# IMPACT OF STOCK SPLIT ON STOCK PRICES IN INDIA 

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#### Abstract

An efficient market is a market in which prices fully reflect all information. Efficiency of the market can be judged operationally and informational. The present study is focused on the informational efficiency of the Indian capital market. A capital market is said to be efficient with respect to corporate event announcement (stock split, buyback, bonus issue, right issue, merger and acquisition and dividendetc) contain information and its disseminations. How quickly and correctly the securityprices reflect these event contained information shows the efficiency of the stock market. The present study is investigating the impact of stock split on share price in India. Essence of stock split announcement presented in the literature is that the announcement has a positive impact on the returns before and after the event. To examine the impact on stock prices, event study model has been used.


Keywords: Stock Split, Stock Prices, Abnormal Returns.

## INTRODUCTION

Certainly, the Efficient Market Hypothesis (EMH) is an appropriate place to initiate and think about the asset price formation. It appears that the term efficient was originally chosen partly because it provides link with the broader economic concept of efficiency in resources allocation. The capital market itself can be seen with three different criteria; capital allocation market, where funds from savers are distributed amongst the productive users of capital; financial security market, where securities owned by the suppliers of capital are traded by them; and financial information market, where information is transmitted by, amongst others, the productive users of capital to the suppliers. Efficient market hypothesis is concerned with the financial information market with special applicability on the stock. The informational efficiency of Indian stock market is concerned with two dimensions of price adjustment to new information, the speed and quality (direction and magnitude) of the adjustment. It does not enable most, if not all, investors to systematically outperform the market. According to modern definition of efficient market 'fully reflect all available information' according to the availability of different information to the different investors, which are aimed at reflecting the degree to which it can be applied to markets.
Event studies have a long history, comprising the original stock split event study by Fama et al. (1969). There is an extensive literature concerning various aspects of event study

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methodology, including: the choice of measurement interval (Brown and Warner 1980 and 1985, and Morse, 1984); infrequent trading (Scholes and Williams, 1977); event clustering (Patel, 1976, Collins and Dent, 1984, and Chandra and Balachandran, 1990); and, specifically in relation to the market model, the most frequently used model of expected returns (Strong, 1992), its econometric properties ( Coutts, Mills and Roberts, 1995) and the stability of the estimated parameters (Draper and K. Paudyal, 1995).
Several studies in market efficiency do not distinguish between stock split and stock dividend. But the researchers like Wulff (2002) and Rankine and stice (1997) found that the announcement effect is more evident in case of stock dividend than in case of stock split. In the similar line grinblatt et al. (1978) and Baker and Gallagher (1980) surveyed manager's views regarding stock dividends and stock split

## Reasons why Companies Split their Stock

There are several theories exist which explain why companies split their stock. The three most common are

1) to achieve a stock price in a range optimal for liquidity (the optimal price range hypothesis),
2) to signal management confidence in the future stock price (the signaling hypothesis), and
3) to achieve an optimal tick size (the market maker hypothesis).

## The Optimal Price Range Hypothesis

Copeland (1979) came up with the notion that there is a price range in which trading for a stock of a company is most liquid. If the price of the stock goes beyond this limit it impacts the liquidity, with the help of a stock split companies try to achieve the price range within which trading is most liquid for stock of a company.
Baker and Powell (1993) revealed that due to the psychological reasons and high transaction costs high priced stocks were found to be illiquid. Therefore, when the prices climbed up to a certain level, the companies split the stock to lower prices which facilitated trading, hence they enhanced liquidity.
Conroy and Harris (1999) agreed with the optimal price range hypothesis and noted that when a stock became too expensive, a split brought it back to the optimal price range.

## The Signaling Hypothesis

A signaling model for stock splits was first proposed by Brennan and Copeland (1988). According to the signaling theory, splits acted as a means of passing information from managers to stockholders. With the help of announcing a stock split, a company can reduce the difference in information between stockholders and management of a company. The signaling model of stock splits explains that stock splits served as costly effect on managers' private information because trading costs increased as stock prices decreased.
Benartzi et al. (2005) argued that managements split their stocks only if they believe that there will be constant earnings and current level of stock price of the company for a significant period of time.
Brennan and Copeland (1988) experienced that the managers of the company will favor
stock split if they are confident about the increase in the share price of the company in near future or at least they are sure that the price of the share would not decrease in near future.
Agreeing with the signaling hypothesis theory, Conroy et al. (1999) found excess returns after stock splits were considerably higher when shareholders were surprised by a larger-than-expected split. Even the financial analysts also increased their forecasted earnings notably when the split factor was greater than what they expected. Excess returns earned by market participants then tended to be significantly higher when a company's management decided on a split factor that the stock price would fall below an expected level.

## The Optimal Tick Size Hypothesis/Market-Maker Hypothesis

Angel (1997) came up with the market-maker hypothesis, which suggested that companies strived for an optimal tick size. The tick size is the minimum change in share prices. They noted that company's management can influence the relative tick size with the help of stock split if there is a constant absolute tick size on a stock exchange.
Schultz (2000) agreed that market-making is more profitable if tic size is more this in turn will increase liquidity. Schultz (2000) concludes that market-making is more profitable with the help of stock split.
Despite this extensive literature, a continuing feature of many event studies is the use of a number of alternative techniques to estimate expected returns. Whilst such an approach may be prudent, it does suggest the absence of a framework within which the competing models can be assessed. The purpose of this study is to develop and illustrate a framework for testing the data admissibility of the more frequently used models, i.e. Market Model (MM).

## RESEARCH METHODOLOGY

## Data Source

For the purpose of the study and analysis the stock market data (Secondary Data) is taken from data provided on the website of National Stock Exchange. The stock data includes the stocks which have been listed in National Stock Exchange (NSE) and declared stock split from $1^{\text {st }}$ April 2008 to $15^{\text {th }}$ March 2011.There were 300 companies which split its stock, among them 147 were listed with NSE. The data of all 147 companies was not available ultimately I have taken 108 companies for study.

## Hypothesis

For the purpose of study, a null hypothesis is constructed for abnormal returns. The null hypothesis is that the Indian market is efficient in its semi strong form and there is a significant average abnormal return around the event date.

## Null Hypothesis $(H 0)=$ There is no significant change in liquidity of the stocks of the event of stock split.

Alternative hypothesis being that the Indian market is not efficient in semi-strong form and there is a significant average abnormal return around the event date.

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## Eventstudies

Event studies are used typically to assess the economic impact of a given event. The standard procedure is to measure the impact, in terms of the unexpected or abnormal return on the underlying security, by comparing the actual return realized on the occurrence of the event with the expected or normal return, i.e. the return that would have been expected in the absence of the event. Types of event to which the method has been applied include, inter alia, accounting information disclosures, mergers and acquisitions, research and development announcements, and capital, managerial and organizational restructuring. The approach assumes capital markets respond efficiently to publicly available news (semi-strong capital market efficiency). On the other hand it circumvents problems of accounting convention and measurement associated with accounting returns. Moreover, insofar as the market registers the equilibrium change in the value of the asset, discounting short-run influences, the evaluation is not affected by transactions costs immediately before and after the event, as accounting returns are likely to be. To devise an event study, the event, event window, estimation window, investigation window and investigation model should be determined.
In this study:
Event = Split of stock of a company
Event window = Day of announcement of split $(t=0)$
Investigation window $=\mathbf{6 1}$ days, $\mathbf{3 0}$ days before, and $\mathbf{3 0}$ days after the event $\mathbf{( t}=\mathbf{- 3 0}$ to $\mathbf{t}=$


## Investigation model = Market Model

Event study methodology relies on capturing any abnormal return to a particular security in a given period (Ujt), which is simply the difference between actual return ( Rjt ), and that which would have been expected in the absence of the event, the 'normal' return (Rjt). Correct specification of the counterfactual, 'normal' return is critical for the successful application of the method (Strong, 1992).
A simple methodology based on the Market Model is well specified and relatively powerful under a wide variety of conditions. Following Brown and Warner, the Market Model is employed to compute the abnormal returns that are derived from the following equation:
$R_{j t}=\dot{a}_{\mathrm{j}}+\hat{a}_{\mathrm{j}}+\mathrm{e}_{\mathrm{jt}}$
Where,
$\mathrm{R}_{\mathrm{jt}}=$ the daily return on security j at day t
á and â = OLS intercept and slope coefficient estimators, respectively
$e_{j i t}=$ the error term for security $j$ at day $t$
The NSE market index (Nifty) is taken as proxy for computing market return. To compute daily market return, logarithm method has been followed.
$R_{m t}=\log \left(I_{t} / I_{t-1}\right)$

The daily return for individual security " j " is:
$R_{j t}=\log \left(R_{t} / R_{t-1}\right)$
áj and âj are derived from the market model to the event month and assumed to be constant for the event window considered in the study ( $\mathrm{t}=-30$ to $\mathrm{t}=+30$ ).
The expected returns for security $j$ at day $t$ are defined as,
$E R_{j t}=\dot{a}_{j}+\hat{a}_{j} R_{\mathrm{mt}}$
Where $\mathrm{a}_{\mathrm{j}}, \hat{\mathrm{a}}_{\mathrm{j}}$ are OSLestimators of $\left(\mathrm{a}_{\mathrm{j}}, \hat{a}_{\mathrm{j}}\right)$
The daily abnormal return is calculated as:
$\mathrm{AR}_{\mathrm{jt}}=\mathrm{R}_{\mathrm{it}}-\mathrm{ER}_{\mathrm{jt}}$
For each event date $t$ the cross-section average abnormal returns for all firms were defined as:
$\mathrm{t}=-\mathbf{3 0}$ to +30
$\mathrm{n}=108$ number of stock splits

$$
\mathrm{AAR}_{\mathrm{t}}=\sum_{j=1}^{n} e j t
$$

In order to see if the events affect liquidity of the security, a simple paired $t$ - test is used in the study. Total volume traded in the market is taken as the proxy for liquidity of the stock. I have also made an attempt to see whether there is any significant difference in the total traded volume in the pre and post event dates for the event window $t=-30$ to $t=+30$ days.

## Abnormal returns

Abnormal returns are impartial estimates of changes in the market value of the firm during the event period, which replicate the price reaction to the event. It is the return that an investor gets over and above the normal returns.

## Confounding events

Confounding events comprise movements in the overall market and/or firm-specific events like acquisition or divestitures or bonus announcement or stock split.

## Liquidity

It is an indicator of market depth and demonstrates the absorption power of risk premium. The market liquidity can be considered as one of the factors influencing the price discovery function. Over the years, many researchers demonstrated the relation between corporate events and its impact on liquidity.

## Data Analysis

Following are the list of the 147 companies which have split their stock during the period of the study, but due to unavailability of data or any other reason only 108 companies has been taken for consideration. Details of which are given in Annexure-1.
Edate $=$ Event date
FV = Face value of stock
SFV = Face value of stock after split
The data of the 108 companies is taken in the form of following table, but it is not possible to present the data of all 108 companies here. This data is of Bharti Airtel
during the event period in comparison with data of NSE during the event period.

## Bharti Airtel stock price during event window

Table no. 2

| S.No | Date | Event window | Stock price | NSE Index |
| :---: | :---: | :---: | :---: | :---: |
| 1 | 12-Jun-09 | $t=-30$ | 828.15 | 4583.4 |
| 2 | 15-Jun-09 | $t=29$ | 819.45 | 4484 |
| 3 | 16-Jun-09 | $t=-28$ | 809.5 | 4517.8 |
| 4 | 17-Jun-09 | $t=27$ | 802.95 | 4356.15 |
| 5 | 18-Jun-09 | $t=-26$ | 804.85 | 4251.4 |
| 6 | 19-Jun-09 | t-25 | 807.2 | 4313.6 |
| 7 | 22-Jun-09 | $t=-24$ | 790.7 | 4235.25 |
| 8 | 23-Jun-09 | $\mathrm{t}=-23$ | 786.4 | 4247 |
| 9 | 24-Jun-09 | $t=-22$ | 798.3 | 4292.95 |
| 10 | 25-Jun-09 | $t=-21$ | 793.85 | 4241.85 |
| 11 | 26-Jun-09 | t-20 | 800 | 4375.5 |
| 12 | 29-Jun-09 | $t=-19$ | 810.1 | 4390.95 |
| 13 | 30-Jun-09 | $t=18$ | 807.25 | 4291.1 |
| 14 | $01-\mathrm{Jul}-09$ | $t=-17$ | 802.15 | 4340.9 |
| 15 | $02-\mathrm{Jul}-09$ | $t=-16$ | 824.25 | 4348.85 |
| 16 | 03-Jul-09 | $t=-15$ | 803.1 | 4424.25 |
| 17 | 06-Jul-09 | $t=14$ | 819.05 | 4165.7 |
| 18 | 07-Jul-09 | $t=-13$ | 782.95 | 4202.15 |
| 19 | 08-Jul-09 | $t=-12$ | 812.35 | 4078.9 |
| 20 | 09 -Jul-09 | $t=-11$ | 792.55 | 4080.95 |
| 21 | 10-Jul-09 | t--10 | 795.7 | 4003.9 |
| 22 | 13-Jul-09 | $t=-9$ | 777.65 | 3974.05 |
| 23 | 14-Jul-09 | $t=8$ | 766.35 | 4111.4 |
| 24 | 15-Jul-09 | $t=-7$ | 773.3 | 4233.5 |
| 25 | 16-Jul-09 | $t=-6$ | 780.3 | 4231.4 |
| 26 | 17-Jul-09 | $t=-5$ | 784.85 | 4374.95 |
| 27 | 20-Jul-09 | $t=-4$ | 826.25 | 4502.25 |
| 28 | 21-Jul-09 | $t=3$ | 849.05 | 4469.1 |
| 29 | 22-Jul-09 | $t-2$ | 837.9 | 4398.9 |
| 30 | 23-Jul-09 | $t=-1$ | 823 | 4523.75 |
| 31 | 24-Jul-09 | t=0 (Event Day) | 814.1 | 4568.55 |
| 32 | 27-Jul-09 | $\mathrm{t}=1$ | 415.95 | 4572.3 |
| 33 | 28-Jul-09 | $\mathrm{t}=2$ | 423.5 | 4564.1 |
| 34 | 29-Jul-09 | $t=3$ | 429.55 | 4513.5 |
| 35 | 30-Jul-09 | $t=4$ | 424.7 | 4571.45 |
| 36 | 31-Jul-09 | t-5 | 424 | 4636.45 |
| 37 | 03-Aug-09 | $t=6$ | 410.1 | 4711.4 |
| 38 | 04-Aug-09 | $t=7$ | 410.45 | 4680.5 |
| 39 | 05-Aug-09 | $t=8$ | 400.8 | 4694.15 |
| 40 | U6-Aug-09 | $1=9$ | 401.45 | 4585.5 |
| 41 | 07-Aug-09 | t-10 | 399.3 | 4481.4 |
| 42 | 10-Aug-09 | $t=11$ | 383.9 | 4437.65 |
| 43 | 11-Aug-09 | $t=12$ | 373 | 4471.35 |
| 44 | 12-Aug-09 | $t=13$ | 382.45 | 4457.5 |
| 45 | 13-Aug-09 | $t=14$ | 405.5 | 4605 |
| 46 | 14-Aug-09 | $t=15$ | 413.1 | 4580.05 |
| 47 | 17-Aug-09 | $t=16$ | 408.75 | 4387.9 |
| 48 | 18-Aug-09 | t=17 | 398.75 | 4458.9 |
| 49 | 19-Aug-09 | $t=18$ | 411.05 | 4394.1 |
| 50 | 20-Aug-09 | $t=19$ | 405.45 | 4453.45 |
| 51 | 21-Aug-09 | $\mathrm{t}=20$ | 400.05 | 4528.8 |
| 52 | 24-Aug-09 | t=21 | 411.7 | 4642.8 |

## RESULTANALYSIS

This result analysis section is presented in three sub sections.
FirstSection:
First section displays the graph of percentage trading activity ratio during the event window, and cumulative abnormal return against the event window.
Second section:
This section deals with results obtained for testing efficiency of the market with respect to the event of stock split.
Third section:
Third section enumerates the findings of liquidity in pre and post of event of stock split.
First Section
Percentage trading activity ratio during the event window
Graph no. 1


This graph clearly shows that there is a mix some time after split ratio is greater than before split ratio and some time before split ratio is greater than after split ratio.


This graph is showing the cumulative abnormal return against the event window which is of 61 days.

## Market efficiency

In the study the author considered the event window of 61 days consisting of $t=-30$ to $t=+30$ to event day $t_{0}$ Event date is the date of announcement of stock split or right issue.
The objective of study being to explore semi strong form of market efficiency characteristics of the Indian stock market, it attempts to investigate, whether the Average Daily Abnormal Return are indicating any pattern or not. In addition to this, whether any sample company delivers abnormal returns on and around announcement date is also investigated in study.
The result concerning the event study of stock split is depicted in Table No. 3. It is revealed that on announcement date, there is positive average abnormal return. Positive return is also statistically significant at $5 \%$ level. This shows that there is strong impact of stock split on the stock price in Indian market. The Table No. 4 recapitulates the impact stock split on share price performance. It is found that $62 \%$ of sample companies have positive returns during the event window in respect of stock split.
On announcement date $58 \%$ of sample companies reported positive return. Thus it is evident that reaction of market players to stock split announcement are more pronounced in Indian market.
It is also observed from Table No. 3 that in respect of stock split, there are 19 days out of 61 days that reported statistically significance returns. During the post 30 days from the event announcement date there are 14 days that reported statistically significant return excluding the event date. There are positive abnormal returns for three days in a row after the event date. These results suggest that chances are more to earn abnormal return during the stock split.
Table no. 3
Event stock split

| Event window (Days) | Mean Abnormal Return | $\mathbf{t}-$ Statistics |
| :---: | :---: | :---: |
| $\mathbf{t}=-30$ | -0.021 | -1.3789 |
| $\mathbf{t}=-29$ | 0.0045 | 1.5478 |
| $\mathbf{t}=-28$ | -0.0023 | -1.0487 |
| $\mathbf{t}=-27$ | -0.0029 | -0.2789 |
| $\mathbf{t}=-26$ | -0.0009 | -0.8521 |
| $\mathbf{t}-25$ | 0.0021 | -03214 |
| $\mathbf{t}=-24$ | 0.00036 | 0.2471 |
| $\mathbf{t}-23$ | -3.0001 | 0.5647 |
| $\mathbf{t}=-22$ | -0.004 | -0.0017 |
| $\mathbf{t}=-21$ | 0.0012 | -0.2147 |
| $\mathbf{t}=-20$ | -0.0024 | $1.2354^{*}$ |
| $\mathbf{t}-19$ | -0.00032 | -1.0218 |
| $\mathbf{t}-18$ | 0.2242 | 0.1542 |
| $\mathbf{t}=-17$ | -0.0002 | -1.0003 |
| $\mathbf{t}=-16$ | -0.22314 | -0.0825 |
| $\mathbf{t}=-15$ | -0.0023 | 0.5241 |
| $\mathbf{t}=-14$ | 0.0029 | 1.6371 |
| $\mathbf{t}=-13$ | 0.0021 | 0.3535 |
| $\mathbf{t}--12$ | -7.0021 | 0.2145 |
| $\mathbf{t}--11$ | 0.0023 | -1.2451 |
| $\mathbf{t}=-10$ | 0.0031 | $-3.214^{*}$ |
| $\mathbf{t}=-9$ | 0.0045 | 0.1245 |


| $t=-8$ | 0.0041 | -3.0784* |
| :---: | :---: | :---: |
| $t=-7$ | 0.0045 | 1.2451 |
| $t=-6$ | 0.0039 | -3.2145* |
| $t=-5$ | 0.0024 | 1.4245 |
| $t=-4$ | 0.0015 | -2.1452* |
| $\mathrm{t}=-3$ | 0.0024 | -1.2431 |
| $t=-2$ | -2.0012 | -0.2541 |
| $\mathrm{t}=-1$ | -0.00143 | 0.2145 |
| $t=0$ (Event Day) | 0.0237 | 2.8749 |
| $t^{-1}$ | 0.00124 | 0.8974* |
| $t=2$ | 0.0041 | -09867* |
| t-3 | 0.0046 | 2.0951* |
| $t=4$ | 0.0074 | 3.0863 |
| $t=5$ | -0.0021 | 0.4942 |
| $t=6$ | -0.0024 | 1.0235 |
| 17 | -0.0054 | -2.4596* |
| $t=8$ | -0.0001 | -2.3905* |
| $t=9$ | -0.0001 | -2.2547* |
| $t=10$ | -0.0048 | -2.1458* |
| $1=11$ | 0.0059 | -0.4578 |
| $t=12$ | -0.0019 | -0.9941 |
| $\mathrm{t}=13$ | -0.0027 | -0.2145 |
| $t=14$ | 0.0046 | -2.5417* |
| $t=15$ | -0.0041 | 1.6216 |
| $t=16$ | 0.0045 | -3.5214* |
| $t=17$ | 0.0008 | -3.2145* |
| $\mathrm{t}=18$ | 0.0054 | -3.2148* |
| $t=19$ | -0.0056 | -3.1247* |
| $t=20$ | -0.0047 | 0.2142 |
| $t=21$ | 0.0019 | 0.5974 |
| 1-22 | -0.0041 | 0.6464 |
| $t=23$ | -0.0074 | -2.3654* |
| $t=24$ | 0.0046 | 0.7987 |
| $\mathrm{t}=25$ | -0.0054 | -3.2012* |
| t=26 | -0.0067 | -2.3514 |
| $t=27$ | -0.0024 | -0.2331 |
| t 28 | -0.0067 | 0.9861 |
| $t=29$ | 0.0054 | -1.2373 |
| $t=30$ | -0.0035 | -0.6543 |

Note: (*) indicates statistically significant at $5 \%$ level

Table no. 4

## Impact of Stock Split Announcement on Share Price

| Particulars | No of Companies | \% of Companies |
| :--- | :---: | :---: |
| Companies having positive mean during event window | 62 | 57.40 |
| Companies having negative mean return during event <br> window | 46 | $42 \%$ |
| Total | $\mathbf{1 0 8}$ | $\mathbf{1 0 0}$ |
| Companies having positive return on announcement datc | 58 | 53.7 |
| Companies having negative return on announcement datc | 50 | 46.3 |
| Total | 100 | 100 |

## Third Section

## Liquidity Test

Table 5 shows the result achieved as part of testing the change in liquidity of the securities pre and post events in respect of stock splits. It is found that the null hypothesis of no significant difference in liquidity is rejected at $1 \%$ level of stock split. This shows that there is a significant difference in liquidity concerning the stock split announcement.
Table no. 4

| Event | $\mathbf{t}-$ Statistics | Probability |
| :---: | :---: | :---: |
| Stock Split | $4.521^{*}$ | $<.0002$ |

Note:(*)indicatesstatisticallysignificantat 1 \%level

## FINDINGS AND CONCLUSION

This study examines the announcement effect of stock splits on the Indian stock market during the period 1 April 2008 to 15 March 2011. An event study is conducted using a 61 days Event window.
The result concerning the event study of stock split is depicted in Table No. 3. It is revealed that on announcement date, there is positive average abnormal return. Positive return is also statistically significant at $5 \%$ level. This shows that there is strong impact of stock split on the stock price in Indian market. Table No. 4 recapitulates the impact stock split on share price performance. It is found that $62 \%$ of sample companies have positive returns during the event window in respect of stock split.
On announcement date $58 \%$ of sample companies reported positive return. Thus it is evident that reaction of market players to stock split announcement are more pronounced in Indian market.
It can be seen that in respect of stock split, there are 19 days out of 61 days that reported statistically significance returns. During the post 30 days from the event announcement date there are 14 days that reported statistically significant return excluding the event date. There is positive abnormal return for three days in a row after the event date. These results suggest that chances are more to earn abnormal return during the stock split.


## The study rejects the null hypothesis for the event of stock split.

The study proves that the Indian market is not efficient in its semi-strong form. The study finds a positive AAR of $2.21 \%$ on event announcement date. Returns are statistically significant at $5 \%$ level.

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## Websites:

www.nseindia.com
www.indiansplash.com

## ANNEXURE-1

## List of companies splited its stock

Table No. 1.

| S.No. | Company Name | E. Date | FV | SFV | Script Code |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Goenka Diamond \& Jew | 29-Mar-08 | 100 | 10 | GOENKA |
| 2 | Karuturi Global | 04-Apr-08 | 10 | 1 | KGL |
| 3 | NMDC | 10-Apr-08 | 10 | 1 | NMDC |
| 4 | Century Plyboards (India). | 24-Apt-08 | 10 | 1 | CENTURYPLY |
| 5 | Evinix Accessories. | 29-Apr-08 | 10 | 1 | EVINIX |
| 6 | Tanla Solutions | 02-May-08 | 2 | 1 | TANLA |
| 7 | Eastern Silk Industries. | 27-Jun-08 | 10 | 2 | EASTSILK |
| 8 | MIC Electronics | 27-Jun-08 | 10 | 2 | MIC |
| 9 | Tricom India | 15-Jul-08 | 10 | 2 | TRICOM |
| 10 | Hindustan Copper. | 17-Jul-08 | 10 | 5 | HINDCOPPER |
| 11 | JD Orgochem | 25-Jul-08 | 10 | 1 | JDORGOCLEM |
| 12 | Motilal Oswal Financial Services. | 25-Jul-08 | 5 | 1 | MOTILALOFS |
| 13 | India Infoline | 08-Aug-08 | 10 | 2 | INDIAINFO |
| 14 | Sesa Goa | 08-Aug-08 | 10 | 1 | SESAGOA |
| 15 | Camlin | 22-Aug-08 | 10 | 1 | CAMLIN |
| 16 | Sona Koyo Steerg Sys | 02-Sep-08 | 2 | 1 | SONASTEER |
| 17 | JM Financial | 08-Sep-08 | 10 | 1 | JMFINANCIL |
| 18 | Era Infra Engineering. | 17-Sep-08 | 10 | 2 | ERAINFRA |
| 19 | Gemini Communication. | 17-Sep-08 | 5 | 1 | GEMINI |
| 20 | Hercules Hoists | 17-Sep-08 | 10 | 1 | HERCULES |


| 21 | Take Solutions | 18-Sep-08 | 10 | 1 | TAKE |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 22 | Talwalkars Better Value Fitness. | 30-Sep-08 | 100 | 10 | TALWALKARS |
| 23 | Madras Cement | 01-Oct-08 | 10 | 1 | MADRASCEM |
| 24 | Provogue India | 03-Oct-08 | 10 | 2 | PROVOGUE |
| 25 | AlA Engincering | 13-Oct-08 | 10 | 2 | AIAENG |
| 26 | Areva T\&D India. | 22-Oct-08 | 10 | 2 | AREVAT\&D |
| 27 | Time Technoplast | 29-Oct-08 | 10 | 1 | TIMETECHNO |
| 28 | Jindal Drilling And Industries. | 06-Nov-08 | 10 | 5 | JINDRILL |
| 29 | Ratnamani Metals \& Tubes. | 06-Nov-08 | 10 | 2 | RATNAMANI |
| 30 | Nectar Lifesciences | 12-Nov-08 | 10 | 1 | NECLIFE |
| 31 | Jyothy Laboratories | 12-Dec-08 | 5 | 1 | JYOTHYLAB |
| 32 | Texmaco | 01-Jan-09 | 10 | 1 | TEXMACOItd. |
| 33 | Emmbi Polyarns | 02-Jan-09 | 100 | 10 | EMMBI |
| 34 | Spectacle Infotek | 23-Jan-09 | 10 | 1 | SPECTACLE |
| 35 | Rei Agro | 05-Fcb-09 | 10 | 1 | REIAGRO ltd. |
| 36 | Coral Hub | 27-Feb-09 | 10 | 1 | CORALHUB |
| 37 | Birla Power Solutions. | 24-Apr-09 | 10 | 1 | BIRLAPOWER |
| 38 | Emami Infrastructure | 03-Jun-09 | 10 | 2 | EMAMIINFRA |
| 39 | Bharti Airtel | 24-Jul-09 | 10 | 5 | BHARTIARTL |
| 40 | Shrce Ashtavinayak Cinc Vision. | 20-Aug-09 | 10 | 1 | SHREEASHTA |
| 41 | Hathway Cable \& Datacom. | 26-Aug-09 | 1 | 10 | HATHWAY |
| 42 | MOIL | 28-Aug-09 | 100 | 10 | MOIL |
| 43 | SJVN | 10-Sep-09 | 1000 | 10 | SJVN |
| 44 | Ramco Inds. | 14-Sep-09 | 10 | 1 | RAMCOIND |
| 45 | MVL | 18-Sep-09 | 10 | 2 | MVL |
| 46 | RPP Infra Projects | 25-Sep-09 | 100 | 10 | RPPINFRA |
| 47 | Tarapur Transformers | 25-Sep-09 | 2 | 10 | TARAPUR |
| 48 | GMR Infrastructure | 01-Oct-09 | 2 | 1 | GMRINFRA |
| 49 | Sunteck Realty | 09-Oct-09 | 10 | 2 | SUNTECK |
| 50 | Techno Electric \& Engineering Company. | 10-Oct-09 | 10 | 2 | TECHNO |
| 51 | Gokul Refoils and Solvent. | 14-Oct-09 | 10 | 2 | GOKUL |
| 52 | FCS Software Solutions. | 15-Oct-09 | 10 | 1 | FCSSOFT |
| 53 | Birla Cotsyn (India). | 23-Oct-09 | 10 | 1 | BIRLACOT |
| 54 | Gammon Infrastructure Projects. | 26-Oct-09 | 10 | 2 | GAMMNINFRA |
| 55 | REI Six Ten Retail | 26-Oct-09 | 10 | 2 | REISIXTEN |
| 56 | Educomp Solutions | 27-Oct-09 | 10 | 2 | EDUCOMP |
| 57 | Vinati Organics | 30-Oct-09 | 10 | 2 | VINATIORGA |
| 58 | Bajaj Corp | 03-Nov-09 | 10 | 1 | BAJAJCORP |
| 59 | Madhucon Projects | 05-Nov-09 | 2 | 1 | MADHUCON |
| 60 | Hindusthan National Glass \& Industries. | 12-Nov-09 | 10 | 2 | HINDNATGLS |
| 61 | Allcargo Global Logistics. | 19-Nov-09 | 10 | 2 | ALLCARGO |
| 62 | HBL Power Sys | 24-Nov-09 | 10 | 1 | HBLPOWER |
| 63 | Ashco Niulab Industries. | 08-Dec-09 | 10 | 1 | ASHCONIUL |
| 64 | Jindal saw | 10-Dec-09 | 10 | 2 | JINDALSAW |
| 65 | JK Lakshmi Cement | 17-Dec-09 | 10 | 5 | JKLAKSHMI |
| 66 | Nu Tek India | 23-Dec-09 | 10 | 5 | NUTEK |
| 67 | Winsome Yams | 21-Jan-10 | 10 | 1 | WINSOMYARN |
| 68 | Bajaj Corp | 22-Jan-10 | 1 | 2 | BAJAJCORP |
| 69 | Farmax India | 27-Jan-10 | 10 | 5 | FARMAXIND |
| 70 | Bajaj Electricals | 28-Jan-10 | 10 | 2 | BAJAJELEC |
| 71 | KRBL | 10-Feb-10 | 10 | 1 | KRBL |
| 72 | Coal India | 16-Fcb-10 | 1000 | 10 | COALINDIA |
| 73 | Bajaj Corp | 22-Feb-10 | 2 | 5 | BAJAJCORP |
| 74 | Sterlite Technologies. | 09-Mar-10 | 5 | 2 | STRTECH |
| 75 | LG Balakrishnan \& Bros. | 15-Mar-10 | 1 | 10 | LGBBROS lid |
| 76 | Murli Industrics | 18-Mar-10 | 10 | 2 | MURLIIND |


| 77 | Suprajit Engg | 18-Mar-10 | 5 | I | SUPRAJIT |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 78 | Ipca Laboratories | 22-Mar-10 | 10 | 2 | IPCALAB |
| 79 | K.M.Sugar Mills. | 26-Mar-10 | 10 | 2 | KMSUGAR |
| 80 | Mah.\&Mah. | 29-Mar-10 | 10 | 5 | M\&M |
| 81 | SE Investments | 05-Apr-10 | 10 | 2 | SEINVEST |
| 82 | Unity Infraprojects | 07-Apr-10 | 10 | 2 | UNITY |
| 83 | Engineers India | 06-May-10 | 10 | 5 | ENGINERSIN |
| 84 | Kabra Extrus.technik | 17-May-10 | 10 | 5 | KABRAEXTRU |
| 85 | Sterlite Industries (India). | 21-Jun-10 | 2 | 1 | STER |
| 86 | Genesys International Corporation. | 23-Jun-10 | 10 | 5 | GENESYS |
| 87 | Tata Global Beverage | 30-Jun-10 | 10 | 1 | TATAGIOBAI. |
| 88 | Tulip Telecom | 06-Jul-10 | 10 | 2 | TULIP |
| 89 | Emami | 21-Jul-10 | 2 | 1 | EMAMI ltd |
| 90 | Pratibha Industries | 30-Jul-10 | 10 | 2 | PRATIBHA |
| 91 | Farmax India | 03-Aug-10 | 5 | 1 | FARMAXIND |
| 92 | Edelwciss Capital | 10-Aug-10 | 5 | - | EDELWEISS |
| 93 | Rainbow Papers | 11-Aug-10 | 10 | 2 | RAINBOWPAP |
| 94 | Jayshree Tea \& Industries. | 13-Aug-10 | 10 | 5 | JAYSREETEA |
| 95 | Magma Fincorp | 13-Aug-10 | 10 | 2 | MAGMA |
| 96 | Housing Development Finance Corporation. | 18-Aug-10 | 10 | 2 | HDFC |
| 97 | Redington | 20-Aug-10 | 10 | 2 | REDINGTON |
| 98 | Lupin | 27-Aug-10 | 10 | 2 | LUPIN |
| 99 | Indian Hume Pipe Company. | 30-Aug-10 | 10 | 2 | INDIANHUME |
| 100 | Apollo Hospitals Enterprise. | 02-Sep-10 | 10 | 5 | APOLLOHOSP |
| 101 | KCP | $02-\mathrm{Sep}-10$ | 10 | 1 | KCP |
| 102 | Britannia Inds | 08-Sep-10 | 10 | 2 | BRITANNIA |
| 103 | Kalpataru Pow.Trans. | 08-Scp-10 | 10 | 2 | KALPATPOWR |
| 104 | Kotak Mahindra Bank. | 13-Sep-10 | 10 | 5 | KOTAKBANK |
| 105 | Astral Poly Technik | 15-Scp-10 | 10 | 5 | ASTRAL |
| 106 | Resurgere Mines \& Minerals India, | 15-Scp-10 | 10 | 1 | RESURGERE |
| 107 | Ashco Niulab Industries. | 21-Sep-10 | 1 | 10 | ASHCONIUL |
| 108 | Bhushan Steel | 21-Sep-10 | 10 | 2 | BHUSANSTL |
| 109 | Mundra Port and Special Economic Zone. | 23-Sep-10 | 10 | 2 | MUNDRAPORT |
| 110 | The South Indian Bank. | 23-Scp-10 | 10 | 1 | SOUTHBANK |
| 111 | Nissan Copper | 27-Sep-10 | 10 | 1 | NISSAN |
| 112 | B. L. Kashyap and Sons. | 29-Sep-10 | 5 | 1 | BLKASHYAP |
| 113 | Aqua Logistics. | 01 -Oct-10 | 10 | 1 | AQUA |
| 114 | Responsive Inds | 08 -Oct-10 | 10 | 1 | RESPONIND |
| 115 | Parsvnath Developers | 18 -Oct-10 | 10 | 5 | PARSVNATH |
| 116 | Supreme Industrics. | 18-Oct-10 | 10 | 2 | SUPREMEIND |
| 117 | Seral Glass | 21-Oct-10 | 10 | 1 | SEZALGLASS |
| 118 | Unichem Laboratorics. | 21-Oct-10 | 5 | 2 | UNICHEMLAB |
| 119 | Genus Power Infrastructures. | 22-Oct-10 | 10 | 1 | GENUSPOWER |
| 120 | Sintex Industries Ltd.. | 27-Oct-10 | 2 | 1 | SINTEX |
| 121 | SE Investments | 29-Oct-10 | 2 | 1 | SEINVEST |
| 122 | Archies | 02-Nov-10 | 10 | 2 | ARCHIES |
| 123 | Nitin Fire Protection Industries. | 04-Nov-10 | 10 | 2 | NITINFIRE |
| 124 | Atlanta | 08-Nov-10 | 10 | 2 | ATLANTA |
| 125 | Oriental Hotels. | 10-Nov-10 | 10 | 1 | ORIENTHOT |
| 126 | Somany Ceramics | 11-Nov-10 | 10 | 2 | SOMANYCERA |
| 127 | MVL | 16-Nov-10 | 2 | 1 | MVL |
| 128 | Balaji Amines | 18-Nov-10 | 10 | 2 | BALAMINES |
| 129 | Greaves Cotton | 24-Nov-10 | 10 | 2 | GREAVESCOT |
| 130 | Sun Pharmaceuticals Industries. | 25-Nov-10 | 5 | 1 | SUNPHARMA |
| 131 | Bhor Inds | 30-Nov-10 | 10 | 1 | BHORIND |


| 132 | Sadbhav Engg. | $07-\mathrm{Dec}-10$ | 10 | 1 | SADBHAV |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 133 | Balkrishna Inds. | $20-\mathrm{Dec}-10$ | 10 | 2 | BALKRISIND |
| 134 | Coromandel Intemtl. | $23-\mathrm{Dec}-10$ | 2 | 1 | COROMANDEL |
| 135 | EID Parry India. | $23-\mathrm{Dec}-10$ | 2 | 1 | EIDPARRY |
| 136 | Surya Pharmaceutical. | $23-\mathrm{Dec}-10$ | 10 | 1 | SURYAPHARM |
| 137 | KEC International | $30-\mathrm{Dec}-10$ | 10 | 2 | KEC |
| 138 | LIC Housing Finance | $30-\mathrm{Dec-10}$ | 10 | 2 | LICHSGFIN |
| 139 | Sujana Towers | $10-\mathrm{Jan-11}$ | 5 | 1 | SUJANATOW |
| 140 | Shoppers Stop | $12-\mathrm{Jan-11}$ | 10 | 5 | SHOPERSTOP |
| 141 | Hindustan Motors. | $27-\mathrm{Jan}-11$ | 10 | 5 | HINDMOTOR |
| 142 | Coral Hub | 03 -Feb-11 | 1 | 10 | CORALHUB |
| 143 | Oil \& Natural Gas Corporation. | $08-\mathrm{Feb-11}$ | 10 | 5 | ONGC |
| 144 | Aurobindo Pharma | $10-\mathrm{Feb}-11$ | 5 | 1 | AUROPHARMA |
| 145 | Glodyne Technoserve | $10-\mathrm{Feb}-11$ | 10 | 6 | GLODYNE |
| 146 | Hindustan Zinc. | $07-\mathrm{Mar-11}$ | 10 | 2 | HINDZINC |
| 147 | National Aluminium Company. | $15-\mathrm{Mar}-11$ | 10 | 5 | NATIONALUM |


[^0]:    Alternative Hypothesis (H1) = There is a significant change in liquidity of stocks for the event.
    Methodology Adopted

