Foreign Institutional Investment and Indian Stock Market: A Study of Relationship

Abstract

Foreign investment was allowed by Indian Government since liberalisation of the Indian economy. Foreign investment is two types – direct investment and portfolio investment. Portfolio investors are making their investment in the equity instruments of the listed Indian companies. Investment in debt instruments are also allowed by the Securities and Exchange Board of India. Indian stock market witnessed random movement in their stock indices by any unpredictable withdrawal by the Foreign Institutional Investors (FIIs). Here in this study, both long run and short run relationship were investigated by taking gross purchase and gross sales by FIIs in both the instruments (equity and debt) with BSE Sensex and NSE Nifty 50. The outcome suggests that only long run relationship was found in between gross sale by FIIs in both equity and debt instruments with BSE Sensex and NSE Nifty 50. No short run relationship found in between the undertaken variables.

Keywords: FII, Stock Exchange, Relationship, Causality

Introduction

In the month of September, 1992, India opened up the door to the foreign investors to invest in Indian capital market. Since then India witnessed a sharp increase in the growth of foreign investment. Specifically the growth of the Foreign Institutional Investment (FII) was risen gradually. Registration of Foreign Institutional Investors (FIIs) also has an upward rising trend. Indian stock market continuously maintains a space in moving forward. FIIs have deep knowledge about the stock market and constantly watching the market for any unnatural movements. If any unnatural movement observed by the FIIs, without wasting any time they withdraw their funds from the stock market. As a result downward fall is noticed in the stock market. This herding behavior of the FIIs creates stock market unpredictable. Policy makers are constantly working on this to safeguard the investors in the stock market. Till December 2020, total 10,656 Foreign Portfolio Investors (FPIs) were registered in India. Securities and Exchange Board of India (SEBI) is the prime regulator to control FII. Under SEBI (FPI) Regulations 2014, a new class of foreign investment was introduced as FPI by merging FII, Sub Accounts and Qualified Foreign Investors. After introduction of SEBI FPI regulation (2014), a huge jump in the registration of FPI was observed. FPI mainly invested in two types of instruments – equity and debt. By purchasing the shares of any listed company of the stock market and by investing debt securities of any corporate and government bond. A new segment was introduced by the SEBI as hybrid securities, which is the combination of equity and debt instrument, on September 2017. In the month of April 2021, Rs. 1, 31,824 crore gross purchase was made by FII/FPI in equity segment whereas Rs. 1, 38,383 crore as gross sale. In the debt segment, gross purchase was made by FII/FPI of Rs. 26,626 crore and gross sale of Rs. 24,927 crore in the same month i.e. April 2021. BSE Sensex and NSE Nifty 50 touched benchmark of 48,782 and 14,631 respectively.

Review of Literatures

In the following Table 1, a brief review of literatures is presented.

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Table 1: Review of Literatures

Researchers (Year)	Major findings
Gabriele, Boratav and Parikh (2001)	Rise and volatility of international capital flows tend to financial crises in emerging markets during the 1990s.
Chakrabarti, R. (2001)	Differences in the nature of FII and DII flows before and after the Asian crisis.
Mukherjee et al. (2002)	FII flows to and from the Indian market tend to be caused by return in the domestic equity market and not the other way round.
Rai, K and Bhanumurthy, N.R. (2004)	FII inflow depends on the stock market returns, inflation rate and ex-ante risk.
Coondoo and Mukherjee (2004)	Volatility of day-to-day movements of FII in India impacted domestic stock market returns.
Chandrasekhar, C.P. (2006)	FII flows in India are less volatile, dependent on domestic stock market returns and not vice-versa.
Neeta Tripathi (2008)	FIIs investment in BSE Sensex companies revealing favorable international economic conditions.
P. Krishna Prasanna (2008)	The promoters' holdings and the foreign investments are inversely related.
Bansal, A and Pasricha, J.S. (2009)	No significant change in the Indian stock market average returns; volatility is significantly reduced after India unlocked FII.
Srinivasan, P et al. (2009)	FII acts as a smoothening effect and destabilizes forces before and during the crisis period respectively.
Mishra, P. K. (2010)	FII have the potential of influencing the process of economic development of India through the positive impacts on macro-economic fundamentals of the country.
Kaur and Dhillon (2010)	Market capitalization and stock market turnover of India have positive but insignificant influence on FII in long-run but positive and significant influence on FIIs investment in short-run.
Sripriya and Shamugam (2014)	Volatility persists in Indian stock market due to net FII activity.
Shrimal and Jhala (2016)	FII granger causes both BSE and NSE; and both BSE and NSE granger causes each other.
Sudhakar and Uma (2017)	CPI and money supply causes an impact in FII.
Srinivasan and Sakthi (2018)	Movement in the market index does influence the FIIs and DIIs' investment pattern.

Source: Compiled by Author from above mentioned literatures

Research Gap

From various literatures, it was observed that many of the studies are concentrated on the volatility, determinants, causality and impact of FII on stock market. Majority of the study took the net inflow or outflow of FII for analysis. Relationship also measured in few researches but those were confined only in net equity inflow with any particular stock exchange. Here in this study relationship measured by taking gross inflow and gross outflow of FII in equity and debt instruments. Main two Indian stock indices are taken, BSE Sensex and NSE Nifty 50, for establishing the relationship.

Objectives of the Study

The specific objectives of the study are narrated as below:

1.   To examine the relationship between FII/FPI gross equity inflow with Indian Stock Market.

2.   To investigate the relationship between FII/FPI gross equity outflow with Indian Stock Market.

3.   To examine the relationship between FII/FPI gross debt inflow with Indian Stock Market.

4.   To investigate the relationship between FII/FPI gross debt outflow with Indian Stock Market.

Hypothesis

Considering the objectives of the study the following hypothesis are formulated:

Hypothesis 1

Null Hypothesis (H0): FII/FPI gross equity inflow has no relationship with Indian Stock Market.

Alternative Hypothesis (H1): FII/FPI gross equity inflow has relationship with Indian Stock Market.

Hypothesis 2

Null Hypothesis (H0): FII/FPI gross equity outflow has no relationship with Indian Stock Market.

Alternative Hypothesis (H1): FII/FPI gross equity outflow has relationship with Indian Stock Market.

Hypothesis 3

Null Hypothesis (H0): FII/FPI gross debt inflow has no relationship with Indian Stock Market

Alternative Hypothesis (H1): FII/FPI gross debt inflow has relationship with Indian Stock Market.

Hypothesis 4

Null Hypothesis (H0): FII/FPI gross debt outflow has no relationship with Indian Stock Market.

Alternative Hypothesis (H1): FII/FPI gross debt outflow has relationship with Indian Stock Market.

Research Design
Variable Used

For analysing the above mentioned objectives and the related hypothesis, the variables considered are:

1. FIIEQP: FII/FPI gross equity inflow
2. FIIEQS: FII/FPI gross equity outflow
3. FIIDEBP: FII/FPI gross debt inflow
4. FIIDEBS: FII/FPI gross debt outflow
5. SENSEX: Proxy for Indian Stock Exchange
6. NIFTY 50: Proxy for Indian Stock Exchange

Data Source

The study is a combination of exploratory and empirical nature. Different articles, websites and research studies are used for exploratory portion. For empirical part, secondary data are collected from data bank of SEBI, RBI, stock exchanges etc.

Data Period

The secondary data was collected month-wise from April, 2016 till March, 2021.

Tools Used

Different econometric tools are used to analyse the data for getting results. The econometric tools used are Unit Root test (for checking nature of stationarity of the data); Johansen Cointegration test (for checking there is any long run relationship exists or not); Vector Error Correction Model (for checking the speed of adjustment in the long run and short run dynamics) and finally Granger Causality test (to investigate the causal relation between variables).

Model Constructed

For investigating the objectives, relating to hypothesis, of the study; the following models are built to analyse (in Table 2).

Table 2: Model built to analyse

Model	Model specification	Variables considered
A	Measuring relationship between FII/FPI gross equity inflow with Indian Stock Market	L_FIIEQP and L_Sensex
B	Measuring relationship between FII/FPI gross equity outflow with Indian Stock Market	L_FIIEQS and L_Sensex
C	Measuring relationship between FII/FPI gross debt inflow with Indian Stock Market	L_FIIDEBP and L_Sensex
D	Measuring relationship between FII/FPI gross debt outflow with Indian Stock Market	L_FIIDEBS and L_Sensex
E	Measuring relationship between FII/FPI gross equity inflow with Indian Stock Market	L_FIIEQP and L_Nifty 50
F	Measuring relationship between FII/FPI gross equity outflow with Indian Stock Market	L_FIIEQS and L_Nifty 50
G	Measuring relationship between FII/FPI gross debt inflow with Indian Stock Market	L_FIIDEBP and L_Nifty 50
H	Measuring relationship between FII/FPI gross debt outflow with Indian Stock Market	L_FIIDEBS and L_Nifty 50

Findings of Study

After analysing the above eight (08) models using econometric tools, the findings are as follows:

In the Table 3, outcome of Model A is depicted as –

Test performed	Result and interpretation
Test of Stationarity	All the variables are stationary at their first difference i.e. I(1)
Test of Cointegration	The null hypothesis of no Cointegration is accepted at 5% level of significance, using Maximum Eigen value and Trace statistic. The results suggest that there is no significant long run relationship exists.
Test of Granger Causality	No causal relationship found under Granger Causality methodology.

Source: Computed by Author

In Table 3, the relationship was measured in between gross equity purchase by FII and BSE Sensex. Two variables are stationary at first difference. Cointegration test revealed no long run relationship between the two variables. Also no causality found between gross equity purchase by FII and BSE Sensex.

In the Table 4, outcome of Model B is depicted as –

Test performed	Result and interpretation
Test of Stationarity	All the variables are stationary at their first difference i.e. I(1)
Test of Cointegration	The null hypothesis of no Cointegration is rejected at 5% level of significance, using Maximum Eigen value and Trace statistic. The results suggest that there is significant long run relationship exists.
Vector Error Correction Model (VECM)	The adjustment coefficient on ECT is negative (-0.72279) and statistically significant at 1% level of significance. It implies that the process of converging in the long run is effective.
Test of Granger Causality	No causal relationship found under Granger Causality methodology.

Source: Computed by Author

In Table 4, relationship was analysed in between gross equity sale by FII and BSE Sensex. Stationarity test revealed that, the variables are first order stationary. In both Trace and Max Eigen value statistics under Cointegration revealed existence of

long run relation. Error correction term under VECM shows significant negative coefficient, implies long run convergence of the variables. No causal relationship found in between the two in short run.

In the Table 5, outcome of Model C is depicted as –

Test performed	Result and interpretation
Test of Stationarity	All the variables are stationary at their first difference i.e. I(1)
Test of Cointegration	The null hypothesis of no Cointegration is accepted at 5% level of significance, using Maximum Eigen value and Trace statistic. The results suggest that there is no significant long run relationship exists.
Test of Granger Causality	No causal relationship found under Granger Causality methodology.

Source: Computed by Author

In Table 5, the relationship was measured in between gross debt purchase by FII and BSE Sensex. Two variables are stationary at first difference.

Cointegration test revealed no long run relationship between the two variables. Also no causality found between gross debt purchase by FII and BSE Sensex.

In the Table 6, outcome of Model D is depicted as –

Test performed	Result and interpretation
Test of Stationarity	All the variables are stationary at their first difference i.e. I(1)
Test of Cointegration	The null hypothesis of no Cointegration is rejected at 5% level of significance, using Maximum Eigen value and Trace statistic. The results suggest that there is significant long run relationship exists.
Vector Error Correction Model (VECM)	The adjustment coefficient on ECT is negative (-0.47382) and statistically significant at 1% level of significance. It implies that the process of converging in the long run is effective.
Test of Granger Causality	No causal relationship found under Granger Causality methodology.

Source: Computed by Author

In Table 6, relationship was analysed in between gross debt sale by FII and BSE Sensex. Stationarity test revealed that, the variables are first order stationary. In both Trace and Max Eigen value statistics under Cointegration revealed existence of

long run relation. Error correction term under VECM shows significant negative coefficient implies long run convergence of the variables. No causal relationship found in between the two in short run.

In the Table 7, outcome of Model E is depicted as –

Test performed	Result and interpretation
Test of Stationarity	All the variables are stationary at their first difference i.e. I(1)
Test of Cointegration	The null hypothesis of no Cointegration is accepted at 5% level of significance, using Maximum Eigen value and Trace statistic. The results suggest that there is no significant long run relationship exists.
Test of Granger Causality	No causal relationship found under Granger Causality methodology.

Source: Computed by Author

In Table 7, the relationship was measured in between gross equity purchase by FII and NSE Nifty 50. Two variables are stationary at first difference. Cointegration test revealed no long run relationship

between the two variables. Also no causality found between gross equity purchase by FII and NSE Nifty 50.

. In the Table 8, outcome of Model F is depicted as –

Test performed	Result and interpretation
Test of Stationarity	All the variables are stationary at their first difference i.e. I(1)
Test of Cointegration	The null hypothesis of no Cointegration is rejected at 5% level of significance, using Maximum Eigen value and Trace statistic. The results suggest that there is significant long run relationship exists.
Vector Error Correction Model (VECM)	The adjustment coefficient on ECT is negative (-0.68434) and statistically significant at 1% level of significance. It implies that the process of converging in the long run is effective.
Test of Granger Causality	No causal relationship found under Granger Causality methodology.

Source: Computed by Author

In Table 8, relationship was analysed in between gross equity sale by FII and NSE Nifty 50. Stationarity test revealed that, the variables are first order stationary. In both Trace and Max Eigen value

statistics under Cointegration revealed existence of long run relation. Error correction term under VECM shows significant negative coefficient, implies long run

convergence of the variables. No causal relationship found in between the two in short run. **In the Table 9, outcome of Model G is depicted as –**

Test performed	Result and interpretation
Test of Stationarity	All the variables are stationary at their first difference i.e. I(1)
Test of Cointegration	The null hypothesis of no Cointegration is accepted at 5% level of significance, using Maximum Eigen value and Trace statistic. The results suggest that there is no significant long run relationship exists.
Test of Granger Causality	The null hypothesis "L_FIIDEBP does not Granger Cause L_NSEN50"is rejected (p value 0.0491) at 5% level of significance but the null hypothesis "L_NSEN50 does not Granger Cause L_FIIDEBP" is accepted (p value 0.7665). It clearly indicates that there is only unidirectional causality running from FIIDEBP to NIFTY 50.

Source: Computed by Author

In Table 9, the relationship was measured in between gross debt purchase by FII and NSE Nifty 50. Two variables are stationary at first difference. Cointegration test revealed no long run relationship between the two variables. Unidirectional causality found between gross debt purchase by FII and NSE Nifty 50.

In the Table 10, outcome of Model H is depicted as –

Test performed	Result and interpretation
Test of Stationarity	All the variables are stationary at their first difference i.e. I(1)
Test of Cointegration	The null hypothesis of no Cointegration is rejected at 5% level of significance, using Maximum Eigen value and Trace statistic. The results suggest that there is significant long run relationship exists.
Vector Error Correction Model (VECM)	The adjustment coefficient on ECT is negative (-0.47366) and statistically significant at 1% level of significance. It implies that the process of converging in the long run is effective.
Test of Granger Causality	No causal relationship found under Granger Causality methodology.

Source: Computed by Author

In Table 10, relationship was analysed in between gross debt sale by FII and NSE Nifty 50. Stationarity test revealed that, the variables are first order stationary. In both Trace and Max Eigen value statistics under Cointegration revealed existence of long run relation. Error correction term under VECM shows significant negative coefficient implies long run convergence of the variables. No causal relationship found in between the two in short run.

Conclusions and Suggestions

In the following Table 11, the summary of the study has been presented.

Table 11: Summary of the outcomes of the analyses

Indices	FII flow	Long run relation	Short run relation	Causal relation	
				From	To
BSE SENSEX	FIIEQP	No	No	No causal relation at 5%	
	FIIEQS	Yes	No	No causal relation at 5%	
	FIIDEBP	No	No	No causal relation at 5%	
	FIIDEBS	Yes	No	No causal relation at 5%	
NSE NIFTY 50	FIIEQP	No	No	No causal relation at 5%	
	FIIEQS	Yes	No	No causal relation at 5%	
	FIIDEBP	No	No	FIIDEBP	NSE NIFTY 50
	FIIDEBS	Yes	No	No causal relation at 5%	

Source: Computed by Author

It was noticed from the Table 11 that gross purchase of equity and debt securities have neither long run nor short run relationship with the BSE Sensex and NSE Nifty 50. Interestingly, gross sales of equity and debt securities have long run relationship with BSE Sensex and NSE Nifty 50. It indicates, FIIs sold theirholdings in both equity and debt, if there were any unnatural movements in the stock market. But gross ale of equity as well as debt securities by FII has no short run relationship with either BSE Sensex or NSE Nifty 50. Only uni-directional causal relationship was noticed in between gross purchase of debt securities by FII and NSE Nifty 50.

From the above study, suggestions can be inferred as follows –

1. Policy makers must work on the disinvestment limits of the FII.
2. Domestic investors should be aware by the regulators for any sudden downfall of stock market.
3. Constant watch on the FIIs behavior predicts the future stock market crash.

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