Research Article

FII TRADING AND ITS RELATIONSHIP WITH VOLATILITY OF NATIONAL INDEX

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ARTICLE INFO	ABSTRACT
	Since the Globalization of Indian Economic Market in 1991 considerable amount of foreign inflows have been seen in the form of FII- Foreign Institutional Investment. This paper focuses on FII investment (Purchase & sale) and it's impact on Indian Stock Indices i.e. Sensex and Nifty. As Volatility is the level of fluctuation in the stock indices as the result of various internal as well as external factors, it would be ideal to have a correlation of Volatility of Indian stock market which is represented by INDIA VIX with the FII trading pattern to improve our understanding of the stock market. This research paper will explore the trading pattern that has been done during the financial year 2016-17.

INTRODUCTION

Stock prices are changed every day by the market. Buyers and sellers cause prices to change as they decide how valuable each stock is. Basically, share prices change because of supply and demand. If more people want to buy a stock than sell it-the price moves up. Conversely, if more people want to sell a stock, there would be more supply (sellers) than demand (buyers)-the price would start to fall. Volatility in the stock return is an integral part of stock market with the alternating bull and bear phases. In the bullish market, the share prices soar high and in the bearish market share prices fall down and these ups and downs determine the return and volatility of the stock market. Volatility is a symptom of a highly liquid stock market. Pricing of securities depends on volatility of each asset. An increase in stock market volatility brings a large stock price change of advances or declines. Investors interpret a raise in stock market volatility as an increase in the risk of equity investment and consequently they shift their funds to less risky assets. It has an impact on business investment spending and economic growth through a number of channels. Changes in local or global economic and political environment influence the share price movements and show the state of stock market to the general public. The issues of return and volatility have become increasingly important in recent times to the Indian investors, regulators, brokers, policy makers, dealers and researchers with the increase in the FIIs investment.

We have heard people saying that the world is going global and India is also moving towards prosperity but what does it actual means and who are the persons behind this scenario, which should be known. Among them the persons who are responsible or we can say who have contributed towards this scenario are the Foreign Institutional Investors.

The world is increasingly becoming interdependent. Today the needs of the customer have increased and they want goods from all over the world. We can see variety of products moving across the world and the world trade increased by 120%. The developing countries are looking forward to steady flow of capital and are undergoing the learning process of how to absorb them. As regard the attendant risks, the central bank of the countries have to tackle them. There are many ways the inflow can come into the country. Debt is a form of capital forms which are raised from banks or from the markets. The non-debt creating flows includes Foreign Direct Investment or Portfolio Investments. Foreign investment has clearly been a major factor in stimulating economic growth and development in recent times.

RESEARCH METHODOLOGY

Data Collection: The present study covers secondary data. Data and information have been extracted from websites of BSE, NSE and Moneycontrol.com. The researcher has collected the historic data of BSE, NSE, INDIA VIX

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(volatility), FII purchase & Sale data for the financial year 2016-17.

Sampling: The sample for this research paper is historical data of BSE index values, NSE Index values, INDIA VIX values and FII Purchase and Sale values for financial year 2016-17 i.e. 236 values representing the 236 days of trading performed.

Tools & Techniques of the Study: The researcher has used the tools as per the need and type of the study. As relationship between various variables is to be determined, the researcher banks on Regression analysis to establish the relationships as an equation will be established keeping in mind the dependent and independent variable.

Significance of the study: *It* is important for common Citizens, Economists, Businesspersons, Academicians, Researchers and Students to know and understand the National Stock Index. With this research paper we are trying to establish the relationship between one of the most prefers form of foreign money investment i.e. FII and National Index i.e. BSE & NSE; also Volatility and FIIs impact is also considered here. This will give one and all the clear picture of the National Stocks Index of the past financial year.

Hypothesis

Following hypothesis are taken by the researchers:

H_1: There is considerable amount of positive relationship between FII Purchase and BSE Index.

H_{01}: There is no relationship between FII purchase and BSE Index.

H_2: There is considerable amount of positive relationship between FII Sales and BSE Index.

H_{02}: There is no relationship between FII Sale and BSE Index.

H_3: There is considerable amount of positive relationship between FII Purchase and NSE Index.

H_{03}: There is no relationship between FII Purchase and NSE Index.

H_4: There is considerable amount of positive relationship between FII Sale and NSE Index.

H_{04}: There is no relationship between FII Sale and NSE Index.

H_5: There is some positive relationship between FII Purchase and the Volatility of Index (INDIA VIX).

H_{05}: There is no relationship between FII Purchase and the Volatility of Index (INDIA VIX).

H_6: There is some positive relationship between FII Sale and the Volatility of Index (INDIA VIX).

H_{06}: There is no relationship between FII Sale and the Volatility of Index (INDIA VIX).

Data Analysis

Lets us test the Hypothesis for its correctness:

Hypothesis 1

H_1: There is considerable amount of positive relationship between FII Purchase and BSE Index.

H_{01}: There is no relationship between FII purchase and BSE Index.

Upon performing the Linear Regression on the FII Purchase and BSE Index it was found that Correlation between the two variable is 0.359 as shown in Table 1A, refereeing to significance of Regression from Table 1B that comes out to be 0.000 (< 0.05) which means that regression model can be justifiably established.

Table 1A Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.359a	.129	.125	1097.18669	.129	34.562	1	234	.000

a. Predictors: (Constant), FII Purchase

Table 1B ANOVAa

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41606061.324	1	41606061.324	34.562	.000b
	Residual	281693562.359	234	1203818.643		
	Total	323299623.683	235			

a. Dependent Variable: SENSEX
b. Predictors: (Constant), FII Purchase

Table 1C Coefficientsa

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	26520.754	158.041		167.809	.000					
	FII Purchase	.167	.028	.359	5.879	.000	.359	.359	.359	1.000	1.000

a. Dependent Variable: SENSEX

Referring to Table1C we get Coefficients that can be put in the Regression model.

Now the regression model can be established as:
Y = a + b X where Y (BSE Index) is dependent variable & X (FII Purchase) is independent variable
Or
BSE Index = 26520.754 + 0.167 (FII Purchase)

Hence it can be stated that the null hypothesis (H_{01}) is rejected and alternative hypothesis (H_1) is accepted.

Hypothesis 2

H_2: There is considerable amount of positive relationship between FII Sales and BSE Index.

H_{02}: There is no relationship between FII Sale and BSE Index.

Upon performing the Linear Regression on the FII Purchase and BSE Index it was found that Correlation between the two variable is 0.220 as shown in Table 2A, refereeing to significance of Regression from Table 2B that comes out to be 0.001 (< 0.05) which means that regression model can be justifiably established.

Referring to Table 2C we get Coefficients that can be put in the Regression model.

Now the regression model can be established as:

Y = a + b X where Y (BSE Index) is dependent variable & X (FII Sales) is independent variable
Or
BSE Index = 26777.940 + 0.121 (FII Sales)

Table 2A Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.220[a]	.049	.045	1146.50809	.049	11.952	1	234	.001

    a.   Predictors: (Constant), FII Sale

Table 2B ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15711118.716	1	15711118.716	11.952	.001[b]
	Residual	307588504.968	234	1314480.790		
	Total	323299623.683	235			

a.Dependent Variable: SENSEX
b. Predictors: (Constant), FII Sale

Table 2C Coefficients[a]

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	26777.940	181.409		147.611	.000					
	FII Sale	.121	.035	.220	3.457	.001	.220	.220	.220	1.000	1.000

a. Dependent Variable: SENSEX

Hence it can be stated that the null hypothesis (H$_{02}$) is rejected and alternative hypothesis (H$_2$) is accepted

Hypothesis 3

H$_3$: There is considerable amount of positive relationship between FII Purchase and NSE Index.

H$_{03}$: There is no relationship between FII Purchase and NSE Index.

Upon performing the Linear Regression on the FII Purchase and BSE Index it was found that Correlation between the two variable is 0.358 as shown in Table 3A, refereeing to significance of Regression from Table 3B that comes out to be 0.000 (< 0.05) which means that regression model can be justifiably established.

Or

NSE Index = 8150.621 + 0.055 (FII Purchase)

Hence it can be stated that the null hypothesis (H$_{03}$) is rejected and alternative hypothesis (H3) is accepted.

Hypothesis 4

H$_4$: There is considerable amount of positive relationship between FII Sale and NSE Index.

H$_{04}$: There is no relationship between FII Sale and NSE Index.

Upon performing the Linear Regression on the FII Purchase and BSE Index it was found that Correlation between the two variable is 0.227 as shown in Table 4A, refereeing to significance of Regression from Table 4B that comes out to be

Table 3A Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.358[a]	.128	.124	361.69850	.128	34.357	1	234	.000

a. Predictors: (Constant), FII Purchase

Table 3B ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4494801.740	1	4494801.740	34.357	.000[b]
	Residual	30613238.712	234	130825.806		
	Total	35108040.451	235			

a. Dependent Variable: NIFTY
b. Predictors: (Constant), FII Purchase

Table 3C Coefficients[a]

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	8150.621	52.100		156.442	.000					
	FII Purchase	.055	.009	.358	5.861	.000	.358	.358	.358	1.000	1.000

a. Dependent Variable: NIFTY

Referring to Table 3C we get Coefficients that can be put in the Regression model

Now the regression model can be established as:

Y = a + b X where Y (NSE Index) is dependent variable & X (FII Purchase) is independent variable

0.000 (< 0.05) which means that regression model can be justifiably established.

Referring to Table 4C we get Coefficients that can be put in the Regression model

Now the regression model can be established as:

Table 4A Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.227[a]	.051	.047	377.26506	.051	12.668	1	234	.000

a. Predictors: (Constant), FII Sale

Table 4B ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1803071.575	1	1803071.575	12.668	.000[b]
	Residual	33304968.876	234	142328.927		
	Total	35108040.451	235			

a. Dependent Variable: NIFTY
b. Predictors: (Constant), FII Sale

Table 4C Coefficients[a]

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	8229.389	59.694		137.860	.000					
	FII Sale	.041	.011	.227	3.559	.000	.227	.227	.227	1.000	1.000

a. Dependent Variable: NIFTY

Y = a + b X where Y (NSE Index) is dependent variable & X (FII Sale) is independent variable

Or

NSE Index = 8229.389 + 0.041 (FII Sale)

Hence it can be stated that the null hypothesis (H$_{04}$) is rejected and alternative hypothesis (H$_4$) is accepted.

Hypothesis 5

H$_5$: There is some positive relationship between FII Purchase and the Volatility of Index (INDIA VIX).

H$_{05}$: There is no relationship between FII Purchase and the Volatility of Index (INDIA VIX).

Upon performing the Linear Regression on the FII Purchase and BSE Index it was found that Correlation between the two variable is 0.284 as shown in Table 5A, refereeing to significance of Regression from Table 5B that comes out to be

0.000 (< 0.05) which means that regression model can be justifiably established.

Referring to Table 5C we get Coefficients that can be put in the Regression model

Now the regression model can be established as:

Y = a + b X where Y (Volatility) is dependent variable & X (FII Purchase) is independent variable

Or

Volatility = 16.227 + (-0.0001) (FII Purchase)

Hence it can be stated that the null hypothesis (H$_{05}$) is rejected and alternative hypothesis (H$_5$) is accepted.

Table 5A Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.284[a]	.081	.077	1.52480	.081	20.487	1	234	.000

a. Predictors: (Constant), FII Purchase

Table 5B ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	47.632	1	47.632	20.487	.000[b]
	Residual	544.053	234	2.325		
	Total	591.685	235			

a. Dependent Variable: Volatality
b. Predictors: (Constant), FII Purchase

Table 5C Coefficients[a]

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	16.227	.220		73.882	.000					
	FII Purchase	-0.0001	.000	-.284	-4.526	.000	-.284	-.284	-.284	1.000	1.000

a. Dependent Variable: Volatility

Hypothesis 6

Table 6A Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.134[a]	.018	.014	1.57571	.018	4.306	1	234	.039

Table 6B - ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	10.692	1	10.692	4.306	.039[b]
1	Residual	580.993	234	2.483		
	Total	591.685	235			

Table 6C Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	15.812	.249		63.420	.000					
	FII Sale	-0.00009	.000	-.134	-2.075	.039	-.134	-.134	-.134	1.000	1.000

H_6: There is some positive relationship between FII Sale and the Volatility of Index (INDIA VIX).

H_{06}: There is no relationship between FII Sale and the Volatility of Index (INDIA VIX).

Upon performing the Linear Regression on the FII Purchase and BSE Index it was found that Correlation between the two variable is 0.134 as shown in Table 6A, refereeing to significance of Regression from Table 6B that comes out to be 0.039 (< 0.05) which means that regression model can be justifiably established.

Referring to Table 6C we get Coefficients that can be put in the Regression model

Now the regression model can be established as:
Y = a + b X where Y (Volatility) is dependent variable & X (FII Sale) is independent variable

Or

Volatility = 15.812 + (-0.00009) (FII Sale)

Hence it can be stated that the null hypothesis (H_{06}) is rejected and alternative hypothesis (H_6) is accepted

CONCLUSION

It is clear from the above research that FII activities did have a significant impact on the Volatility of the National Stocks for the financial year 2016-17. Not only volatility but National Index i.e. BSE (Sensex) & NSE (Nifty) are also impacted by FII trading. We can clearly extablish the relationship between the FII trading as directly proportionate to the impact made on BSe and NSE index. On the other hand there is some deviation in the regression equation established for FII and Volatility if National index. On the basis of this we can also forecast that similar impact can be expected in the present as well as in future years. It will be of great help to the traded to look at the impact at the given point of time and trade wisely.

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