INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT AND MANAGEMENT

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PRICE AND LIQUIDITY CHANGES AFTER STOCK SPLITS - EMPIRICAL EVIDENCE FROM INDIAN STOCK MARKET

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ABSTRACT

Stock splits are a relatively new phenomenon in the Indian context. This paper examines the market effect of stock splits on stock price, return, volatility, and trading volume around the split ex-dates for a sample of stock splits undertaken in the Indian stock market over the period 2000 to 2010.The traditional view of stock splits as cosmetic transactions that simply divide the same pie into more slices is inconsistent with the significant wealth effect associated with the announcement of a stock split. The empirical evidence suggests that there is no clear evidence about positive wealth effect associated with stock split available from Indian markets, particularly S&P Nifty. However there is a clear evidence of significant improvement in traded volume (turnover) associated with stock split surrounding announcement day. Though this is inconsistent with the theory that suggests if any liquidity gains are associated with stock split it should be reflected on announcement date itself, it supports other studies conducted on Indian markets.

KEYWORDS
Liquidity, Stock market, Stock Price, Stock Split.

INTRODUCTION

Stock splits are a relatively new phenomenon in the Indian context. It is a corporate action in which a company's existing shares are divided into multiple shares. Although the number of shares outstanding increases by a specific multiple, the total value of the shares remains the same compared to pre-split amounts, because no real value has been added as a result of the split.

With the boom in the stock markets, promoters are working hard to add to the liquidity in their stocks through stock splits. The interest in stock splits is motivated by the fact that this event is not directly related to changes in the operating or financial structure of the firm and therefore, should cause no change in price other than the adjustment warranted by the split factor. There should also be no change in distribution of stock returns around execution dates of stock splits. Yet, significant positive abnormal returns and increase in volumes of trade have been documented around stock split announcements as well as execution days. Fama (1969), Lakonishok and Lev (1987), Desai and Jain report that splitting firms experience positive excess returns after the announcement of the stock splits. Significant positive abnormal returns around the announcement and execution day have been also reported from several markets. Mayank Joshipura (2008) report that price effect associated with stock split is not significant and though there is a significant positive abnormal return of 1.08% and 1.66% found on announcement and effective day respectively it did not sustain and got reversed in less than a week's time; hence he found that no clear evidence about positive wealth effect associated with stock split available from Indian markets. A. K. Mishra (2007) reported that the stock prices and return reduced significantly after splitting.

The number of trades per day has been found to increase following stock splits. Maloney and Mulherin prove that a split has a positive effect on the volume by finding higher dollar volume and more trades after stock splits. Moreover, Lakonishok and Lev (1987) found an increase in the number of shares traded as a percentage of the outstanding shares following stock splits. Lakonishok and Lev (1987) found that the positive effect on liquidity is only temporary. Mayank Joshipura (2008) found that there is a significant improvement in traded volume (turnover) associated with stock split both surrounding announcement and effective day. Mayank Joshipura (2008) proved that stock split leads to improvement in liquidity but does not carry any positive wealth effect. A. K. Mishra (2007) found that the stock prices and return reduced significantly after splitting and that the stock volatility and volume increase significantly. A. K. Mishra (2007) suggest that stock splits have induced brokers to revise their optimistic valuation about the firm's future performance and that stock splits have reduced the wealth of shareholders.

Splits do, however, achieve the managerial objective of an increase in the number of shareholders. Baker and Gallagher suggest that a stock split may change the composition of the ownership structure as the number of small shareholders increases after the split, even though Mukherji found no evidence of any change in the ownership structure after stock split. Some of the empirical research finds clear evidence that institutional ownership increases, rather than decreases, after splits.

The above conflicting empirical findings needs to be investigated further with reference to India, keeping in view that there have been several stock splits in recent times. Before 1999, splits were an occasional feature in the Indian capital market. The existence of a mandatory minimum par value inhibited many companies from splitting their stocks. It was felt that varied face values of scrips confused investors, especially with some companies changing the face value of their scrips repeatedly. Things changed in March 1999 when the Securities and Exchange Board of India (SEBI) allowed companies to set the face value of their shares, as long as it was not fractional. The SEBI ruling superseded a 1993 government circular banning companies from issuing shares at face values other than Rs 10 or Rs 100. This move enabled many companies to split their stocks. Hence, it is now left to the companies to choose the face or par value of the shares. Moreover, from the beginning of year 2005 due to big upward movement in Indian stock markets and price of some of the companies have gone far away from normal tradable range. Many of the companies at difference instance found it appropriate to go for stock split and to bring down the price back to the tradable range.

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These recent changes in the India's financial environment offer a unique opportunity to gain further insight into the stock splits with reference to their effects on variables like stock prices and trading volume. With liberalization and globalization, the importance of understanding these stock events has increased dramatically. Apart from that in comparison to the world's major stock exchanges, there are proportionally more small firms listed on Indian exchanges and most of them are thinly traded. Hence, these differences between Global and Indian markets necessitate studying split events in India. This paper analyzes the effects of stock split on price and liquidity around the split announcement dates for a sample of stock splits under S & P Nifty.

LITERATURE REVIEW

First company to declare stock dividends was the East India Company, which, while enjoying great prosperity, declared in 1682 a stock dividend of one hundred percent. Whereas, stock splits became quite common 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. Some of the stock splits in the beginning are IBM's 3 for 1 stock split on February 16, 1926, Edison International's 4 for 1 stock split on April 1st, 1926, Caterpillar in 1926, Texaco in 1928, etc. 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. This was the result of big upward movement in Indian stock markets and share price of some of the companies have gone far away from normal tradable range. Many of the companies at difference instance found it appropriate to go for stock split and to bring down the price back to the tradable range. However this may not be the only objective to go for a stock split as suggested by neglected firm hypothesis and signaling hypothesis which is mentioned in the later part of this section.

Stock split is a corporate action in which a company's existing shares are divided into multiple shares. Although the number of shares outstanding increases by a specific multiple, the total dollar value of the shares remains the same compared to pre-split amounts, because no real value has been added as a result of the split. For example, in a 2-for-1 split, each stockholder receives an additional share for each share he or she holds. In the U.K., a stock split is referred to as a scrip issue, bonus issue, capitalization issue or free issue.

The following hypotheses developed in the finance literature are used to explain price and liquidity effects of stock split in Indian Stock Market.

Stock splits are executed by firms that have enjoyed an unusual growth in earnings and stock prices. The main objective of the split appears to be the return of the stock price to a normal range in wake of the unusual growth period. The targeted price is a function of a market-wide average price, an industry-wide average price, and a firm-specific price. The *Optimal trading range* hypothesis suggests that there is an optimal trading range and that splits realign pre-split share prices into this range. Baker and Gallagher and Baker and Powell (1993) indicate that managers' primary motive for carrying out stock splits is to move the stock price into an optimal trading range. Lakonishok and Lev (1987) found that reduction of the stock price to a reasonable level is a major motivation for stock splits, supporting the trading range hypothesis. The reduction in trading price through stock splits enables the post-split shares to become attractive to more investors, which leads to increase in demand and thus generates abnormal positive return.

Lower priced stocks draw more investors and generate greater trading volume, thus enhancing marketability and reducing the bid–ask spread. The *Liquidity-improvement hypothesis* was identified by Dolly. Realigning share price could draw more attention to a stock and hence increase the liquidity of the stock. Muscarella and Vetsuypens (1996) proved that liquidity after the split improves which is accompanied by wealth gains to investors which supports the liquidity hypothesis. Baker and Powell find that managers view liquidity improvements by making the ownership base broader second only in importance to the trading range hypothesis. Lakonishok and Lev (1987) reported liquidity as the major motive for stock splits.

The *signaling hypothesis* indicates that Stock split is one of the ways to give signal about the future growth of the company. It indicates that stock splits convey managers' favourable private information about the firm's future earnings and the cash dividend prospects to investors. Bhattacharya suggest that managers possess more information than investors and have an incentive to convey favourable information to investors. Lakonishok and Lev (1987) proved that firms that split their shares have a higher short-term earnings growth than firms that do not. Brennan and Copeland (1988) suggest that since lower-priced stocks have higher percentage transaction costs, the increase in the number of shares resulting from a split is a costly signal of its value. Brennan and Copeland (1988) suggest that since lower-priced stocks have higher percentage transaction costs, the increase in the number of shares resulting from a split is a costly signal of its value. Brennan and Hughes (1991) observed an inverse relationship between the stock price and the number of analysts following a firm, and conclude that managers carry out stock splits to attract the attention of analysts.

The *Neglected firms hypothesis* suggests that Stock split is the way of catching attention of the market by a firm which feels that they are undervalued in market players because of the negligence of the market participants, which means if there is little known about a firm its shares trade at a discount. Arbel and Swanson (1993) suggest that firms use the split to draw attention to ensure that information about the company is widely recognized than before.

In the study conducted by Mayank Joshipura, 5 years (Split Date between June 2002 to June 2007) have been taken from a sample frame of S & P CNX 500, it being India's first broad-based benchmark of the Indian capital market. The S&P CNX 500 represents about 92.66% of total market capitalization and about 86.44% of the total turnover on the NSE and covers 72 industries. Stock split data was taken from nseindia.com, Capital line and CMIE's Prowess database. A.K Mishra (2007) used CMIE's Prowess database and conducted the research on firms listed on the Bombay Stock Exchange (BSE) and used data from 1999–2005. A.K Mishra (2007) reported that the largest number of stock splits occurred during the year 2005 when the Indian stock market was passing from the boom period. Splitting firms chosen from BSE represent a broad cross-section of industries, indicating that stock splits are not specific to a small set of industries.

The following companies were omitted from both the studies.

- The companies for which stock split coincide with other events like stock dividend, right issue, De-merger announcement etc (within five days of the stock split ED for A.K.Mishra).
- Companies for which data on announcement date is not available with accuracy.
- The splitting firms which does not have financial information available from the Prowess database.

Mayank Joshipura chose 102 day window(ED+51, ED-51) as small investors can only participate after spilt becomes effective, hence it can be seen that significant improvement in liquidity along with abnormal positive return due to substantial demand from number of small investors from ED to about ED+2 days as the stock becomes more affordable. To check the return sustainability the window was been extended to 51 days and reversing of abnormal return was reported thereon. On the other hand, 120 days window was chosen by A.K Mishra (ED+60, ED-60).

This paper analyzes the effects of a stock split on price and liquidity around the split announcement dates for a sample of stock splits under S & P Nifty. Till now not much research has been conducted on this index. The Nifty is a well diversified 50 stock index accounting for 23 sectors of the economy. The changes in prices and trading volume of the stock are examined for the 30 day window (i.e., 15 days before and the 15 days after) around the split announcement dates in this study. The window was limited so that the short term returns due to the stock split can be measured accurately. The years taken into consideration are from 2005 to 2010, 2005 being the year of market boom and lot of stock splits.From the beginning of year 2005 due to big upward movement in Indian stock markets, price of some of the companies have gone far away from normal tradable range. Many of the companies at difference instance found it appropriate to go for stock split and to bring down the price back to the tradable range. These recent changes in the India's financial environment offer a unique opportunity to gain an insight into the stock splits with reference to their effects on trading volume and price. With liberalization and globalization, the importance of understanding these stock events has increased dramatically. Apart from that in comparison to the world's major stock exchanges, there are proportionally more small firms listed on Indian exchanges and most of them are thinly traded. Hence, these differences between Global and Indian markets necessitate studying split events in India. Moreover, no immense study was conducted regarding stock split on S&P Nifty.

Several studies have been conducted on the foreign markets regarding the effects of stock split and different findings are observed, some of them are mentioned in the literature review section. But, only few studies are conducted with respect to the Indian markets. The effects of stock splits in Indian markets particularly S & P nifty is not known. So investments in equities with regard to stock split are risky. This study tries to identify the impact of stock split on price and liquidity with respect to S & P Nifty. The study has been conducted to check the presence of any abnormal returns surrounding split announcement and also to identify the effect of stock split on trading volume.

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HYPOTHESIS

H1: There are no excess returns present in the pre-announcement window

Positive excess return present in the pre-announcement (AD-15 to AD-1) window suggests that there is leakage of information in the market about the split by company before its official announcement and role of insiders in the market.

H2: There are no excess returns present in the post announcement window

If the stock split announcement is considered as a positive announcement by the company as argued under signaling hypothesis significant positive excess return must be present in the post announcement window which is taken as (AD+1 to AD+15).

H3: There is no excess volume on the announcement day

As suggested by neglected firm hypothesis, the announcement of split may be used as an attention grabber measure and if that works the activity in the stock should increase and volumes should improve considerably along with positive abnormal return.

Out of the 28 companies which have undergone stock split during the period 2000 to 2010, 5 companies were eliminated by applying the following criteria.

a.)   The companies for which stock split coincide with other events like stock dividend, right issue, De-merger announcement etc

b.)   Companies for which data on announcement date is not available with accuracy.

c.)   The splitting firms which does not have financial information available from the Prowess database.

To perform the analysis, first, we need to identify the event date and the event window that is the period over which the security returns will be examined. The event date is the announcement date (AD), which is the moment at which the split gets announced in the Annual General meeting. In order to draw overall inferences for the event of interest, the abnormal return observations are aggregated along two dimensions – through time and across securities. Time dimension comprises of 31 days (AD-15 to AD + 15) and 23 securities are considered.

The following measures are used in the study for the calculation.

TODAY'S SECURITY RETURN (SR)

SR is the return of the security for the day in comparison with the previous day.

$$SR = \frac{(Today's\ stock\ closing\ price - Yesterdays\ closing\ price)}{Yesterdays\ closing\ price}$$

TODAY'S MARKET RETURN (MR)

MR is the return of the market for the day in comparison with the previous   day.

$$MR = \frac{(Today's\ market\ closing\ price - Yesterdays\ market\ closing\ price)}{Yesterdays\ market\ closing\ price}$$

ABNORMAL RETURN (AR)

AR gives the abnormal return for the day.

$$AR = SR - MR$$

MEAN ABNORMAL RETURN (MAR)

MAR is the average of abnormal returns across the N firms on a day t.

$$MAR_t = \frac{1}{N}\sum_{1}^{N} AR$$

CUMULATIVE MEAN ABNORMAL RETURN (CMAR)

CMAR is the cumulative sum of stock i's prediction error (abnormal returns) over the window (t1, t2)

$$CMAR_t = \sum_{t1}^{t2} MAR$$

EFFECT ON TRADING VOLUME

To explore whether the trading activity changes when a stock split takes place volumes adjusted for market volumes are examined around the event day. Past studies used different measures to examine abnormal trading volumes around the event dates. Harris and Gurel's (1986) metric takes account of market volume and the individual security's volume. In this study we adopt a similar method. The effect on trading volume is calculated.

$$VR_{i,t} = \frac{V_{it}/V_i}{(V_{mt}/V_m)}$$

Where,

$VR_{i,t}$ – volume ratio of stock i on day t

V_{it} - daily share volume of the stock i

V_i - mean trading volume of stock i

V_{mt} – daily share volume of the market in the estimation period

V_m – mean of NSE trading volume in the estimation period

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TABLE 1: PRICE EFFECT ASSOCIATED WITH STOCK SPLIT

| AD	MAR	Cumulative MAR
AD-15	-0.03381	-0.033810499
AD-14	-0.43433	-0.468138288
AD-13	-0.54997	-1.018105505
AD-12	0.126739	-0.891366295
AD-11	0.550973	-0.340393618
AD-10	-0.03134	-0.371734202
AD-9	-0.15069	-0.522423367
AD-8	0.11938	-0.403043665
AD-7	-0.47998	-0.883021098
AD-6	-0.2468	-1.129824204
AD-5	0.632036	-0.497787792
AD-4	-0.30796	-0.805743633
AD-3	0.320296	-0.485447425
AD-2	0.073535	-0.411912359
AD-1	0.152741	-0.259171469
AD	0.574859	0.315687047
AD+1	-1.83508	-1.519394606
AD+2	-0.09116	-1.610552068
AD+3	0.86201	-0.748542381
AD+4	0.234041	-0.514501384
AD+5	0.226675	-0.287826496
AD+6	-2.24018	-2.528009145
AD+7	-2.72373	-5.251739664
AD+8	-0.35095	-5.602688064
AD+9	-0.20752	-5.810208276
AD+10	-0.03671	-5.846913833
AD+11	-0.87843	-6.725344645
AD+12	-0.07091	-6.796258895
AD+13	0.071677	-6.724581549
AD+14	0.599697	-6.124884366
AD+15	-0.21482	-6.339703419

Source: Nifty

Table 1 shows the mean average return and CMAR during the AD-15 to AD + 15 window. Table 1 reports the returns price effects surrounding announcement date of stock split and it can be noticed that the excess return of 0.315% is found. It is found that out of total 23 firms only 8 have shown positive abnormal return on the announcement day which does not make it statistically significant and that actually dilutes the significance of the presence of positive abnormal return on announcement day. Several authors (Grinblatt, Masulis and Titman (1984), Brennan and Copeland (1988), Brennan and Hughes (1991) and Muscarella and Vetsuypens (1996) hypothesize that firms signal information about their future earnings through their split announcement decision have shown that there is a significantly positive abnormal return at the announcement of a stock split.

One hypothesis for the positive abnormal return is that a split may be interpreted as a signal that the firm's managers are optimistic regarding its future prospects. A second hypothesis is that a split may improve the stock's liquidity and, in turn, lower its expected return. But results found in Indian contest during this study doesn't provide any conclusive evidence about positive abnormal return associated with announcement of stock split which also discards signaling hypothesis and neglected firm hypothesis presented in literature review section.

Ideally as in efficient market any information content associated with stock split should be absorbed in price movement on announcement day and it should not lead to any positive abnormal return on the effective day. The graph shown below shows the relation between MAR and the AD window.

FIG 1: GRAPH DEPICTING RELATIONSHIP BETWEEN MAR AND AD WINDOW
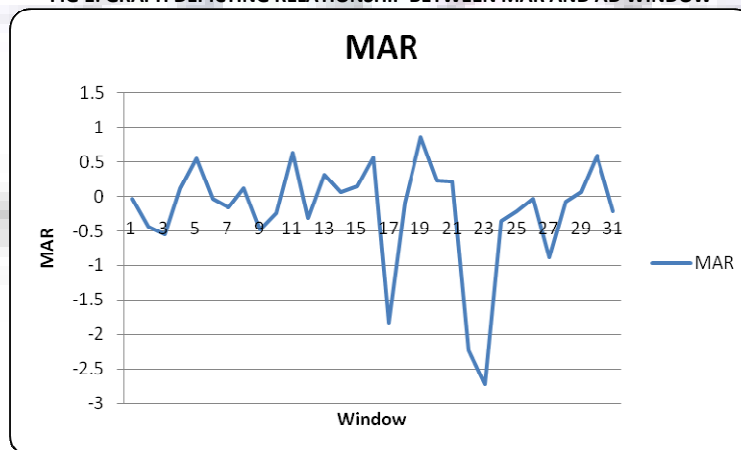
As shown in table 2, the trading volume has shot up quite significantly in comparison to the pre announcement window on the announcement day. Volume ratio of 1.31 is found especially on the announcement day. Not only that volume ratios remains at considerable higher than one in the entire announcement day window. This is clearly found in the Fig 2.

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TABLE 2: TRADING VOLUME EFFECTS OF STOCK SPLIT

	MVR
AD-15	1.025775
AD-14	0.888132
AD-13	0.827243
AD-12	0.854091
AD-11	0.819034
AD-10	0.926952
AD-9	0.82535
AD-8	0.904509
AD-7	0.967221
AD-6	0.932656
AD-5	0.850642
AD-4	0.910774
AD-3	0.851082
AD-2	0.866263
AD-1	0.754471
AD	1.315046
AD+1	1.196982
AD+2	0.782541
AD+3	0.918956
AD+4	0.952447
AD+5	0.975451
AD+6	1.112956
AD+7	0.894315
AD+8	0.947179
AD+9	1.256059
AD+10	1.255636
AD+11	1.160767
AD+12	1.066789
AD+13	1.096869
AD+14	0.977086
AD+15	1.120627

Source: Nifty

This increase in liquidity is consistent with findings of Muscarella and Vetsuypens (1996), Amihud and Mendelson (1986), and Christian Wulff (2002) but still quite different because in all of these the increase in liquidity is associated with positive wealth effect where is in this research done for Indian market does not provide any empirical evidence to positive wealth effect associated with stock split. This is in support of findings by Mayank Joshipura and A.K Mishra, research conducted on Indian market.

FIG 2: GRAPH DEPICTING RELATIONSHIP BETWEEN MVR AND AD WINDOW
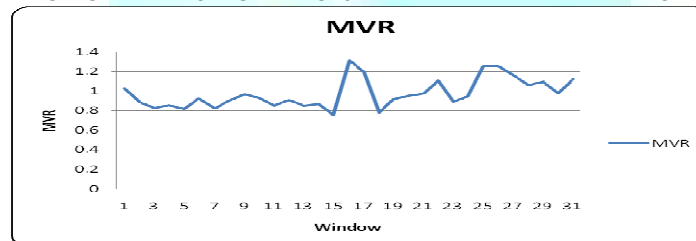
To conclude the analysis in terms of acceptance or rejection of the hypothesis we framed for the study we can say that H1 is accepted and hence shows the absence of excess return in the pre - announcement window but this claim gets diluted as it's not supplemented by non parametric sign test. H2 is also accepted. There is a chance for some leakage of information about split announcement prior to the formal announcement. This is quite possible as there is a time lag between the information provided by the board of directors to the exchange about their considering split proposal and formally approving split which actually is the announcement day but market may react on agenda and not the outcome. H3 is rejected as there is a hugely significant abnormal volumes measured by MVR observed on announcement day of the stock split.

From the study, it can be concluded that price effect associated with stock split is not significant and though there is a significant positive abnormal return of 0.315% found on announcement day it did not sustain and got reversed in less than a week's time Hence, there is no clear evidence about positive wealth effect associated with stock split available from Indian markets, particularly S&P Nifty. However there is a clear evidence of significant improvement in traded volume (turnover) associated with stock split surrounding announcement day. Though this is inconsistent with the theory because if any liquidity gains are associated with stock split it should be reflected on announcement date itself, it supports other studies conducted on Indian markets. To conclude, stock split leads to improvement in liquidity but does not carry any positive wealth effect.

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