

A Behavioural Study on Impact of FII and DII on Indian Stock Market

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Abstract- Economies like India, which offer relatively higher growth than the developed economies, have gained favour among investors as attractive investment destination for foreign institutional investors (FIIs). The Indian stock market is highly volatile and the FII and DII's have an important role in the upward and the downward movement of the Stock market. The objective of the study is finding the impact and relationship between FII and DII on Indian stock markets namely BSE & NSE. The study based on secondary data collected from BSE & NSE. The data on monthly market prices of leading sector listed in BSE & NSE have been collected. The data used for the analysis are yearly index prices of NSE & BSE for the period of 11 calendar years i.e. 2009 to 2019. The tools used for to analyze the study are Correlation coefficient (r), R square & Multiple R. finally it is observed that DII's are influencing more on stock markets than FII's. So, government should implement some measures to attract the DII's.

Index Terms- Sensex, Nifty, FII, DII, Stock market, regression

I. INTRODUCTION

Institutional Investor is any money related master or hypothesis account that is from or enrolled in a country outside of the one wherein it is correct presently contributing. Institutional money related experts join theoretical stock ventures, protection organizations, annuity resources and shared resources (Shaik G., 2018). The creating Indian market had pulled in the remote budgetary pros, which are called Foreign Institutional Investors (FII) to Indian worth publicize. Occupation of FII has extended and changed the substance of Indian Stock Market. It has brought both abstract and quantitative change. It had furthermore extended the extensiveness and significance of market. Economies like India, which offer respectably higher improvement than the made economies, have gotten

support among examiners as charming endeavor objectives for outside institutional budgetary masters (FIIs). Money related pros are optimistic on India and thoughts are great after government's affirmation of a movement of progress quantifies of late. As demonstrated by Ernst and Young's (EYs) Global Capital Confidence Barometer (CCB) - Technology report, India positions third among the most appealing hypothesis objectives for advancement trades on the planet. India is the third greatest start up base on earth inside overabundance of 4,750 development new organizations, and around 1,400 new organizations being built up in 2016, as demonstrated by a report by NASSCOM. FII's net advantages in Indian qualities and commitment have reached record highs in the past cash related year, bolstered by wants for a money related recovery, falling advance expenses and improving pay perspective (Suma Vally K., 2018). FIIs net interests in Indian qualities and commitment stayed at US\$ 7.46 billion out of 2016-17 (upto April 14, 2017).

In spite of the way that the Foreign institutional theorists (FIIs), whose adventures are routinely called 'hot money' since they can be pulled out at whatever point, have been blamed for tremendous and conscious withdrawals for capital from the country at the hour of later cash related crisis, they have created as critical players in the Indian capital market (Ramarao K., 2018). In any case, Indian capital markets seem to lose their 'place of shelter' status among outside portfolio budgetary authorities as they appear to be set out toward about USD 2-billion haul out of the alleged 'hot money' 2016, making it the most perceptibly dreadful period in latest eight years with respect to remote endeavors and it is acknowledged that any break from such a closeout is likely just in the second half of the 2017 (Pradeep Kumar Patnaik R., 2019). The general net flood has made 2016 the most recognizably dreadful year for Indian capital markets similar to abroad wander since 2008, when FPIs had pulled out a massive Rs 41,215 crore in the wake of the overall

budgetary crisis (Ch Murthy Chodisetty R.S., 2018). "Enormous haul out of FPI adventure, particularly taking care of account holders, happened during the latest two months, particularly after the (Donald) Trump triumph and Indian government's revelation of demonetisation. Remote portfolio money related pros have recently pulled out Rs 28,919 crore from India in November with commitment flood speaking to Rs 15,194 cr. In any case, one more thing to be thought about during this period (or rather all of the events) is that when FPI was expelling the benefits from India there was a tremendous movement of advantages in India through DII sources. It directed in the net endeavor of Rs. 27,426.12 cr in India during Oct. to Dec. 2016.

The FII and DII trading article downloads irrefutable EOD data for FII and DII over the National Stock Exchange and Bombay Stock Exchange, the two key stock exchanges India. The Domestic Institutional Investors development is furthermore established on BSE and NSE on capital market Segment and it is accumulated from trades that are executed by Insurances, DFIs, MFs, Banks and New Pension System (Balaji C., 2019).

Data for FII is available from April 2006, while data for DII is open simply starting from April 2007. The trading article makes two ticker pictures: FII and DII. For each picture, the buy volume is saved in the "open" field and the sell volume is saved in the "close by" field. The buy volume for the Foreign Institutional Investors implies the proportion of money in Rs. Crores that were used by remote theorists to buy assets in Indian budgetary markets. The qualification between the buy worth or buy volume and the sell worth is known as the total assets. It is certain if the looking at money related experts' class obtained a more noteworthy number of favorable circumstances than they sold. Remote Institutional Investors and Domestic Institutional Investors chronicled data is downloaded from the National Stock Exchange website. FII's and DII's plays an important role in

II. Literature Review

V. Ravi Anshuman (2008) in the examination found that remote institutional theorists (FIIs) negatively impacts capriciousness in the Indian money related trades. Totalling trading activity of FIIs hoses publicize unusualness while absolute trading activity of

neighborhood money related expert powers exhibit precariousness. Positive staggers altogether trading development have a more imperative impact than negative dazes; this asymmetry is more grounded for all out family unit trades. FIIs doesn't construct stock eccentrics, anyway when FIIs offer to neighbourhood clients or when family unit clients trade among themselves, precariousness increases (V Ravi Anshuman, 2016).

Ajay Shah (2008) separated the tendencies of FIIs and DIIs in Indian protections trade. FII and DII both support greater, by and large dispersed firm and don't seek after returns. Nevertheless, the maker found verification of strong differentiation in lead of FII and DII. The precise composition regarding this matter is up 'til now progressing, with both country unequivocal, and multi-country concentrates adding to the verification. This paper adds to the composition by investigate confirmation from shareholding instances of FII and DII in a creating business area economy like India.

Md. Aamir Khan, et al. (2010) has portrayed the causal association among Nifty and FIIs' net endeavor for the period January 1999 to February 2009 using regular data. The maker has in like manner highlighted unidirectional relationship of Nifty over FIIs during each phase as time goes on. The paper has dismembered the data using Normality test, Unit root test, ADF test and PP test. From their examination they contemplated that Correlation between time course of action is higher in bear arrange when stood out from bull organize as in bull arrange other market individuals raise their affiliation diminishing the effect of FIIs.

Bok Baik and Joonhe Lee (2012) assessed that however the level of private institutional ownership is unequivocally related to future returns, that of remote institutional belonging has little association with returns. The negative association between the change in outside institutional ownership and future returns is particularly enunciated for stocks with progressively significant information asymmetries. The negative association is in like manner logically evident when FIIs are from countries with higher information bothers. Finally, the maker found the limit of remote institutional theorist to envision returns is particularly weak when they are non-bolster speculations.

Rajnarayan Gupta (2010) has investigated the factors that are accountable for the improvement of Sensex.

The investigator has separated the data using Empirical estimation model and unit root test. From the examination of the data the maker has contemplated that the budgetary trade's advancement depends just to a limited extent on the remote capital and its introduction is moreover guided by Country's own one of a kind economy.

Paramita and Suchismita Bose (2002) examined the relationship of outside institutional hypothesis (FII) streams to the Indian worth promote with its possible covariates subject to a period course of action of step by step data for the period between January 1999 to May 2002.

III. Objectives of the Study:

The objective of the study is find the impact FII and DII on Indian stock markets namely BSE & NSE and also to study the influence of FII & DII on BSE & NSE

IV. Need of the Study

The Indian securities exchange is exceptionally unstable and the FII and DII's have a significant job in the upward and the descending development of the Stock market. FII's and DII's will in general purchase and sell stocks in mass, will in general make real withdrawal impacts when they leave.

V. Research Methodology:

Wellspring of Data - The investigation dependent on optional information gathered from BSE and NSE. The information on month to month market costs of driving area recorded in BSE and NSE have been gathered. Furthermore, different sources are additionally utilized for to gather the information of inflows for FII and DII's. Distributed information will be accessible in Newspapers, Websites, Journals, books, Reports by the executives, researchers, scientists, merchants and so on., The purpose for picking the yearly costs is that long haul variances in the market costs of the stocks because of inward and outside elements can be catch hold off. Through it is conceivable to make much an investigation utilizing everyday costs; gathering of information for extensive stretch of time is absurd. Thus, the yearly costs are considered.

Information Collection Method - The example of the stocks to gather auxiliary information has been chosen based on Judgemental Sampling. The two noteworthy lists which are working in India are picked dependent on top market capitalization.

Technique for Sampling – Quota testing includes the selection of subjects who are most beneficially put or in the best position as per showcase capitalization are picked for breaking down the information which are examined with BSE Sensex.

Period of the Study: The information utilized for the investigation are yearly file costs of NSE and BSE for the time of 11 calendar years for example 2009 to 2019.

Tools: Return - The arrival can be determined over a solitary period or where there is more than one timespan, the arrival and pace of return over the general time frame can be determined, in view of return inside each sub period.

Hazard - Investment is a proportion of the hazard emerging from presentation to general market developments.

It very well may be determined as

$$B = \frac{n\sum xy - (\sum x)(\sum y)}{n\sum x^2 - (\sum x)^2}$$

Correlation coefficient (r): the correlation coefficient measures the nature and the extent of relationship between the stock market index and the stock return in a particular period.

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n(\sum x^2) - (\sum x)^2][n(\sum y^2) - (\sum y)^2]}}$$

R square: it gives the percentage of variation in stock return explain by variation in the market return.

Multiple R. This is the correlation coefficient. It tells you how strong the linear relationship is. For example, a value of 1 means a perfect positive relationship and a value of zero means no relationship at all.

VI. Data Analysis & Interpretation:

Table 1: Average index of BSE sensenx, FII & DII inflows

Year	BSE SENSEX	FII Inflows in crores(Rs.)	DII in crores(Rs.)
2009	17464.81	2068	2175
2010	20509.09	5126	-1602
2011	15454.92	-2126	2433
2012	19426.71	8430	-4650

2013	21170.68	7258	-6087
2014	27499.42	5618	-2379
2015	26117.54	-1697	5632
2016	26626.46	-881	2946
2017	34056.83	-3675	7561
2018	36068.33	-6101	9138
2019	37384.99	3036	4124

Table showing the GRETTL result by using Ordinary least squares

grettl: models

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model 1

Model 1: OLS, using observations 2009-2019 (T = 11)
Dependent variable: SENSEX

	coefficient	std. error	t-ratio	p-value
const	18384.6	3789.94	4.851	0.0013 ***
FII	1.77188	1.05449	1.680	0.1314
DII	2.55705	1.02291	2.500	0.0370 **

Mean dependent var 25616.34 S.D. dependent var 7600.434
Sum squared resid 2.64e+08 S.E. of regression 5746.783
R-squared 0.542635 Adjusted R-squared 0.428294
F(2, 8) 4.745752 P-value(F) 0.043757
Log-likelihood -109.0772 Akaike criterion 224.1544
Schwarz criterion 225.3480 Hannan-Quinn 223.4019
rho 0.323316 Durbin-Watson 0.951117

White's test for heteroskedasticity -
Null hypothesis: heteroskedasticity not present
Test statistic: LM = 1.23969
with p-value = P(Chi-square(5) > 1.23969) = 0.941013

Test for normality of residual -
Null hypothesis: error is normally distributed
Test statistic: Chi-square(2) = 1.45129
with p-value = 0.484011

LM test for autocorrelation up to order 1 -
Null hypothesis: no autocorrelation
Test statistic: LMF = 1.22333
with p-value = P(F(1, 7) > 1.22333) = 0.305265

From the above table, the following regression equation is formed

$$\text{BSE Sensex} = 18384 + 1.77 \cdot \text{FII} + 2.55 \cdot \text{DII} \text{-----}$$

Reg. Eq 1

From the above equation it is observed that there are two independent variables namely FII & DII those are effecting the changes in BSE sensex. It is observed from the above table that P-value for FII is 0.1314 which is greater than 0.05 indicates that it is not significant contributor for the change is BSE sensex. It is also observed that DII's P-value is 0.0370 < 0.05 indicates that it is significant contributor for the change is BSE sensex. From this it can be concluded that DII is the most significant contributor than FII towards BSE sensex.

Even it is observed, about 54.26% of variance in dependent variable i.e., BSE sensex is explain by independent variables FII & DII. Probably the insignificant effect of FII is effecting on the variance

i.e., 42.8% explained by the adjusted R square in the model. However the model is significant as the p value from the F test results as less than 0.05 i.e., 0.0437. The model retains its significance as it could meet the following important assumptions such as

- Normal distribution residuals (p value is 0.48 > 0.05, doesn't reject null hypothesis)
- Homoscedasticity in variances (p value is 0.941 > 0.05, doesn't reject null hypothesis)
- Auto correlation (p value is 0.31 > 0.05, doesn't reject null hypothesis)
- Multi collinearity (As VIF Values of FII & DII are less than 10)

grettl: collinearity

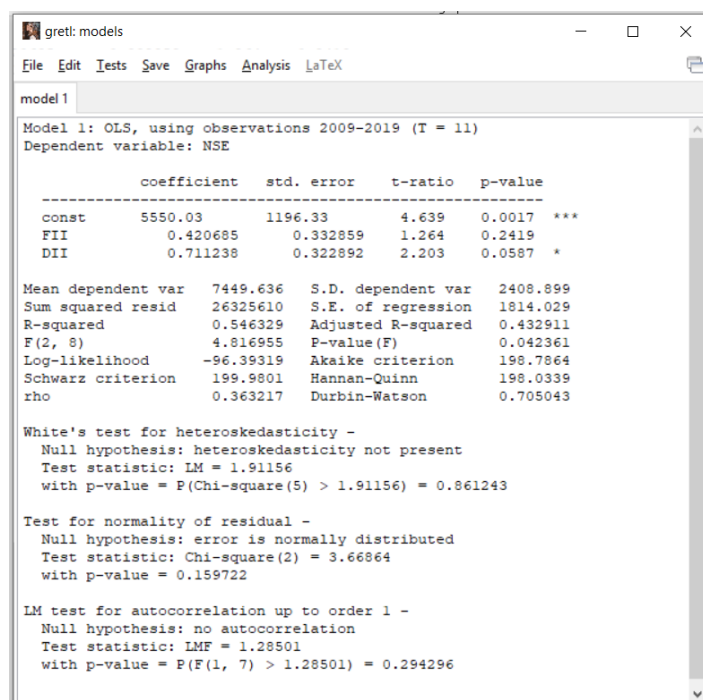
Variance Inflation Factors
Minimum possible value = 1.0
Values > 10.0 may indicate a collinearity problem

FII	7.661
DII	7.661

Table 2: Average index of NSE Nifty, FII & DII inflows

year	NSE NIFTY	FII Inflows in crores(Rs.)	DII in crores(Rs.)
2009	4183	2068	2175
2010	5462	Value is approximately between 1 &	602
2011	5312		433
2012	5410		650
2013	5908	7258	-6087
2014	7453	5618	-2379
2015	8292	-1697	5632
2016	8139	-881	2946
2017	9661	-3675	7561
2018	10826	-6101	9138
2019	11300	3036	4124

Table showing the GRETTL result by using Ordinary least squares



gretl: models

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model 1

Model 1: OLS, using observations 2009-2019 (T = 11)
Dependent variable: NSE

	coefficient	std. error	t-ratio	p-value
const	5550.03	1196.33	4.639	0.0017 ***
FII	0.420685	0.332859	1.264	0.2419
DII	0.711238	0.322892	2.203	0.0587 *

Mean dependent var 7449.636 S.D. dependent var 2408.899
Sum squared resid 26325610 S.E. of regression 1814.029
R-squared 0.546329 Adjusted R-squared 0.432911
F(2, 8) 4.816955 P-value(F) 0.042361
Log-likelihood -96.39319 Akaike criterion 198.7864
Schwarz criterion 199.9801 Hannan-Quinn 198.0339
rho 0.363217 Durbin-Watson 0.705043

White's test for heteroskedasticity -
Null hypothesis: heteroskedasticity not present
Test statistic: LM = 1.91156
with p-value = P(Chi-square(5) > 1.91156) = 0.861243

Test for normality of residual -
Null hypothesis: error is normally distributed
Test statistic: Chi-square(2) = 3.66864
with p-value = 0.159722

LM test for autocorrelation up to order 1 -
Null hypothesis: no autocorrelation
Test statistic: LMF = 1.28501
with p-value = P(F(1, 7) > 1.28501) = 0.294296

From the above table, the following regression equation is formed

$$\text{NSE Nifty} = 5550 + 0.4206 \cdot \text{FII} + 0.711 \cdot \text{DII} \text{-----}$$

-Reg. Eq 1

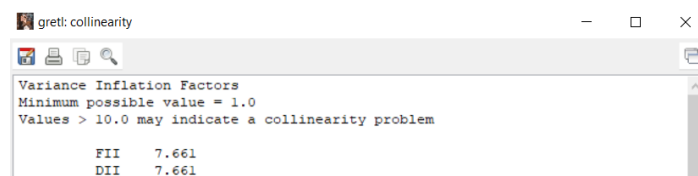
From the above equation it is observed that there are two independent variables namely FII & DII those are effecting the changes in NSE Nifty. It is observed from the above table that P-value for FII is 0.2419 which is greater than 0.05 indicates that it is not significant contributor for the change is NSE Nifty. It is also observed that DII's P-value is 0.0587 < 0.05 indicates that it is significant contributor for the change is NSE Nifty. From this it can be concluded that DII is the most significant contributor than FII towards NSE Nifty.

Even it is observed, about 54.63% of variance in dependent variable i.e., NSE Nifty is explain by independent variables FII & DII. Probably the insignificant effect of FII is effecting on the variance i.e., 43.2% explained by the adjusted R square in the model. However the model is significant as the p value from the F test results as less than 0.05 i.e., 0.04236.

The model retains its significance as it could meet the following important assumptions such as

- Normal distribution residuals (p value is 0.4236 > 0.05, doesn't reject null hypothesis)
- Homoscedasticity in variances (p value is 0.86 > 0.05, doesn't reject null hypothesis)

- Auto correlation (p value is 0.29 > 0.05, doesn't reject null hypothesis)
- Multi collinearity (As VIF Values of FII & DII are less than 10)



gretl: collinearity

Variance Inflation Factors
Minimum possible value = 1.0
Values > 10.0 may indicate a collinearity problem

FII	7.661
DII	7.661

Findings:

- It is observed that Foreign institutional investors are less influencing the BSE so government should have to take some measures to attract Domestic institutional investors
- It is observed that Foreign institutional investors are less influencing the NSE
- It is observed that Domestic institutional investors are less influencing the BSE. So it is observed that government should take some measure to attract the DII's.
- It is observed that Domestic institutional investors are less influencing the NSE

Conclusion:

Stock markets are the indicators of any country's economic growth. Which indicates pulse of the country. Government should take some measures like revising the tax policy, decreasing the charges on trading and attracting the people to invest in stock markets so that market will grow and as result country will economy will be competitive.

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