

LIQUIDITY IMPACT OF STOCK SPLIT: AN EMPIRICAL STUDY OF SELECT INDIAN COMPANIES

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Abstract

The main focus of this study is to examine how the liquidity of stocks of large cap, mid cap, and small cap companies in India changes due to stock split announcement. Based on the empirical evidence the result shows that most of the companies of all the three groups have faced insignificant changes in liquidity around the stock split announcement date. In case of mid cap firms, the percentage of stock split announcing firms, having positive change in liquidity is more than the percentage of those firms having negative change (based on all the three measurements viz. volume of trade, turnover and turnover ratio). Whereas in case of large cap and small cap firms, the percentage of stock split announcing firms, having negative change in liquidity is more than the percentage of those firms having positive change (based on volume of trade and turnover ratio). The average percentage of stock split announcing companies in case of mid cap and small cap group having Positive change in liquidity after the stock split announcement are higher than the average percentage of companies in case of large cap group having positive change in stock liquidity. The result also shows that the percentage of stock split announcing companies, in all the three groups and based on all the three measurements, having positive impact on liquidity is much more than that of control companies.

Introduction

The management of a company usually decides to split its shares outstanding on the stock market when the price of its shares increases to either too high or is beyond the price level of similar or peer companies in the same sector. After the stock split the stock prices get reduced

to a certain level and the number of shares outstanding increases in the proportion of stock split. The decrement of share price due to stock split can result in a share price boost up after that decrement. After the stock split the shares seem more affordable to small investors and many small investors think to buy the stock as they have to pay less to buy the shares of such valuable company. Therefore the demand for stock increases which may lead to increase in the share prices. The share price may also increase because of the signalling impact of stock split. Stock split provides the signal that the price has been growing and the growth will be continued in future, and this may again pick up the demand and prices.

As the stock split is a measure to make shares more affordable to small investors, it provides greater marketability and liquidity in the market. This paper emphasises the “liquidity” impact of stock split. Market liquidity should be considered an important indicator of the state of market. Liquidity is the ability to trade a substantial amount of a financial asset at close to current market prices. “Market liquidity is considered as the capacity of financial markets to absorb temporary fluctuation in demand and supply without undue dislocation in prices” (Datar,2000). Liquidity describes the degree to which an asset or security can be quickly bought or sold in the market without affecting the asset’s prices. According to BERVAS(2006), Liquidity is a relative concept, as more liquid the asset, the more it is easily traded for liquidity “par excellence”: money, i.e. at low cost, at short notice and with no risk of notable change in price. Market liquidity is the primary consideration for an efficient market as market liquidity is the ability to settle transaction at current prices and at all time with no notable transaction costs.

So many researchers of different countries had worked on investigating the various aspects of stock split. FAMA, Fisher, Jensen, and Roll(1969); Wulff(2002); Mishra(2006); Aduda and Caroline(2010); Subaih(2013) etc focused on overall market reaction around the stock split announcement or event date. Copeland (1979); Muscarella and Vetsupens(1996); Dennis(2003), Joshipura(2009); Lin, singh , and Yu(2009); Thirunellai(2014) etc. had put their emphasis to examine the optimal price range and liquidity aspect of stock split around the stock split announcement or event date. In some cases positive change in liquidity or in some other cases negative change in liquidity was found. Ikenberry, Rankine, and Stice(1996); Desai and Jain(1997); Arif, Khan, and Baker(2004); Yague, Sala, and Fuent(2009); Reinkaine(2010) etc. conducted their study with the purpose to examine the extent to which the stock splits are motivated by the signalling hypothesis. On the other hand some researchers like Desai, Nimalendran, and Venkataraman(1998); NINI(2001) etc. emphasised on share price and stock return volatility of stock splitting companies around the

announcement as well as event date of stock split. D'Mellow; Tawantachai and Yaman(2003) had presented a test on Multiple event hypothesis whereas, Lamourax and Poon(1987), emphasised on tax option hypothesis related to stock split.

This study is fully based on Indian stock market. In India, stock split is relatively a new phenomenon as this event has been popularised since 1999. After F.Y. 2004-05 stock split has become frequent phenomenon undertaken by different companies in India when the stock prices of many companies become too high beyond the normal trading range.

The paper analyses the effect of stock split on liquidity of stocks around the stock split announcement date for a sample of stock split undertaken by BSE(Bombay Stock Exchange) listed companies over the period of 15 years from F.Y.2000-01 to F.Y.2014-15. Thus, the present study is based on longer time horizon. To make the study interesting, the stock splitting companies comprised in the study are segregated as Large cap, Mid cap, and Small cap companies based on their market capitalisation as on 1st April 2015. In this context, changes in liquidity are examined for the 40 days event window (i.e., 20 days before the split announcement and 20 days after the split announcement date). In this study, the control sample methodology is applied so that it will be possible to observe whether the stock splitting companies significantly differ from the non-stock splitting companies.

The rest of the paper is organised as follows: section **II** consists of the review of some earlier literatures on stock split. Section **III** presents the details of objective, database and methodology used in this study. Section **IV** includes the empirical findings of the study and summarisation. And section **V** indicates the concluding remarks.

II. Review of Literature

Stock split event, being an interesting topic, so many researchers of different countries have put their emphasis on investigating the different aspects of it. The present research work also comes out of those previous research efforts and their findings. The review of some earlier studies is presented here below:

Fama, Fisher, Jensen and Roll(1969) first suggested that market reacts to the new information that are implicit in a stock split. According to them stock split tends to occur during general boom period when the stock performs usually well. Their study reveals that return on splitting shares is usually high in the month immediately preceding a split and after the split, the returns on split securities immediately resume their normal relationships to the market return.

Many researchers have elaborated the liquidity and optimal price range aspect of stock split. Some researchers like Copeland(1979), Lamoureux and Poon(1987) found a reduction in liquidity following a stock split due to increase in Bid-Ask spread and brokerage fee. As per Tax Option hypothesis Lamoureux and Poon observed a significant increase in the number of shareholders and the trading volume around the announcement of split. According to them market attaches positive value to the split because of its Tax Option impact.

By observing the case of ADR's solo splits Muscarella and Vetsupens(1996) found evidence of increase in liquidity but there was no signalling effect.

By taking the sample of index tracking stock Dennis(2003) found that liquidity seemed to have improved for smaller trades. The post split lower share price of the index tracking stock seemed to help smaller investors who liked being able to trade in small lot sizes but the post split increased bid-ask spread hurt large traders who were not wealth constrained and whose primary trading cost is bid-ask spread.

In the context of Indian market Joshipura (2009), Thirunnellei (2014) found a positive liquidity effect associated with stock split both surrounding the announcement and effective day but it does not carry any positive wealth effect.

Managers can reduce trading costs for share holders and improve their stock's liquidity if there is a corporate policy like stock split that can be used to attract more uninformed traders to participate in trading which can reduce both market maker's inventory holding costs and adverse information costs. [Lin,Singh and Yu(2009)]

Ikenbary, Reinkine and Stice(1996) observed highest excess performance for low book to market(or glamour) stocks. Firms voluntarily splitting to their shares to extremely low prices tended to generate positive announcement return but experienced negative long run performance i.e. sceptical market reaction by these firms.

On the other hand by taking the long run view Desai and Jain(1997) found positive average abnormal returns for one, two and three years after the announcement month which is consistent with the notion that market under reacts to the announcement or reacts with delay. It was also found that abnormal returns were larger for the firms initiating dividend with stock split.

With respect to the signalling hypothesis, signals considered by the market are the unexpected component of the split factor and there is a statistically significant relation between abnormal returns around the split announcement and the surprise component of the split factor.[Yague,Sala and Fuentes(2009)]

By examining the relation between trading activity following splits, change in volatility and bid-ask spread, Desai, Nimalendran and Venkataraman (1998) found a positive relation of spread and increase in volatility with the split factor where as negative relation of trade size with split factor. It was also found that a large component of increase in volatility was transient and attributable to noise.

Stock split conveys favourable industry-wide information about earning improvement and industry characteristics and firm-specific factors are significant determinants in explaining the stock price reactions. [Tawatnuntachai and D'Mello(1999)]

Research Gap of the Earlier Studies:-

- i) Some of these studies did not control for the potential contamination of other information releases on the stock prices at the split announcement date.
- ii) Most of these studies did not undertake the control sample methodology in order to specify whether there is any difference between the stock split announcing companies and the control companies.
- iii) In most of the cases the number of stock splitting companies considered for analysis is small and based on short time horizon.

III. Objective of the Study

The purpose of this paper is to measure the liquidity of stocks around the stock split announcement date in order to observe that the reduction of price due to stock split is helpful in what extent to boost up the market liquidity of the stocks.

Database and Methodology

The significance of any empirical research work is generally valued by its database and methodology. The present research study is based on the secondary data which is collected from the official website of the respective sample companies under the study as well as the

“Capitaline – 2000 Database package” is used for collecting data on daily share price, volume, turnover, and Market capitalisation.

The number of total BSE (Bombay Stock Exchange) listed companies that had undergone for stock split during the period of 15 years, from F.Y. 2000-01 to F.Y. 2014-15 was 1286. Out of that, the companies that had gone for stock split for two or more times or that had gone for reverse split discarded in order to analyse the accurate impact of stock split. The number of one time stock splitting companies was 902. Now for better analysis, based on the size of the companies, all the companies are segregated as Large cap Mid cap, and Small cap companies according to their market cap as on 31st march, 2015. The companies having market cap more than Rs. 1000 crore are kept as large cap. The companies having market cap between Rs 250 crore and Rs 1000 crore are considered as mid cap and companies having market cap between Rs 250 crore and Rs 100 crore are grouped as small cap. The companies having market cap less than Rs 100 crore are not considered in this study. Some companies got unlisted or for some another reason the Market cap as on 31 Mar, 2015 of 240 companies are not found. Thus 661 one time stock splitting companies are remained that are having data on market cap as on 31 Mar, 2015.

Out of these 661 companies, only 183 companies are taken or finally analysed in this study because of the following reason:

- i) 218 companies are excluded because of having market cap less than Rs. 100 crore.
- ii) 162 companies are not taken because these companies had undergone for another price sensitive corporate events like merger or acquisition, demerger, buyback of shares, right issue, bonus issue, stock dividend etc. during the financial year in which stock split was announced.
- iii) 50 companies are discarded because of non-availability of daily share price data.
- iv) 48 companies are excluded for non-availability of daily share price data of control companies.

Thus the sample under study consisted of 183 stock splitting companies. The data of same number of control companies of the concerned stock splitting companies is also taken into consideration. Formation of control sample is not an easy task. In this study, for each stock splitting company, a non-stock splitting, belonging to the same industry and having approximately same market capitalisation as on 31/3/2015, has been selected. But in many cases, it is very difficult to find out. Thus in those cases, a non-stock splitting company

having next highest or next closest market capitalisation to the corresponding stock splitting company has been selected. In some cases, control company has been selected on the basis of three years gap from the date of stock split announcement by the stock splitting company. In other words, the company that did not announced any stock split within the period of three years before and three years after the financial year in which stock split announced by the respective stock splitting company, has been selected as the control company of that stock splitting company. Therefore, finally the sample in this study consists of total 366 companies (183 stock splitting and 183 non-stock splitting companies). Now, out of the total 183 stock splitting companies, 81 companies are found as large cap companies, 59 companies as mid cap companies and 43 as small cap companies.

Methodology

In this study, the market liquidity of stock splitting companies is measured around the stock split announcement date in terms of volume of trade, net turnover, and turnover ratio. There are also other sophisticated measures of liquidity but because of lack of data in Indian context, the above three indicators are used in this study to measure market liquidity. Market liquidity can be simply measured through the indicator like frequency of trading, more frequent trading would certainly mean improved liquidity but the extent of liquidity cannot be measured among frequently traded stocks with such an indicator. Volume of trade (i.e. number of shares traded) is also a very simple measure of liquidity. But liquidity without reference to price is hardly meaningful as stock prices are linked to demand for stocks and the extent of trading volume (Datar, 2000). In order to combine these two, turnover is taken for measuring liquidity of stocks. But it is very difficult to assess the market liquidity only with reference to the absolute volume of trade or the absolute value of turnover. Thus, finally the turnover ratio (*i.e.*, turnover/market capitalisation *100) is taken into consideration as a relative measure which combines both share price and volume of trade and can be used across different market and over time.

In this study, the daily volume of trade, day wise turnover and day wise turnover ratio is compared for 20 days before and 20 days after the stock split announcement in order to observe whether there is any change in liquidity or not due to stock split announcement. Thereafter, the daily volume of trade, day wise turnover and day wise turnover ratio of Control Company of each stock splitting company are also computed and compared for the same period in order to examine the real impact of stock split on liquidity.

In order to know whether the change in liquidity is statistically significant or not, Paired –T Test is applied. Finally, a comparative analysis between the stock splitting companies and the control companies has been made.

IV. Findings

Daily Volume of trade, Turnover and the Turnover ratios of the large cap, mid cap, and small cap group companies are thoroughly analysed for the period of 20 days before and 20 days after the stock split announcement date. The overall summarisation of the results of paired t-test for the changes in turnover ratio, volume and turnover following the stock split announcement is presented in Table-I.

LARGE CAP Group:

From table-I, it is observed that maximum companies in the large cap group do not have any statistically significant impact of stock split announcement on their stock liquidity. The results show that out of the total 81 stock splitting companies in this group, 47 companies (i.e. 58.02% of 81 stock splitting companies) based on turnover ratio, 51 companies (i.e. 62.96% of 81 stock splitting companies) based on turnover, and again 47 companies (i.e. 58.02% of 81 stock splitting companies) based on volume of trade do not have any significant change in stock liquidity after the stock split announcement. In case of other companies in this group, 15 companies (i.e. 18.52% of 81 stock splitting companies) based on turnover ratio, 16 companies (i.e. 19.75% of 81 stock splitting companies) based on turnover, and again 15 companies (i.e. 18.52% of 81 stock splitting companies) based on volume of trade are having significant positive impact of stock split announcement on their stock liquidity. Whereas, the remaining 19 companies (i.e. 23.46% of 81 stock splitting companies) based on turnover ratio, 14 companies (i.e. 17.29% of 81 stock splitting companies) based on turnover, and again 19 companies (i.e. 23.46% of 81 stock splitting companies) based on volume of trade are having significant negative impact on their stock liquidity due to stock split announcement.

Now, taking the control companies of stock splitting companies of this group, the results show that most of the control companies are having no significant change in stock liquidity after the stock split announcement by their respective stock splitting companies. Out of the total 81 control companies in this group, 53 companies (i.e. 65.43% of 81 control companies) based on turnover ratio, 52 companies (i.e. 64.20% of 81 control companies) based on turnover, and 54 companies (i.e. 66.67% of 81 control companies) based on volume of trade

do not have any significant impact on their stock liquidity. Among the remaining control companies, 10 companies (i.e. 12.35% of 81 control companies) based on all the three measurements have shown significant positive change in their stock liquidity and other 18 companies (i.e. 22.22% of 81 control companies) based on turnover ratio, 19 companies (i.e. 23.45% of 81 control companies) based on turnover, and 17 companies (i.e. 20.98% of 81 control companies) based on volume of trade have shown significant negative change in their stock liquidity after the stock split announcement by their respective stock splitting companies.

MID CAP Group:

Similarly, considering the mid cap group, it can be observed that in most of the cases there is no significant impact of stock split announcement on liquidity of the stocks. Out of the total 59 stock splitting companies in this group, 35 companies (i.e. 59.32% of 59 stock splitting companies) based on turnover ratio, 33 companies (i.e. 55.93% of 59 stock splitting companies) based on turnover, and 34 companies (i.e. 57.63% of 59 stock splitting companies) based on volume of trade do not have any significant change in stock liquidity after the stock split announcement. Whereas, 14 companies (i.e. 23.73% of 59 stock splitting companies) based on turnover ratio, 15 companies (i.e. 25.43% of 59 stock splitting companies) based on turnover, and again 14 companies (i.e. 23.73% of 59 stock splitting companies) based on volume of trade are found to have significant positive impact on stock liquidity i.e. stocks of these companies become more liquid after the stock split announcement. On the other hand, remaining 10 companies (i.e. 16.95% of 59 stock splitting companies) based on turnover ratio, 11 companies (i.e. 18.64% of 59 stock splitting companies) based on turnover, and again 11 companies (i.e. 18.64% of 59 stock splitting companies) based on volume of trade are found to have significant negative impact on their stock liquidity.

As far as, control companies of stock splitting companies in this group are considered, it is found that Out of the total 59 control companies in this group, stock liquidity of 42 companies (i.e. 71.19% of 59 control companies) based on all the three measurements have not significantly change after the stock split announcement by their respective stock splitting companies. While among the remaining control companies, 9 companies (i.e. 15.25% of 59 control companies) based on turnover ratio, 8 companies (i.e. 13.56% of 59 control companies) based on turnover, and again 9 companies (i.e. 15.25% of 59 control companies) based on volume of trade have shown significant positive change in their stock liquidity.

Other 8 companies (i.e. 13.56% of 59 control companies) based on turnover ratio, 9 companies (i.e. 15.25% of 59 control companies) based on turnover, and again 8 companies (i.e. 13.56% of 59 control companies) based on volume of trade have shown significant negative change in their stock liquidity.

SMALL CAP Group:

In the same way, in case of small cap companies, the results indicates that out of the 43 stock splitting companies in this group, 21 companies (i.e. 48.84% of 43 stock splitting companies) based on turnover ratio, 22 companies (i.e. 51.16% of 43 stock splitting companies) based on turnover, and 20 companies (i.e. 46.51% of 43 stock splitting companies) based on volume of trade do not have statistically significant impact of stock split announcement on their stock liquidity. Whereas, stocks of other 9 companies (i.e. 20.93% of 43 stock splitting companies) based on turnover ratio, 12 companies (i.e. 27.91% of 43 stock splitting companies) based on turnover, and 10 companies (i.e. 23.26% of 43 stock splitting companies) based on volume of trade become significantly more liquid after the stock split announcement. Remaining 13 companies (i.e. 30.23% of 43 stock splitting companies) based on turnover ratio, 9 companies (i.e. 20.93% of 43 stock splitting companies) based on turnover, and again 13 companies (i.e.30.23 % of 43 stock splitting companies) based on volume of trade are found to have significant negative impact of stock split announcement on their stock liquidity.

While considering the control companies of the stock splitting companies in this group, it is found that most of the control companies do not have any significant change in liquidity after the stock split announcement by their respective stock splitting companies. Out of 43 control companies 31 companies (i.e. 72.09% of 43 control companies) based on turnover ratio and turnover, and 30 companies (i.e. 69.76% of 43 control companies) based on volume of trade have shown insignificant change in liquidity. Among the other control companies, only 3 companies (i.e. 6.98% of 43 control companies) based on both turnover ratio and volume of trade and 4 companies (i.e. 9.31% of 43 control companies) based on turnover are found to have significant increment in their stock liquidity. Remaining 9 companies (i.e. 20.93% of 43 control companies) based on turnover ratio, 8 companies (i.e. 18.60% of 43 control companies) based on turnover, and again 10 companies (i.e.23.26 % of 43 control companies) based on volume of trade are found to have significant negative change in their stock liquidity.

On summarising the above findings, it can be observed that the results based on turnover ratio and volumes of trade are more or less same in case of all the three groups. As far as turnover is considered the result is somewhat different from that based on the other two measurements. Now, in case of all the three groups (viz. large cap, mid cap, and small cap) the average percentage (based on all the three measurements) of stock splitting companies having no significant change in liquidity is high but the average percentage of control companies having no change in liquidity is higher than that of stock splitting companies. This difference is much more in case of mid cap and small cap companies. Where, an average 59.67%, 57.62% and 48.84% of stock splitting companies in case of large cap, mid cap, and small cap group respectively are found to have insignificant impact of stock split announcement on their stock liquidity, there an average 65.43%, 71.19%, and 71.32% of control companies in case of large cap, mid cap, and small cap group respectively are found to have insignificant change in liquidity. In case of large cap and small cap group, average percentage of stock splitting companies having positive change in liquidity after the stock split announcement (i.e. 18.93% and 24.03% respectively) is less than that of stock splitting companies with negative change in liquidity (i.e. 21.40% and 27.13% respectively). Results based on turnover, in case of all the three groups, the percentage of stock splitting companies having positive impact on liquidity is more than the percentage of stock splitting companies with negative change in liquidity after the stock split announcement. It is also observed that average percentage of stock splitting companies with positive change in liquidity in case of mid cap and small cap group (i.e. 24.30% and 24.03% respectively) are higher than that in case of large cap group (i.e. 18.93%). Finally the result indicates that where an average 18.93%, 24.30% and 24.03% of stock splitting companies in case of large cap, mid cap, and small cap group respectively have shown positive change in liquidity due to stock split announcement, there only an average 12.35%, 14.69%, and 7.75% of control companies in case of large cap, mid cap, and small cap respectively have shown positive change in liquidity without stock split.

V. Conclusion

Stock split, being an interesting event as earlier in the past, by several researchers, it (stock split) was considered just as a 'cosmetic event' which does not carry any real impact. But with the passage of time, several researchers, all over the world, found that it has impact on market liquidity, price, signalling impact, optimal trading range, tax option, market maker, multiple event (issue of equity shares after stock split), share holders wealth etc. Researchers have examined the liquidity hypothesis of stock split around the announcement or the event

date. Some found positive impact on liquidity or some like Copeland, Lamourex and Poon have found negative change in the liquidity of stocks after the stock split.

This study is also based on the examination of liquidity hypothesis in the context of Indian companies. By using the indicators of liquidity like daily volume of trade, daily turnover, and daily turnover ratio (ratio of turnover to market capitalisation) for measuring the liquidity of stocks during 20 days prior and 20 days post the stock split announcement date, it is observed that all the three measurements present more or less same results in case of Large cap, Mid cap and Small cap groups. Maximum companies of all the three groups have no impact of stock split announcement on liquidity of stocks. But the average percentage of companies having insignificant impact on liquidity in case of large cap group is more than that in case of mid cap and small cap group. Whereas, the average percentage of control companies having insignificant impact on liquidity in case of large cap group is less than that in case of mid cap and small cap group. Based on turnover, percentage of firms having positive impact on liquidity is more than the percentage of firms having negative impact in case of all the three groups. Whereas, based on volume of trade and turnover ratio, only in case of mid cap group, percentage of companies having positive impact on liquidity is more than the percentage of companies having negative impact and in case of large cap and small cap group the result is just the opposite. It is also found that in case of mid cap and small cap group, the percentages of stock splitting companies with positive impact on their stock liquidity are much more than that in case of large cap group. Finally, the result shows that the percentages of stock split announcing companies in all the groups and based on all the three measurements, having positive impact on liquidity due to stock split announcement are much more than that of the control companies.

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TABLE: I Summarisation of the Result of paired t-test for the change in turnover ratio, volume, and turnover following the stock split announcement.

LARGE CAP					MID CAP					SMALL CAP				
	STOCK SPLITTING		CONTROL COM.			STOCK SPLITTING		CONTROL COM.			STOCK SPLITTING		CONTROL COM.	
	COM.					COM.					COM.			
Total	81		81		Total	59		59		Total	43		43	
Based on Turnover ratio	Number	%ge	Number	%ge	Based on Turnover ratio	Number	%ge	Number	%ge	Based on Turnover ratio	Number	%ge	Number	%ge
Insignificant	47	58.02	53	65.43	Insignificant	35	59.32	42	71.19	Insignificant	21	48.84	31	72.09
Significant positive	15	18.52	10	12.35	Significant positive	14	23.73	9	15.25	Significant positive	9	20.93	3	6.98
Significant Negative	19	23.46	18	22.22	Significant Negative	10	16.95	8	13.56	Significant Negative	13	30.23	9	20.93
Based on Turnover					Based on Turnover					Based on Turnover				
Insignificant	51	62.96	52	64.20	Insignificant	33	55.93	42	71.19	Insignificant	22	51.16	31	72.09
Significant positive	16	19.75	10	12.35	Significant positive	15	25.43	8	13.56	Significant positive	12	27.91	4	9.31
Significant Negative	14	17.29	19	23.45	Significant Negative	11	18.64	9	15.25	Significant Negative	9	20.93	8	18.60
Based on Volume					Based on Volume					Based on Volume				
Insignificant	47	58.02	54	66.67	Insignificant	34	57.63	42	71.19	Insignificant	20	46.51	30	69.76
Significant positive	15	18.52	10	12.35	Significant positive	14	23.73	9	15.25	Significant positive	10	23.26	3	6.98
Significant Negative	19	23.46	17	20.98	Significant Negative	11	18.64	8	13.56	Significant Negative	13	30.23	10	23.26
Average					Average					Average				
Insignificant		59.67		65.43	Insignificant		57.62		71.19	Insignificant		48.84		71.32
Significant positive		18.93		12.35	Significant positive		24.30		14.69	Significant positive		24.03		7.75
Significant Negative		21.40		22.22	Significant Negative		18.08		14.12	Significant Negative		27.13		20.93

Source: Computed by the researchers