock in the market. This could lead to increase in stock price (McNichols & Dravid, 1990). It has been widely discussed in literature that companies resort to stock splits because they would like to keep their share prices within a tradable range. Hence, when prices increase, companies would go for a stock split (Asquith et al., 1989). Stock splits are also indicative of increase in future earnings of the firms.

This study tries to examine a relationship between pre split earnings and stock split ratio. Stock split ratio is the percentage of the split. For example if the one share is split into two shares, then the stock split ratio would be 50 percent. It has been found in previous studies that higher stock split ratios result into better stock returns. Here, it is hypothesized that increase in EPS in the previous year leads to an increase in the split ratio.

H2: The companies which go for a higher stock split ratio usually have an EPS increase in the pre split years.

192 Indian companies listed on NSE which announced stock splits in the between 1st April 2010 and 31st March 2015 have been selected. The adjusted EPSs for these companies in the financial year ending prior to the year in which the split was announced were examined and were differentiated into two groups-one in which EPS in the pre split year increased from the previous year’s EPS and the other in which EPS in the pre split year decreased from the previous year’s EPS. The stock split ratio of the same group was examined and companies
having a stock split ratio of more than or equal to 20 percent were separated from the companies having a stock split ratio of less than 20 percent.

The two variables (EPS and Split ratio) were regressed. The split ratio was taken as the dependent variable and EPS change as the independent variable. A logistic regression was run, the results of which are as under:

### Table 1: Case Processing Summary

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Included in Analysis</td>
<td>192</td>
<td>100.0</td>
</tr>
<tr>
<td>Selected Cases</td>
<td>0</td>
<td>.0</td>
</tr>
<tr>
<td>Missing Cases</td>
<td>0</td>
<td>.0</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td>100.0</td>
</tr>
<tr>
<td>Unselected Cases</td>
<td>0</td>
<td>.0</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td>100.0</td>
</tr>
</tbody>
</table>

a. If weight is in effect, see classification table for the total number of cases.

#### 4.2 Logistic Regression

Block 0:

### Table 2: Classification Table<sup>ab</sup>

<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stock Split ratio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Split ratio &lt; 20%</td>
<td>Split ratio &gt;= 20%</td>
</tr>
<tr>
<td>Step 0</td>
<td>0</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>105</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Constant is included in the model.
b. The cut value is .500

In the above block the Logistic regression is estimated by simply including the constant. Since no covariates are included, this model is also known as the base model. This base model correctly predicts the number of companies having split ratio more than or equal to 20 percent but does not correctly predict the number of companies having split ratio less than 20 percent. It gives 100 percent prediction of companies with split ratio more than or equal to 20 percent and zero percent prediction for lower split ratio companies. The overall percentage of correct prediction is 54.7.

### Table 3: Variables in the Equation

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 0</td>
<td>Constant</td>
<td>.188</td>
<td>.145</td>
<td>1.683</td>
<td>1</td>
<td>.195</td>
</tr>
</tbody>
</table>
In the above table, the Wald statistic has a significance value of 0.195 and it is not significant. Hence, the level of constant is not significant and the base model is not adequate to predict the odds ratio for split percentage.

**Table 4: Variables not in the Equation**

<table>
<thead>
<tr>
<th>Step</th>
<th>Variables</th>
<th>Score</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 0</td>
<td>EPS(1)</td>
<td>6.812</td>
<td>1</td>
<td>.009</td>
</tr>
<tr>
<td>Overall Statistics</td>
<td>6.812</td>
<td>1</td>
<td>.009</td>
<td></td>
</tr>
</tbody>
</table>

The above table of ‘Variables not in the equation’ gives the score, degrees of freedom and associated significance level associated with those independent variables which were not included in the base model. The significance level associated with the independent variable EPS is 0.009 which is less than 0.05 which indicates that this variable could be important in predicting the odds of Stock split percentage.

**Table 5: Omnibus Tests of Model Coefficients**

<table>
<thead>
<tr>
<th>Step</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>6.816</td>
<td>1</td>
<td>.009</td>
</tr>
<tr>
<td>Block</td>
<td>6.816</td>
<td>1</td>
<td>.009</td>
</tr>
<tr>
<td>Model</td>
<td>6.816</td>
<td>1</td>
<td>.009</td>
</tr>
</tbody>
</table>

The positive Chisquare value in the Omnibus model shows that there is a decrease in deviance in prediction of y from the base model. Here y is stock split ratio. The significance value is 0.009 which is less than 0.05. Hence, it can be said that the present model is a better fit compared to the base model.

**Table 6: Classification Table**

<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted Stock Split ratio</th>
<th>Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Split ratio &lt; 20%</td>
<td>Split ratio &gt;= 20%</td>
</tr>
<tr>
<td>Step 1</td>
<td>37</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>79</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The classification table shows that overall the model gives a 60.4 percent correct prediction. This is a marked improvement over the base model.
Table 7: Variables in the Equation

<table>
<thead>
<tr>
<th>Step 1</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS(1)</td>
<td>.810</td>
<td>.313</td>
<td>6.689</td>
<td>1</td>
<td>.010</td>
<td>2.248</td>
</tr>
<tr>
<td>Constant</td>
<td>-.353</td>
<td>.256</td>
<td>1.901</td>
<td>1</td>
<td>.168</td>
<td>.703</td>
</tr>
</tbody>
</table>

a. Variable(s) entered on step 1: EPS.

In the above table, the Exp (B) value gives the change in odds for a unit change in the given covariate. The ratio of probability of occurrence of an event to the probability of non-occurrence of the event is termed as odds ratio. The positive exponential of B-Coefficients [Exp(B)] indicates that for each case moving from lower category to higher category, there is an increase in odds ratio. In this case it means that if the EPS goes from decrease to increase, the odds for a higher than 20 percent stock split ratio increases by 2.248 times. And this relationship is significant as the p value is 0.010 which is less than 0.05.

Hence, it can be said that those companies which had an EPS increase in the previous year has a higher likelihood to declare a stock split ratio of more than 20 percent.

Stock splits increase the number of floating shares in the market. The shares become more affordable (psychologically) and the liquidity of the stock increases in the market. This would imply that more number of investors would now be able to trade and buy into the stock which would create buying impulses leading to overall increases in share prices, share volumes and hence returns.

This paper has tried to examine the impact of stock splits on daily stock returns. Many past studies have established or tried to establish that stock splits do cause abnormal returns immediately after announcement (1 day, 3 days, 5 days, 15 days, 30 days returns etc.). Studies of these kinds are quite common while analyzing daily stock prices. However, this paper refrains from very short period studies. If stock splits results in the stock to become more liquid (increase in total number of shares) then these shares will remain in the market for a longish period of time (assumed to be atleast one year). In that case, it is more relevant to examine the daily stock returns over a period of one year. A sample of 150 Indian companies listed on the NSE which went for a stock split between the years 2010 and 2015 have been selected for the study. The daily market adjusted average returns for these companies were calculated for one year before the split announcement and one year after the split announcement of the stock split. The daily average stock return has been calculated as:

$$ R_i = (P_i - P_0)/P_0 $$

Market return has been calculated as $$ R_M = (P_1 - P_0)/P_0 $$

Average abnormal return was calculated as $$ R_i - R_M $$

H3: There is a significant difference in daily stock returns of Indian companies listed on the NSE before and after the announcement of stock splits.
Table 8: Wilcoxon Matched Pairs Test

<table>
<thead>
<tr>
<th>Year</th>
<th>t-statistic</th>
<th>P-value (Significance)</th>
<th>Null Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>-0.473&lt;sup&gt;3&lt;/sup&gt;</td>
<td>0.636&lt;sup&gt;3&lt;/sup&gt;</td>
<td>Retained</td>
</tr>
<tr>
<td>2011</td>
<td>-4.191&lt;sup&gt;4&lt;/sup&gt;</td>
<td>0.000&lt;sup&gt;5&lt;/sup&gt;</td>
<td>Rejected</td>
</tr>
<tr>
<td>2012</td>
<td>-3.638&lt;sup&gt;6&lt;/sup&gt;</td>
<td>0.000&lt;sup&gt;7&lt;/sup&gt;</td>
<td>Rejected</td>
</tr>
<tr>
<td>2013</td>
<td>0.021&lt;sup&gt;8&lt;/sup&gt;</td>
<td>0.983&lt;sup&gt;9&lt;/sup&gt;</td>
<td>Retained</td>
</tr>
<tr>
<td>2014</td>
<td>-1.093&lt;sup&gt;10&lt;/sup&gt;</td>
<td>0.274&lt;sup&gt;11&lt;/sup&gt;</td>
<td>Retained</td>
</tr>
</tbody>
</table>

From the above table it can be observed that in the years 2011 and 2012 there is a significant difference between average market adjusted mean returns before and after stock splits. However, the difference is negative which indicates that the daily mean returns after the split announcement is lesser than the daily mean return before the announcement. In all the other years there is no significant difference in the daily mean returns before and after the stock splits announcements.

These results are interesting from the theoretical point of view. This would imply that in the long run, the returns from stock splits do not remain abnormal even though the number of shares has increased and prices have become attractive.

5. Findings

There is a positive significant increase in EPS of companies after stock splits. This finding reaffirms the relationship between stock splits and EPS for Indian companies.

It has also been found that there is a positive relationship between EPS increase and likelihood of a higher stock split ratio. It means that those companies which showed an increase in EPS have a higher likelihood of having a stock split ratio greater than or equal to 20 percent. This finding is in sync with the increased dividend and EPS hypothesis of stock splits.

Finally in examining the daily stock returns for the pre and post stock split period it was found that in 4 out of 5 years under consideration, the daily average market adjusted returns have decreased in the post stock split period. In the years 2011 and 2012, this decrease is significant. Hence, based on the sample in consideration, it cannot be concluded with

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<sup>2</sup> Negative t-statistic shows that the post split daily returns are less than pre split daily returns.

<sup>3</sup> P-value more than 0.05 indicates that the mean difference in daily returns is not statistically significant.

<sup>4</sup> Negative t-statistic shows that the post split daily returns are less than pre split daily returns.

<sup>5</sup> P-value less than 0.05 indicates that the mean difference in daily returns is statistically significant.

<sup>6</sup> Negative t-statistic shows that the post split daily returns are less than pre split daily returns.

<sup>7</sup> P-value less than 0.05 indicates that the mean difference in daily returns is statistically significant.

<sup>8</sup> Positive t-statistic shows that the post split daily returns are more than the pre split daily returns.

<sup>9</sup> P-value more than 0.05 indicates that the mean difference in daily returns is statistically not significant.

<sup>10</sup> Negative t-statistic shows that the post split daily returns are less than pre split daily returns.

<sup>11</sup> P-value more than 0.05 indicates that the mean difference in daily returns is statistically not significant.
certainty whether stock split announcements have any long term impact on stock price returns.

Stock Splits, if looked at and examined from just the accounting point of view may seem not to make any difference to the value of the firm or shareholders’ wealth. One may say that they are just cosmetic changes to the balance sheet. But just as cosmetic changes to a person’s face may make him/her look better, similarly a cosmetic change such as a stock split may give the impression to the markets that the company is starting to look better. Since stock splits announcements do indicate good performance of a permanent nature they do tend to create positive market sentiments. It can be said that announcing stock splits may not always be a futile exercise but a step towards positive economics.

References


