

## Impact of Institutional Investment Pattern on Stock Volatility: A Study of BSE-30 Companies

**Harendra Singh**

Asst. Professor

Amity Business School

Amity University Madhya Pradesh

### ABSTRACT

*There are many studies found in the field of stock volatility and institutional investors. Most of the studies found an inconsistent relationship between volatility and institutional investors. It creates a curiosity in the mind of investor, whether riskier securities attract institutional investors or an increase in institutional holdings results in an increase in volatility. In this paper we tried to examine the impact of institutional ownership pattern on stock volatility. We have considered BSE-30 companies and taken 5 year data from 1st January 2009 to 1st January 2014. Our result shows that institutional ownership has positive and significant impact on stock volatility.*

**Keywords:** *FII's, Insurance, Mutual funds Regression, Quarterly volatility.*

### Introduction

Till 1980's the economy of India was reserved for any kind of foreign investment but reforms were mooted after the relaxation that foreign inflows are very crucial for 360 degree development to prevail in India and to augment economic growth. This result in economic reforms that also encircled the capital market. As a sequence of matter there was a great deal of activity in the stock market the study aims at the effect on and the extent of the volatility in the stock market as per the prevailing institutional holding patterns.

There is a remarkable change in the nature, pattern and structure of the investment made by Institutional investors. There are diverse view of Institutional investors investment in emerging economies in general and India in particular; one view is that Institutional investors are believed to improve market efficiency and helps in lowering the cost of capital the other view holds Institutional investors responsible for increasing the volatility in stock markets. India is considered as a good investment center after the restrictions are lifted in a liberalized regime. There has been increase in the capital flows into the country.

There are many studies found in the field of stock volatility and institutional investors. Most of the studies found an inconsistent relationship between volatility and institutional investors.

There is an argument that it is the tendency of the institutional investors are likely to choose less-volatile stocks because of the risk that investments in more-volatile securities may be not be viewed (by courts or clients) as "prudent." Other researchers have mooted that any positive relationship between institutional investors and stock market volatility results from institutional investors' avoidance of riskier (and typically smaller) stocks.

It creates a curiosity in the mind of investor, whether riskier securities attract institutional investors or an increase in institutional holdings results in an increase in volatility. In this study we have tried to resolve that curiosity.

## LITERATURE REVIEW

(Kupiec, 1991) has researched about stock market volatility in OECD countries for real economy and give forth various reforms. He took sample of 15 countries and applied regression tool and concluded that stock return volatility appeared to have increased in many OECD countries.

(Philip Hans Francis, 1996) has evaluated the weekly stock market volatility by implementing GARCH model and its two linear modifications. He has taken the sample covering the period 1986 to 1989, and consists of the period of market crash in 1987, which greatly affects the data collected and applied the GARCH model and found the impact.

GROUARD (2003) has researched on stock market volatility from empirical data to their interpretation by using correlation method on data taken from year 2002 to 2003 having volatility of the SP500, CAC40 and FTSE 100 stock market indices and concluded that environment could in fact contribute to even greater uniformity in investors behaviors and fuel a rising trend in volatility.

Pal (2004) has researched out relation between foreign institutional investors and stock market by collecting data of SENSEX (BSE) and FIIs from the period March 2004 to June 2004 using correlation and concluded that investments made by FIIs have significant influence on the movements of the stock market indexes in India and have great impact on the market sentiments and the price trends.

Yan (2004) examined the relation between institutional investment horizons and their informational roles in stock market. The data for this study come from four sources namely quarterly institutional holdings for all common stocks traded on NYSE, AMEX, and NASDAQ for the period from the fourth quarter of 1979 to the fourth quarter of 2003 and concluded that there is a positive relation between institutional ownership and future stock returns.

Zhang (2010) has studied the effect of high-frequency trading on stock price volatility. He took period from 1994-2004 as the main testing sample which contains 391,013 firm-quarter observations and concluded that that high-frequency trading is positively correlated with stock price volatility after controlling firm fundamental volatility and other determinants of volatility.

Goudarzi (2010) has studied the impact of FII in the Indian stock market during the world crisis. The research has been done from the year 2008 to 2009 using the granger cause and effect test. Through the further study he concluded that FIIs play a great positive role in the Indian economy.

Johri (2012) studied the FIIs investment patterns and its impact on Indian stock market with data taken from 2000 to 2010 of BSE and NSE. He applied T-test and analyzed that there is a significant difference between nifty and non nifty companies for their investment in FII. He concluded that inflow and outflow made by FII have significant impact on Indian stock market and hence have direct relationship with the stock volatility.

Loomba (2012) studied the relationship between FII and its impact on stock market by conducting the study on BSE SENSEX and FII activity over a period of 10 years spanning from 1st January 2011 to 31st December 2011. He concluded that there is a significant positive relation between FII activities and its impact on Indian stock market which in turn impacts the stock volatility.

Marshall E. Blume (2012) has evaluated how the institutional investors in the recent decade have played increasing role in explaining the variation in the US stock market. The research has been taken place from the year 2008 to 2012 using the 13f model to analyze the stock ownership. Through the research paper we find that 1) the number of institutions that own a stock is more important than the percentage of institutional ownership in explaining the cross section of liquidity; and (2) the power of the number of institutional owners in explaining illiquidity is significantly stronger.

Karan Walia (2012) has examined the contribution of FII in the Indian stock market and also their evaluated their behaviour. The data for research has been taken from the websites of BSE sensex and also have used correlation test to find out the relation between the FII and BSE during the year

2001 to 2010. They came to conclusion that FII are influencing the sensex movement to a greater extent.

Shrivastav (2013) did research in order to find the influence of FIIs on Indian stock market. He applied correlation and regression method to determine the relationship b/w FIIs & Indian stock market and concluded that there is positive impact on Indian stock market of FIIs. He took sample of data period from January 2000 to December 2010.

## OBJECTIVES

- To find co-integration between institutional stock holding pattern and stock volatility.
- To determine the causal relationship between institutional stock holding pattern and stock volatility.

## RESEARCH METHODOLOGY

In order to achieve our objectives, we are using two variables that are as under:

Quarterly holdings (q): In order to calculate quarterly holdings, we will consider 20 quarters of 30 companies each with the time period of 5 years ranging from 1<sup>st</sup> January 2009 to 1<sup>st</sup> January 2014.

Quarterly volatility: In order to calculate quarterly volatility we will calculate standard deviation which is given as under formula:

$$\sigma = \sqrt{\sum_{i=1}^n (R_i - R') / n - 1} \quad \text{Eq.1}$$

Where,

$\sigma$  = standard deviation,  $R_i$  = daily return,  $i$  = number of days,  $R'$  = mean return,  $n$  = number of days in a quarter.

To study the impact of institutional holding pattern and stock volatility we will form a **panel data regression analysis** for 20 quarters for 30 companies which will give us panel data regression equation as follow:

$$\sigma_t = \alpha + \beta_1(\text{FIIt}-1) + \beta_2(\text{MFt}-1) + \beta_3(\text{Insurancet}-1) \quad \text{Eq.2}$$

Where,

$\alpha$  = constant,  $t$  = time period, FII= Foreign institutional investors, MF= Mutual funds, I= Insurance.

## RESULT AND DISCUSSION

Table 1: Output of regression analysis

| Companies | Intercept | FII<br>(pvalue)         | Insurance<br>(pvalue)   | Mutual<br>funds(pavalue) |
|-----------|-----------|-------------------------|-------------------------|--------------------------|
| Maruti    | 2.593945  | -0.01557<br>(0.375028)  | 0.024775<br>(0.14221)   | 0.064391<br>(0.093223)   |
| Hdfc ltd  | 3.5892    | -0.01533*<br>(0.006054) | -1.82987*<br>(0.002107) | 0.024348<br>(0.533668)   |
| Infosys   | 4.172549  | 0.000139<br>(0.984502)  | -0.00162<br>(0.855191)  | -0.04754<br>(0.101176)   |
| Tcs       | 4.640116  | -0.08335*<br>(0.002531) | -0.02257<br>(0.100756)  | -0.17685*<br>(0.011876)  |
| Sunpharma | 4.715981  | -0.00949<br>(0.87635)   | 0.109424*<br>(0.020908) | -0.13113<br>(0.21579)    |
| Itc       | 2.390854  | -0.0052<br>(0.297273)   | -0.06793<br>(0.684883)  | 0.054418*<br>(0.008037)  |

|                |                 |                              |                                 |                                |
|----------------|-----------------|------------------------------|---------------------------------|--------------------------------|
| Cipla          | 2.851415        | 0.003975<br>(0.487836)       | 0.000315<br>(0.998726)          | 0.001693<br>(0.904536)         |
| Hdfc           | 6.368528        | 0.017076<br>(0.23451)        | -0.03929<br>(0.193369)          | 0.008591<br>(0.543763)         |
| Bharti         | 1.10438         | 0.096568*<br>(0.000425)      | 1.127548*<br>(0.003042)         | 0.001318<br>(0.976246)         |
| Bhel           | -2.30347        | 0.443962<br>(0.059667)       | 0.123362<br>(0.595827)          | -0.14685<br>(0.448395)         |
| Gail           | 37.86933        | -1.09382*<br>(0.044833)      | -1.31328*<br>(0.032487)         | -0.94657<br>(0.105515)         |
| Tata power     | 1.339761        | 0.021392<br>(0.358226)       | .052175*<br>(0.018221)          | 0.017733<br>(0.533009)         |
| Bajaj auto     | -23.0724        | 1.262829<br>(0.36254)        | 0.277969<br>(0.826801)          | .943417<br>(0.612545)          |
| Ntpc           | 2.236256        | 0.102384<br>(0.02779)        | 0.302055<br>(0.42308)           | 0.214637<br>(0.241576)         |
| Dr reddy lab   | -1.6749         | 0.08294<br>(0.116103)        | 0.097958*<br>(0.016802)         | 0.0112874<br>(0.944351)        |
| Hul            | 1.471924        | -0.0947<br>(0.787305)        | 0.015343<br>(0.908687)          | 0.029245<br>(0.916552)         |
| Ongc           | 1.620407        | 0.962384<br>(0.740905)       | -0.47211<br>(0.771498)          | -3.97985<br>(0.527973)         |
| Msm            | 3.668456        | -0.14787<br>(0.845985)       | 0                               | 0                              |
| Companies      | Intercept       | FII<br>(pvalue)              | Insurance<br>(pvalue)           | Mutual<br>funds(pavalue)       |
| Sesa           | 3.324145        | -0.0784<br>(0.74664)         | 0.672008*<br>(0.080337)         | -0.11803<br>(0.843396)         |
| Reliance       | -26.4001        | 2.477376<br>(0.16122)        | -1.4798<br>(0.249076)           | -0.85371<br>(0.737411)         |
| Coal india     | 18.7686         | 0.342736*<br>(0.00382)       | 0.56845*<br>(0.0021545)         | .058426<br>(.015456)           |
| Sbin           | -19.9635        | 0.120606<br>(0.725803)       | 1.391338*<br>(0.008215)         | 0.940856<br>(0.443724)         |
| Wipro          | -8.35415        | 2.175641<br>(3.650905)       | -2.3677*<br>(0.024385)          | 0.112694<br>(0.886331)         |
| Icici bank     | 23.36087        | -0.31526*<br>(0.000226)      | -0.33079*<br>(0.003768)         | -0.43335*<br>(0.000372)        |
| Axis bank      | -19.6077        | 0.435507*<br>(0.005178)      | 0                               | 1.546018*<br>(0.044189)        |
| Lt             | -26.9476        | 0.957646*<br>(0.088857)      | 0.759654<br>(0.194875)          | 0.801016<br>(0.842743)         |
| Tata steel     | 28.51528        | -0.43072<br>(0.294845)       | -0.6693<br>(0.119396)           | -1.17916<br>(0.433143)         |
| Tata motor     | 23.7346         | -0.32227<br>(0.109905)       | -1.06109<br>(0.17118)           | 0.004601<br>(0.997599)         |
| Hindalco       | 2.487784        | -0.04354<br>(0.694891)       | 0.508966<br>(0.238813)          | -1.31772<br>0.025615           |
| <b>Average</b> | <b>5.025125</b> | <b>30.459<br/>(0.092171)</b> | <b>7.988949*<br/>(0.002905)</b> | <b>16.2228*<br/>(0.018782)</b> |

Source: Researcher's data analysis

The formula used for the regression method

$$5.025125 = \alpha + \beta_1 (-30.459t-1) + \beta_2 (7.988949t-1) + \beta_3 (-16.2228t-1) \quad \text{Eq.3}$$

From the above table we can conclude that:-

FII holdings has a positive and significant impact on the stock volatility for 4 companies and has a negative and significant impact for 4 companies it also shows that FII holdings negatively insignificant impact on the stock volatility for 9 companies and positively insignificant impact on the stock volatility for 13 companies. This shows that FII has a positive impact on the stock volatility.

Insurance holdings has a positive and significant impact on the stock volatility for 7 companies and has a negative and significant impact of stock volatility for 4 companies it also shows that FII holdings negatively insignificant for 8 companies and positively insignificant for 11 companies. This shows that the insurance holding has a positive impact on the stock volatility.

Mutual funds holdings has a positive and significant impact on stock volatility for 2 companies and has a negative and significant impact for 2 companies it also shows that FII negatively insignificant for 13 companies and positively insignificant for 13 companies. This shows that mutual funds have a positive as well as negative impact on the stock volatility.

When regression is done for the average all the companies we can see that FII holdings are making a positive and insignificant impact on the volatility of the stocks of the company and insurance holdings are making a positive and significant impact on the stocks of the company. The mutual funds are making a negative and significant impact on the volatility of the stocks of the company.

## **FINDINGS AND CONCLUSION**

Earlier as according to some research paper it has been found that there is positive relation between the stockholding pattern and market volatility and in some research paper it is found that there is negative impact of stock holding pattern and stock market volatility hence we concluded that ownership by public institutions, individuals, insurance companies and top management has no effect on stock volatility whereas Private institutional ownership has positive and significant effect on stock volatility. We also found that ownership by private holding companies; private companies and private banks have significant and positive effect on stock volatility.

FII has a positive impact and is significant for 4 companies and has a negative impact and is significant for 4 companies it also shows that FII negatively insignificant for 9 companies and positively insignificant for 13 companies. This shows that FII has a positive impact on the stock volatility.

Insurance has a positive impact and is significant for 7 companies and has a negative impact and is significant for 4 companies it also shows that FII negatively insignificant for 8 companies and positively insignificant for 11 companies. This shows that the insurance has a positive impact on the stock volatility.

Mutual funds has a positive impact and is significant for 2 companies and has a negative impact and is significant for 2 companies it also shows that FII negatively insignificant for 13 companies and positively insignificant for 13 companies. This shows that a mutual fund has a positive as well as negative impact on the stock volatility.

## **References**

- Blume, M.E.(2012), Institutional Investors and Stock Market Liquidity: Trends and Relationships, Social Science Research Network
- Francis, P.H.( 1996), Forecasting Stock Market Volatility Using (Non-Linear) Garch Models, Journal of Forecasting, Vol. 15, Issue no 3.
- Goudarzi , H.(2010), Empirical Analysis of the Impact of Foreign Institutional Investment on the Indian Stock Market Volatility during World Financial Crisis 2008-09, International Journal of Economics and Finance, Vol. 3, No.3
- GROUARD, M.-H. (2003). Stock market volatility: from empirical data to their interpretation. Directorate General Economics and International Relations , 18.

- Johri, A. (2012). FIIs investment pattern in context to indian stock market and its impact on stock market returns. International journal of research in management , 19.
- Kupiec, P. (1991). STOCK MARKET VOLATILITY IN OECD COUNTRIES:RECENT TRENDS. CONSEQUENCES FOR THE REAL ECONOMY. Economic Studies No. 17 , 32-60.
- Loomba, J. (2012). DO FIIS IMPACT VOLATILITY OF INDIAN STOCK MARKET. International Journal of Marketing, Financial Services & Management Research .
- Pal, p. (2004). Recent Volatility in Stock Markets in India and Foreign Institutional Investors. 1-18.
- Shrivastav, A. (2013). Influence of FIIs flows on indian stock market. GYANPRATHA - ACCMAN Journal of Management , 31.
- Walia , K. (2012).Impact Of Foreign Institutional Investment On Stock Market, International Journal of Computing and Corporate Research, vol 2 ,issue 5.
- Wurgler, M. B. (2007). Investor Sentiment in the Stock Market. Journal of Economic Perspectives—Volume 21, Number 2 , 129-151.
- Yan, X. (. (2004). Institutional Investors and Equity Returns:Are Short-term Institutions Better Informed? journal of University of missouri-columbia , 32.
- Zhang, X. (2010). The effect of High-Frequency trading on stock volayility and price discovery. 5-25.