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FIIS Inflow (Equity and Debt) and its Impact on Indian Stock Market: Evidence from Sensex and Nifty50

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ABSTRACT

FIIs refers an institution or an investor or investment fund established outside India which proposes to make investment in financial securities in India under the policy set by SEBI. FIIs were allowed to invest in Indian stock market after September, 1992. Although, there is a regular argument regarding the cause and effect relationship between FIIs inflow and its impact on emerging economies like India yet, it has been advised to strengthen their stock markets by facilitating the FIIs inflows. Therefore, the current study has been undertaken to understand the relationship FIIs inflow and its impact on two premier indices (Sensex and Nifty50) returns and traded volume. In order to realise the stated objectives the researchers have collected the data from capital line data base and tested for stationarity. Later a robust regression model has been run to investigate the relationship between FIIs inflow and its impact on Index return and traded volume. The study revealed that FII equity and debt inflow are statistically not significant with Sensex return. In case of traded volume, FII equity inflow is statistically significant and debt inflow is not statistically significant. However, FII equity inflow is statistically significant and debt inflow is statistically not significant with Nifty 50 returns. In case of traded volume, FII equity inflows is statistically significant and debt inflow is not statistically significant. We found a bi-directional relationship between traded volume and FII's Equity and debt inflow with Nifty 50. In the last phase the results have been compared with the possible evidence.

Keywords: Foreign Institutional Investors, SEBI, Granger's Causality, ADF test, Nifty 50, Traded Volume.

INTRODUCTION:

FII (Foreign Institutional Investor) means an institution or an investor or investment fund established outside India which proposes to make investment in financial securities in India. They are registered as FIIs as per Section 2 (f) of the SEBI (FII) Regulations 1995. FII's includes pension funds, mutual funds, hedge funds, foreign portfolio investors, investment trusts, endowments, large corporate buyers, investment banks etc. generally they are large investors. They are allowed to take part both in primary and secondary market only through the country's portfolio investment scheme (PIS). On the other hand SEBI has put a cap on investment ceiling on FIIs. According to this clause the maximum investment ceiling can only be 24 percent of the paid-up capital of the Indian company receiving that investment. The RBI monitors the compliance with these ceilings fixed by the SEBI for all FIIs. Further, there is another way to in which a nation can attract foreign capital investment. This is by the way of FDI (Foreign Direct Investment). However, FDI is different from FII, according to IMF and OECD, the acquisition of at least ten percent of the shares or voting power in a public or private enterprise by non-resident investors is nothing but FDI. Further, FDI is a medium to long-term investment made by a cross-border investor or group which is a major source of financing for an Indian firm.

Indian equity market is witnessing a high growth in recent years. This growth pace has been backing by market

reforms and inflow of FIIs and FDI. The FIIs play a considerable role on the Indian economy. FIIs were not allowed to invest in India until 1991 for various reasons. Later, India opened up its economy by demolishing restriction over capital control with a vision to attract foreign direct investment and foreign institutional investments, supplementing it with domestic capital for overall domestic growth and output. FIIs were first allowed to make portfolio investment in India on September 14, 1992, with lots of restrictions. However, today we have over 1,450 FIIs registered with the SEBI and they are expected to pay USD 5,000 as the registration fee. This registration is valid for five years only after expiry of 5 years, the registration needs to be renewed. They act as a catalyst which boosts the overall growth of the Indian stock market. FIIs have been playing crucial role in Indian equity market, the major advantages associate with the FIIs inflows are: (i) increases domestic investments; (ii) overall development of Indian equity market and improve the corporate governance; (iii) for government perspective it increases forex reserves and (iv) the presence of FIIs can improve the liquidity in the market. However, FII's are not free from criticism, the major arguments against them are: (i) enormous amounts of FIIs inflow creates more demand for rupee, forces the central bank to supply the necessary rupee, leads to inflationary trends; (i) the biggest concern of FII's inflow is that, they have the ability to increase and depress the stock market. This act of FIIs can depress the profit of small retail investors; (iii) FIIs inflow leads to appreciation in currency and this may lead to the exports industry becoming uncompetitive and (iv) Participatory Notes (P-Notes) or PNs are derivative instruments issued by registered FIIs to overseas investors, who wish to invest in the Indian stock markets without registering themselves with the market regulator, the SEBI. This deal has raised worries in regulatory agencies in Indian stock market since it makes it difficult to trace the eventual beneficiary in the funds and may be used to bring in "unclean" funds into the stock markets.

Table No. 1.1: Table Showing FPI/FII Net Investments (2002-2017)

			In INR Crore
Year	**Equity**	**Debt**	**Total**
2002	3629.6	48.3	3677.9
2003	30458.8	4694.5	35153.4
2004	38965.1	3083.5	42048.4
2005	47181.1	-5517.6	41663.4
2006	36539.7	4049.2	40588.8
2007	71486.5	9428	80914.8
2008	-52987	11771.6	-41215.5
2009	83423.9	4563.2	87987.2
2010	133266	46408.1	179673.9
2011	-2714.3	42067	39352.9
2012	128359.8	34988	163347.9
2013	113136	-50849	62286
2014	97054	159156	256213
2015	17808	45857	63663
2016	20568	-43647	-23079
2017	58525	112025	170550
2018	-33014	-47795	-80919
2019 till June 25	78602	10390	97520

Source: NSDL/FPI Monitor
(https://www.fpi.nsdl.co.in/web/Reports/Yearwise.aspx?RptType=6)
(**Note:** Total includes hybrid investments)

FIIs were allowed to invest in Indian stock market after 1991, as it is a vital source for financing nation's overall development, and it has made integration with global stock markets. FIIs made the Indian stock market more competitive and efficient. Although, there is a regular argument regarding the cause and effect relationship between FIIs inflow and its impact on emerging economies like India yet, it has been advised to strengthen their stock markets by facilitating the FIIs inflows. As a result, the Indian Stock Markets have reached new heights and became more volatile. Since FIIs have appeared as a major players in Indian stock market and their

investment pattern in Indian stock market emerged as a major contributor for the overall development of Indian stock market, therefore the current study tried to investigate the FIIs inflow and its impact on the two Indian benchmark indices (Sensex and Nifty 50). The current study comprises of five sections including the current one. Section two outlines the review of previous studies undertaken on FIIs inflow and its impact on the various stock markets across the globe. While section three presents the objectives of the current research and the methodology employed to realise the stated objectives. Section four discusses the analysis of the collected secondary information and in the epilogue, a brief discussions, conclusion have been made and the findings of the current study have been compared with the possible evidence.

LITERATURE REVIEW:

There are many factors (both macro and micro economic factors) which affect the volatility of stock market such as earnings announcement, dividends, stock split, bonus, inflation, policy announcement, exchange rate fluctuations, growth rate, general elections etc. However the impact of these variables on stock market has been tested in the literature extensively. Over the last few years, empirical studies have brought to light a few important features of FII flows to India and tried to link the stock market performance with FIIs equity and debt inflow.

Extensive empirical studies have been found in the literature on the proposed topic of FIIs for example, Samal, Kishor C., (1997); Pal, Parthapratim (1998); Kumar (2001); Mukherjee et al. (2002); Stanley Morgan (2002); Kumar Saji (2006); Chakraborty Tanupa (2007); Anthony and Richards, (2002); Ravi Akula, (2011); Mazumdar, T. (2004); Prasanna, P.K (2008); Rai Kulwant and Bhanumurthy N R (2003); Ahmad, et al. (2005); (Dornbusch and Park, (1995); (Radelet and Sachs, (1998); Berko and Clark, (1997). Most of the existing studies available in literature on FIIs for example Bohn and Tesar (1996) in case of Mexican stock market; Choe et al. (1998) in case of Korean stock market, Dahlquist et al., (2003) in case of Swedish stock market, Morin, (2000) in case of French stock market, Bonser-Neal et al., (2002) in case of Indonesian stock market, Agarwal (1997); Chakrabarti (2001); Nair and Trivedi (2003); Douma, Kabir and Rejie (2006); Jatinder Loomba (2012) in Indian context found a significant and positive relationship with equity returns.

Majority of the empirical studies relating to this topic found high degree of volatility in Indian stock market due to the arrival of FIIs for example, (Dornbusch and Park, 1995), Rene and Stultz, (1997); (Radelet and Sachs, (1998); Batra (2003); Rai and Bhunumurthy (2004); Biswas, Joydeep (2005); Pal, Parthapratim (2005); Porwal and Gupta (2006); Upadhyay, Saroj (2006). However, yet another stream of researchers for example Kim and Singal (1993); Choe et. al., (1998); Banerjee and Sarkar (2006); Mohan, T.T.Ram (2006); S.K Rastogi, Nazaquat Husain (2015) contradicted this view and they did not find any such evidence.

In an empirical research by Prasanna (2008) tried to explore the major drivers of investment decision by FIIs. The major determinants of this research were financial performance, stock performance and ownership structure. He concluded FIIs preferred to invest widely held companies rather than closely held companies for investment purpose. Apart from this, the study revealed that the major drivers of investment decisions of FIIs were share prices and EPS. On the other hand, in an empirical investigation by Jeong-Bon and Li (2004) found that FIIs avoid shares with high cross corporate holdings.

In as empirical study by Chakrabarti (2001) found a significant difference between FIIs inflow of funds between pre-crisis and post-crisis period. In an empirical investigation Aggarwal, Klapper and Wysocki, (2005) found that FIIs preferred the companies with better corporate governance. However, in a study by Choe, Kho and Stulz, (1998) found no evidence of a destabilizing effect of the trades by FIIs on Korean stock market. In an investigation by Gompers et al. (2001) found that FIIs preferred to invest in liquid and large stocks having low returns. On the other hand in a study by Lin, A. and Chen, C.Y. (2006) documented that the performance of FIIs high holding stocks are significantly outperformed the FIIs low holding stocks. In another study by K. Lakshmi (2010), tried to explore the major determinants of FIIs inflow. For the study the researcher has taken size, systematic risk, return on equity, shareholding pattern, dividend yield and export sales. She documented that FIIs prefer large firms (Size) and firms with less promoters' shareholding.

Ekeocha (2008) tried to investigate the long term drivers of the FIIs investment in Nigerian economy. The study covered a period of twenty years. He concluded that foreign investment was negatively associated with market capitalisation and exchange rate.

Fitz Gerald (1999) in his empirical study documented that the sudden, the huge and immediate reversals of FIIs make them extremely volatile in nature. Similar observations were documented by Bae et.al. (2002); Calvo, et al., (1999); Sandhya et al. (2005); Bashir Ahmad Joo and Zahoor Ahmad Mir (2014). On the other hand, Errunza (2001) found evidence against this findings. In his study he found that FIIs inflows do not have significant impact on the volatility of stock returns. Similar findings were reported by Bekaert and Harvey (1998); Jo (2002); Jasneek

Arora and Santhosh Kumar (2015)
In a study by Fayyaz and Draz (2015) found that population growth, FDI, exchange rate, GDP and external debts were the significant drivers of FIIs inflow in Chinese economy. Similar findings were documented by Garg & Dua (2014) in Indian context.
In an empirical study by Nishi Sharma (2014), tried to explore the relationship between index returns with FIIs net flows by analysing monthly data for twenty years' time period. Study confirm that there exists a unidirectional relationship between FIIs inflow and return. Similar findings were documented by Gordon and Gupta, (2003).
In an empirical study by Kumar (2001) concluded that FIIs investment decisions were mainly driven by company fundamentals rather than technical factors. For this purpose the researcher has used net FIIs equity inflow from 1993 to 1997. However, in an empirical study by Mazumdar (2004) tried to investigate the impact of FIIs inflow on the liquidity and volatility on Indian stock market found a positive relation between the inflow and liquidity. However in an empirical study Mishra et al. (2009) found a significant positive correlation between FIIs inflow with stock returns in Indian stock market.
Kumar (2001) in his empirical study found that FIIs inflows do not respond to short-term technical position of the market and they are more driven by firm specific fundamental factors.
In an empirical study by Gaurav Dadhich et al. (2015), tried to explore the impact of FIIs inflow on the volatility of the stock market for a period from 2004-2014 by using GARCH and ARCH models, found the persistence of volatility and confirmed the leverage effect in Indian stock market. In an empirical study by Rajeev V. Shukla et al. (2011) found that FIIs inflows and the performance of Midcap and Small cap Indices are robust and significant. The aim of the current empirical study is to exlore the impact of FIIs equity and debt inflows and its impact Index returns and traded volume (Sensex and Nifty 50).
The review of the literature on the proposed title, thus throws light on facts relating to the gap in the study of the chosen subject. (i) Majority of the studies on the proposed topic have tried to explore major determinants of FIIs inflow and its impact on volatility on stock market; (ii) the Indian financial market has experienced colossal growth in terms of both primary and secondary market issues. The liberalization, privatisation and globalisation policy initiated in India in the early 1990s brought about profound changes in the Indian stock market and FIIs made the Indian stock market more competitive and efficient. Therefore the current study has been taken up to explore the relationship between FIIs inflow and its impact on traded volume, Index returns.

RESEARCH DESIGN:

This section explains the methodology we used to investigate the relationship between the FIIs debt and equity inflow and its impact on Indian stock market.

OBJECTIVES OF THE STUDY:

1. To investigate the relationship between FII equity and debt inflow into Indian stock market (Sensex and Nifty50) and its impact on the returns on the chosen indices.
2. To explore the relationship between FII equity and debt inflow into Indian stock market (Sensex and Nifty50) and its impact on the traded volume.
3. To investigate the direction of relationship between the FIIs inflows and the chosen indices (Sensex and Nifty50).
4. To offer suggestions based on this research work.

HYPOTHESIS OF STUDY:

On performing detailed analysis of the collected data, patterns from the data is further put for validation through testing of hypothesis, wherever the researcher deemed important and based on the conditions set for such test. The following are the list of hypothesis which has been tested in the current empirical study

For existence of Unit root test;
H1: There is a unit root in the time series distribution

For normality assumption;
H2: Data is normally distributed

For regression analysis between FIIs inflow and its impact on index returns and traded volume;
H3: There is no significant relationship between FII inflows (equity and debt) and indices returns (Sensex and Nifty50)
H4: There is no significant relationship between FII inflows (equity and debt) and traded volume (Sensex and Nifty50)

Test of Casualty:
To investigate the direction of relationship between the FIIs inflow (both debt and equity) and Index returns, traded volume Granger casualty test has been applied.
H5: FIIs Equity inflow does not Granger Cause Index Returns
H6: Index Returns does not Granger Cause FIIs Equity Inflow
H7: FIIs Debt Inflow does not Granger Cause Index Returns
H8: Index Returns does not Granger Cause FIIs Debt Inflow
H9: FIIs Equity inflow does not Granger Cause Traded Volume
H10: Traded Volume does not Granger Cause FIIs Equity inflow
H11: FIIs Debt Inflow does not Granger Cause Traded Volume
H12: Traded Volume does not Granger Cause FIIs Debt Inflow

DATA FOR THE PURPOSE OF THE STUDY:

The current study is analytical, quantitative and historical. The research is based on the secondary data of collected from capital line data base, NSDL and RBI website from the year 2006-2019, To capture the minor and major issues, daily data has been considered for the purpose of the study.

SPECIFICATION OF THE MODEL:

The following multiple regression model has been used to test the theoretical relation between FIIs inflow (Equity and debt) and its impact on Index returns and traded volume.
$Y \text{ (Index returns)} = a + b_1 X_1 \text{ (Equity Inflow)} + b_2 X_2 \text{ (Debt inflow)} + \epsilon$
$Y \text{ (Traded Volume)} = a + b_1 X_1 \text{ (Equity Inflow)} + b_2 X_2 \text{ (Debt inflow)} + \epsilon$
Where,
Y = (dependent variable)
X is the vector of explanatory variables in the estimation model
a = constant intercept term of the model
b = coefficients of the estimated model
ϵ *= error component*

PLAN OF ANALYSIS:

In the first phase, the required data has been collected from the various data bases, later the collected data has been investigate for the existence of unit root by employing ADF statistics. In the second phase a descriptive statistics have been run to determine the normality of the time series distribution. In the third phase a robust multiple regression model has been run by using software for the both index returns and traded volume on the chosen two variables. These determinants have been tested at 5% level of significance. In the last phase, to investigate the direction of relationship between the variables Granger casualty test has been applied and finally the results have been compared with the possible evidence.

DATA ANALYSIS:

Table No. 4.1: Table Showing Unit Root Results of BSE Sensex

INTERCEPT						
	t-Statistic	-61.72859	**Prob.***	0.0001		
C values	**1% level**	-3.431693	**5% level**	-2.862019	**10% level**	-2.567068
	t-Statistic	-23.75161	**Prob.***	0.0000		
C values	**1% level**	-3.431701	**5% level**	-2.86202	**10% level**	-2.567070
	t-Statistic	-26.48348	**Prob.***	0.0000		
C values	**1% level**	-3.431705	**5% level**	-2.862024	**10% level**	-2.567071

TREND AND INTERCEPT						
	t-Statistic	-61.74162	**Prob.***	0.0000		
C values	**1% level**	-3.960182	**5% level**	-3.410854	**10% level**	-3.127227
	t-Statistic	-23.74881	**Prob.***	0.0000		
C values	**1% level**	-3.960193	**5% level**	-3.410860	**10% level**	-3.127230
	t-Statistic	-26.48033	**Prob.***	0.0000		
C values	**1% level**	-3.960198	**5% level**	-3.410862	**10% level**	-3.127232
NONE						
	t-Statistic	-61.51837	**Prob.***	0.0001		
C values	**1% level**	-2.565502	**5% level**	-1.940898	**10% level**	-1.616650
	t-Statistic	-23.75441	**Prob.***	0.0000		
C values	**1% level**	-2.565505	**5% level**	-1.940898	**10% level**	-1.616650
	t-Statistic	-26.48662	**Prob.***	0.0000		
C values	**1% level**	-2.565506	**5% level**	-1.940899	**10% level**	-1.616650

Table No. 4.2: Table Showing Unit Root Results of Nifty 50

INTERCEPT						
	t-Statistic	-46.77868	**Prob.***	0.0001		
C values	**1% level**	-3.431691	**5% level**	-2.862018	**10% level**	-2.567067
	t-Statistic	-29.61971	**Prob.***	0.0000		
C values	**1% level**	-3.431696	**5% level**	-2.862020	**10% level**	-2.567069
	t-Statistic	-26.14014	**Prob.***	0.0000		
C values	**1% level**	-3.431702	**5% level**	-2.862022	**10% level**	-2.567070
TREND AND INTERCEPT						
	t-Statistic	-46.77591	**Prob.***	0.0000		
C values	**1% level**	-3.960178	**5% level**	-3.410853	**10% level**	-3.127226
	t-Statistic	-26.13724	**Prob.***	0.0000		
C values	**1% level**	-3.960194	**5% level**	-3.410860	**10% level**	-3.127231
	t-Statistic	-26.13724	**Prob.***	0.0000		
C values	**1% level**	-3.960194	**5% level**	-3.410860	**10% level**	-3.127231
NONE						
	t-Statistic	-46.73648	**Prob.***	0.0001		
C values	**1% level**	-2.565501	**5% level**	-1.940898	**10% level**	-1.616650
	t-Statistic	-29.62315	**Prob.***	0.0000		
C values	**1% level**	-2.565503	**5% level**	-1.940898	**10% level**	-1.616650
	t-Statistic	-26.14321	**Prob.***	0.0000		
C values	**1% level**	-2.565505	**5% level**	-1.940898	**10% level**	-1.616650

In order to investigate the stationarity of the time series data of Sensex and Nifty 50 returns ADF test has been conducted. It is evident from Table number 4.1and 4.2 that ADF test statistics for Intercept, Trend and intercept at level, 1st difference and second difference is stationary. This shows that there was no unit root in the distribution.

Table 4.3: Table Showing Descriptive Statistics

	Sensex	**Nifty 50**
Mean	0.000705	0.000491
Standard Error	0.000196	0.000267
S Deviation	0.011048	0.015032
Sample Variance	0.000122	0.000226
Kurtosis	0.481694	0.61749
Skewness	-0.09987	-0.2544
Count	3173	3173

It is evident from the above table No 4.3 that the mean returns for Sensex for the study period was 0.000705, with a standard deviation of 0.011048. However, the variance for the study period was 0.000122 with a Kurtosis value of 0.481694and Skewness of -0.09987. For the same study period that the mean returns for Nifty 50 was 0.000491, with a standard deviation of 0.015032. However, the variance for the study period was 0.000226 with a Kurtosis value of 0.61749 and Skewness of -0.2544. This indicates that the time series data is normally distributed.

Table No. 4.4: Table Showing inter Correlation Matrix Returns and Traded Volume with FII Inflows

	Sensex			Nifty	
	Returns	**Volume**		**Returns**	**Volume**
Equity	0.03026	0.040973	Equity	0.035654	-0.01687
Debt	0.008595	0.019374	Debt	-0.00685	-0.01653

In order to assess the relationship between the independent variables and dependent variable an inter correlation matrix has been constructed. It is evident from the above table that the correlation between the FII Equity inflow and Sensex return was 0.03026, between FII debt inflow and Sensex return is 0.008595. The correlation between the FII Equity Inflow and Sensex traded volume was 0.040973, between FII debt Inflow and Sensex traded volume was 0.019374.

However, the correlation between the FII Equity Inflow and Nifty 50 returns were 0.035654, between FII debt inflow and Nifty 50 returns there was -0.00685. The correlation between the FII Equity inflow and Nifty 50 traded volume was -0.01687, between FII debt inflow and Nifty 50 traded volume was -0.01653.

Table No. 4.5: Table Showing Regression (Sensex Returns with FII Inflows and Traded Volume)

	Returns	**Traded Volume**
Multiple R	0.031342	0.045079
R Square	0.000982	0.002032
Adjusted R Square	0.000349	0.001399
Standard Error	0.011068	0.0170468
Observations	3157	3157
Durbin Watson stats	1.9187	2.0145
F stats	1.550683	3.211126
Significance F	0.212265	0.040443

Analysis:

R square represents percentile change of the response variable which is shown by the intercept and the predictor variable. Above obtained outcome shows (0.000982) i.e. 0.098% of the variation in Index return was captured by independent variables (FII equity and debt inflow) with Standard Error of 0.011068. However, for traded volume above obtained outcome shows (0.002032) i.e. 0.2032% of the variation in Index return was captured by independent variables (FII equity and debt inflow) with Standard Error of 0.0170468. In case of Sensex returns as the p value is greater than the set level 5% that is 0.212265 with an F value of 1.550683 the independent variables (FII equity and debt inflow) together do not impact on the dependent variable (Sensex returns) and Durbin Watson score is 1.9187 which is tolerable meaning that there is no autocorrelation in the time series data (James Durbin and Geoffrey Watson). However, for Sensex traded volume as the p value is less than the set level 5% that is 0.040443 with an F value of 3.211126 the independent variables (FII equity and debt inflow) together have an impact on the dependent variable that is traded volume.

Table No. 4.6: Regression Results for Sensex Returns and FIIs Inflow

	Coefficient	**Standard Error**	**t Stat**	**P. value**
Intercept	-0.00016	0.000543	-0.2896	0.772142
Equity	0.000744	0.000439	1.693553	0.090449
Debt	2.06E-06	4.5E-06	0.458899	0.646338

Test of Hypothesis:

Result shows that independent variables (FII equity and debt inflow) share positive coefficient with the dependent variables meaning that they share a direct relationship with the dependent variable (Index returns).

FII equity and debt inflow are statistically not significant at 0.05 level with a p value of 0.090449 and 0.646338

respectively. Therefore the accepted hypothesis was:
There is no significant relationship between independent variable (FII equity and debt inflow) and dependent variable (Sensex returns).

Table No. 4.7: Regression Results for Sensex Traded Volume and FIIs Inflow

	Coefficient	Standard Error	t Stat	P. value
Intercept	16717.84	836.7214	19.98017	1.01E-83
Equity	1547.603	676.3348	2.28822	0.022191
Debt	7.317	6.924849	1.056629	0.290762

Test of Hypothesis:
FII equity inflow is statistically significant at 0.05 level with a p value of 0.022191 and for independent variable FII debt inflow was not statistically significant at 0.05 level with a p value of 0.290762. Therefore the accepted hypothesis was:
There is a significant relationship between independent variable (FII equity inflow) and dependent variable (Sensex traded volume).
There is no significant relationship between independent variable (FII Debt inflow) and dependent variable (Sensex traded volume).

Table No. 4.8: Table Showing Regression Nifty50 Returns with FII Inflows and Traded Volume

	Nifty 50 returns	Traded Volume
Multiple R	0.036404	0.023461
R Square	0.001325	0.00055
Adjusted R Square	0.000695	-8E-05
Standard Error	0.015027	0.075897
Observations	3173	3173
Durbin Watson stats	1.9901	1.8615
F stats	4.348357	4.746242
Significance F	0.013005	0.008983

Analysis:
R square represents percentile change of the response variable which is shown by the intercept and the predictor variable. Above obtained outcome shows (0.001325) i.e. 0.13250% of the variation in Index return was captured by independent variables (FII equity and debt inflow) with Standard Error of 0.015027. For traded volume the findings show (0.00055) i.e. 0.0550% of the variation in Index return was captured by independent variables (FII equity and debt inflow) with Standard Error of 0.075897.
As the p value is less than the set level 5% that is 0.013005 with an F value of 4.348357 the independent variables (FII equity and debt inflow) which means that there is a significant influence of independent variables on the dependent variable (Nifty 50 returns) and Durbin Watson score is 1.9901 which is tolerable meaning that there is no autocorrelation in the time series data. However, in case of traded volume, the p value is less than the set level 5% that is 0.008983 with an F value of 4.746242 the independent variables (FII equity and debt inflow) which means that there is a significant influence of independent variables on the dependent variable (Nifty 50 traded volume).

Table No. 4.9: Regression Results for Nifty50 Returns and FIIs Inflow

	Coefficients	Standard Error	t Stat	P. value
Intercept	-0.00148	0.00073	-2.02828	0.042615
Equity	0.001731	0.000589	2.937496	0.003333
Debts	-1.8E-06	6.06E-06	-0.3013	0.763207

Test of Hypothesis:
Result shows that independent variables (FII equity) share positive coefficient with the dependent variables meaning that they share a direct relationship with the dependent variable (Index return) and (debt inflow) share negative coefficient with the dependent variables meaning that they share an inverse relationship with the dependent variable (Index return).
FII equity inflow are statistically significant at 0.05 level with a p value of 0.003333 and FII debt inflow is not

statistically significant with a p value of 0.763207. Therefore the accepted hypothesis was:
There is a significant relationship between independent variable FII equity and dependent variable (Nifty 50 returns).
There is no significant relationship between independent variable FII debt inflow and dependent variable (Nifty 50 returns).

Table No. 4.10: Regression Results for Nifty50 Traded Volume and FIIs Inflow

	Coefficients	Standard Error	t Stat	P. value
Intercept	33769695	5436939	6.21116	9.32E-10
Equity	15521864	5038046	3.080929	0.00215
Debts	-84196.8	346008.4	-0.24334	0.80782

Test of Hypothesis:
Result shows that independent variables FII equity and share positive coefficient with the dependent variables meaning that they share a direct relationship with the dependent variable (Index volume) and debt inflow share negative coefficient with the dependent variables meaning that they share a inverse relationship with the dependent variable (Index volume)
FII equity inflow is statistically significant at 0.05 level with a p value of 0.00215 and FII debt inflow is not statistically significant at 0.05 level with a p value of 0.80782.Therefore the accepted hypothesis was:
There is a significant relationship between independent variable (FII equity) and dependent variable (Nifty 50 traded volume).
There is no significant relationship between independent variable (Debt inflow) and dependent variable (Nifty 50 traded volume).

Table No. 4.11: Granger Causality Test

	lags	Obs	F-Statistic	Prob.	
EQUITY does not Granger Cause RETURNS	2	3155	0.45160	0.6367	→
RETURNS does not Granger Cause EQUITY			102.199	1.E-43	
DEBT does not Granger Cause RETURNS		3152	0.94166	0.4527	→
RETURNS does not Granger Cause DEBT	5		2.59106	0.0240	
EQUITY does not Granger Cause VOLUME	4	3153	1.79997	0.1260	→
VOLUME does not Granger Cause EQUITY			7.65339	4.E-06	
DEBT does not Granger Cause VOLUME	2	3155	0.03363	0.9669	→
VOLUME does not Granger Cause DEBT			4.83571	0.0080	
NIFTY 50					
	lags	**Obs**	**F-Statistic**	**Prob.**	
EQUITY does not Granger Cause RETURNS	2	3171	1.76467	0.1714	→
RETURNS does not Granger Cause EQUITY			180.969	4.E-75	
DEBT does not Granger Cause RETURNS	2	3171	1.14549	0.3182	→
RETURNS does not Granger Cause DEBT			4.17371	0.0155	
EQUITY does not Granger Cause VOLUME	2	3171	6.07754	0.0023	↔
VOLUME does not Granger Cause EQUITY			7.96379	0.0004	
DEBT does not Granger Cause VOLUME	2	3171	0.33409	0.7160	
VOLUME does not Granger Cause DEBT			0.12503	0.8825	

Later, in the last phase, the Granger causality test has been conducted to investigate the usefulness of the independent variables to predict or forecast the chosen indices (Sensex and Nifty 50) is a statistical hypothesis test for determining whether one time series is useful in forecasting another, C. W. J. Granger (1969). The results were shown in the above Table No. 4.11 we can infer that the p value between FII equity inflows with Sensex returns were not significant (we cannot reject the Null). However, Sensex returns cause FII equity inflow at less than one percent level. The p value between FII debt inflows with Sensex returns were not significant (we cannot reject the Null). However, Sensex returns cause FII debt inflow is significant at five percent level. This indicates that there exists a unidirectional relationship between returns and FII equity and debt inflow. In case of traded volume: the p value between FII equity inflows with Sensex traded volume were not significant (we cannot reject the Null). However, Sensex traded volume cause FII equity inflow at less than one percent level. The p value

between FII debt inflows with Sensex traded volume were not significant (we cannot reject the Null). However, Sensex traded volume causes FII debt inflow is significant at one percent level. This indicates that there exists a unidirectional relationship between traded volume and FII equity and debt inflow. In case of Nifty 50, we can infer that the p value between FII equity inflows with Nifty 50 returns were not statistically significant at conventional level (we cannot reject the Null). However, Nifty 50 returns cause FII equity inflow at less than one percent level. The p value between FII debt inflows with Nifty 50 returns were not significant (we cannot reject the Null). However, Nifty 50 returns cause FII debt inflow is significant at five percent level. This indicates that there exists a unidirectional relationship between Nifty 50 returns and FII equity and debt inflow. In case of traded volume: the p value between FII equity inflows with Nifty 50 traded volume was statistically significant at five percent level (we cannot reject the Null). However, Nifty 50 traded volume cause FII equity inflow at less than one percent level. This indicates that there exists a bi-directional relationship between traded volume and FII's Equity. The p value between FII debt inflows with Nifty 50 traded volume were not significant (we cannot reject the Null). However, Nifty 50 traded volume cause FII debt inflow was also not statistically significant at conventional level of five percent. This indicates that there is no cause and effect relationship between the FII's debt inflow with traded volume.

DISCUSSION AND CONCLUSION:

The current empirical study has been undertaken to investigate the relationship between FII's inflow (both equity and debt) and its impact on two Indian benchmark indices namely Sensex and Nifty 50. In order to realise the stated objectives the researchers have collected the data from capital line data base from 1.4.2004 to 31.03.2017. The collected data has been tested for the stationarity by running ADF stats. In the second phase descriptive statistics have been run and we found an historical mean returns for Sensex 0.000705 for the study period with a standard deviation of 0.011048. However, Nifty 50's mean returns for the study period was 0.000491, with a standard deviation of 0.015032. The independent variables (FII equity and debt inflow) share positive coefficient meaning that they share a direct relationship with the dependent variable (Sensex return). In case of independent variables FII equity and debt inflow were statistically not significant with Sensex return. Regression result shows that independent variables (FII equity and debt inflow) share positive coefficient with the dependent variables meaning that they share a direct relationship with the dependent variable (Sensex traded volume). FII equity inflow is statistically significant at conventional level with Sensex traded volume. However, the independent variable, FII debt inflow was not statistically significant at 0.05 level with traded volume.

Result shows that independent variables (FII equity) share positive coefficient with the dependent variables Nifty 50 returns (shares direct relation) and debt inflow share negative coefficient with the dependent variables Nifty 50 returns (shares inverse relation). However, in case of independent variables FII equity is statistically significant (seems to agree with the findings of Aggarwal, 1997; Trivedi & Nair, 2003' Singh (2012)) and debt inflow are statistically not significant. Regression results show that independent variables FII equity inflows was statistically significant at conventional level, however, debt inflow was not statistically significant with Nifty 50's traded volume. Later, in the last phase, the Granger causality test has been conducted to investigate the usefulness of the independent variables to predict or forecast the chosen indices (Sensex and Nifty 50). The results indicate that there exists a unidirectional relationship between returns and FII equity and debt inflow (this is in contradiction to the findings of Panda (2005); Mukherjee et al. (2002)) and a unidirectional relationship between traded volume and FII equity and debt inflow. However, in case of Nifty 50, there exists a unidirectional relationship between Nifty 50 returns and FII equity and debt inflow. Surprisingly, the findings of the study pointed that there exists a bi-directional relationship between traded volume and FII's Equity (this observation supports the findings of Gordon and Gupta, (2003); Ahmad et al (2005)). Further, we did not find any such relationship between the FII's debt inflow with traded volume.

Therefore, from the current study we can conclude that only FII's equity route have a significant impact on traded volume and stock returns, on the other hand the debt instruments (inflow) have no impact on traded volume and index returns. Therefore, participants and the policy makers must take this findings seriously while taking important decisions.

For, Sensex, we did not find any significant relationship between the FIIs equity inflow and debt inflow with returns. However, we found a significant relationship between Nifty 50 returns and FII's equity inflow this indicates that FII's believe Nifty 50 has the most stable index in India stock market while investing their funds. Further we did not find any evidence in favour of debt inflow with respect to Nifty 50 returns. In case of traded volume and FII's inflow, we found a significant relationship between FII's equity inflow with both the chosen indices (Sensex and Nifty 50). This indicates that traded volume of both the benchmark indices have a bearing on FII's equity inflow. This

observation was supported by Granger causality test. Further, we can conclude that the traded volume and index returns can be taken as a criteria to forecast the FII's equity inflow into Indian stock market.

Yet another notable feature of the current study is that, whenever, stock market is in Bullish the FII's pour money into the stock market and make the values of the Indian stock market goes up and whenever they observe a bear market they withdraw their money and the make the stock market fall further. FIIs this action pushes the stock market up (because, they buy heavily and pushes both prices and trading volume) when the market capitalization is high. On the other hand by heavy selling during the sign of bearish outlook the FIIs brings down the market capitalization further.

The current empirical study on FIIs has offered numerous useful insights based on which policy makers may find a passage to strengthen the Indian equity and debt market. Here we have made some suggestions based on the findings on this study in this regard. In spite of a gloomy global scenario, FIIs are betting heavily on Indian stock markets because of various reform initiatives undertaken by the center and SEBI. Apart from this, lack of good investment opportunities globally, good corporate governance practices of Indian firms and investors positive sentiment are the major drivers that have made India stock market an attractive destination for FIIs inflow. Further, to boost the economic growth by utilizing FIIs route, the policy makers should take several precautions for instance, the biggest threat for the retail investors are FIIs. They have the ability to increase and depress the stock market this is behaviour of FIIs are termed as return chasing behaviour (this observation was documented by Chakrabarti (2001); Rakshi and Mihir (2006)), therefore, policy makers should protect the small investors interest by framing necessary policies. Even an abrupt outflow of funds would definitely affect the forex reserves. This could lead to decline in forex reserves and fluctuations in exchange rate. Another major concern on account of FIIs is Participatory Notes (P-Notes). This arrangements have raised worries in regulatory agencies in Indian stock market since it makes them difficult to trace the possible beneficiary in the funds and may be used to bring in impure funds into the Indian stock markets. Therefore the policy makers should address this issue very seriously. Apart from this policy makers should even look into other major criticisms against FIIs behaviour that is hot money flows, short-term speculative gains and their influence on domestic policy-making.

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