

## STUDY ON RELATIONSHIP BETWEEN FOREIGN INVESTMENT AND BEHAVIOUR OF INDIAN STOCK MARKET INDICES

□ Dr. Sucheta Pawar\*  
Rutuja Rewale\*\*

### ABSTRACT

Volatility of stock market indices is a challenge Indian capital market is facing in this globalized world. Uncertainties thus created are having negative impact on development of capital market, mobilization of funds available and eventually the economic growth. Stock market volatility needs to be controlled and for which, reasons behind the volatility need to be located. This paper tries to gain insight into whether foreign funds received by India and stock market indices have any correlation and in case correlation is found, how strong it is. The study is based on secondary data, where yearly average of closing balance of SENSEX and NIFTY for 10 years is compared with FDI and FII flows for the same period. Karl Pearson's Co efficient of correlation was calculated using SPSS. Strong positive Correlation was found in FDI-SENSEX, FDI-NIFTY, FII-SENSEX, FII-NIFTY. Findings of the paper clearly indicates need to increase participation of large Indian funds in stock market and reduce influence of foreign investment to control volatility of capital markets.

**Keywords:** Foreign Investment, Volatility, stock market indices, SENSEX, NIFTY, Uncertainty.

#### 1. Introduction

According to John Bollinger, "Volatility is basically a function of uncertainty". There is inverse relationship between economic growth and stock market volatility. Uncertain capital market becomes riskier market for investors and hampers growth of capital market, restricts capital formation and capital mobilization and eventually affects economic growth. It is thus essential to bring overall stability in stock market for which, reasons behind volatility need to be located as well as addressed.

India in recent years is observing highly volatile stock market. Where reasons of volatility are concerned, one reason can be ups and downs of the economy itself. However, where Indian economy is concerned, changing trends in the economic growth

doesn't seem to be main reason behind stock market volatility. Many times it is observed that two top Indian indices SENSEX and NIFTY show upward trend even though there is economic slowdown and stuttered corporate earnings and vice versa. Which indicates that movement of indices may be strongly influenced by some other variable and not always by macroeconomic situation of the country. These 'Other' variables can be Foreign Direct Investment (FDI) and Foreign Institutional Investments (FII). If Indian stock markets are getting highly influenced by FDI and FII, stock market volatility becomes a natural phenomenon which needs to be addressed in a different manner. This paper tried to gauge the extent to which foreign investment influences top two stock market indices in India.

\*Dean-COEL, Parle Tilak Vidyalaya Association's Institute of Management (Affiliated to University of Mumbai), India

\*\*SYMMS student (2018-2020), Parle Tilak Vidyalaya Association's Institute of Management (Affiliated to University of Mumbai), India

## 2. Literature Review

Varughese (2017), studied the relationship between foreign portfolio investment and stock return volatility in India. They use secondary data of 12 years from 2003 to 2015 having 2898 trading observation. GARCH, E-GARCH and TARARCH models are used to analyse the data. It was found that there is volatility in stock market and FPI have significant impact on stock market volatility in India.

Dadhich (2015), studied flows of FIIs and its impact on stock market volatility in India. The paper analysed secondary data consisting of 2674 observations for a period of 10 years starting from 2004 to 2014. ARCH and GARCH were the statistical tools used to perform the analyses. Model ARCH and GARCH were used for the analysis. The study revealed that there is strong positive relationship between stock market volatility and gross purchases by FIIs in India.

Krishna (2018), analysed the impact of FII on Stock market indices (Nifty 50) and relationship between them before and after demonetization. The study is based on Secondary data. The duration of the study starts from June 2015 to February 2018 which is divided between pre and post demonetization period. ADF test, Granger's causality test, correlation and regression are the statistical tools used for the analysis. Moderately positive correlation was found between FII and Nifty 50. Also, there is no cause and effect relationship was seen before demonetization but it was seen after demonetization.

Sabhaya (2014), studied causality between FII and Indian stock market. The study is based on Secondary data for a period of 2002 to 2012. Statistical tools such as regression, correlation and paired T- test are used to analyse the data. The result of the study revealed that there is positive but not significant relationship between the variables and no causal relationship was found between them.

Bhargava (2015), studied the impact of FII on stock market in India. The study is based on Secondary data ranging from July 2003 to June 2011. Vector autoregression and GARCH models are used to perform the analysis. The study revealed that there is direct correlation between the variables.

Rukhsana (2012), studied the FDI and other major factors which have an impact on development of Pakistan's stock market. The study is based on Secondary sources of data of 8 years starting from 2001 to 2008.

The literature reviewed was mainly about finding whether any cause and effect relationship is found between FDI and stock market as well as FII and stock market. Studied related to Indian, Pakistan and Croatia were reviewed. The findings of literature review are mixed, some studies found strong cause and effect relationship between foreign investments and stock market indices, whereas some studies found moderate impact of foreign investment and stock market.

This paper aims at understanding whether the cause and effect relationship exists between FII and stock market as well as FDI and stock market during recent most period. In case the relationship exists and foreign investment is found to be affecting stock markets, it will be important to locate ways through which the dependency of Indian economy, on unreliable source of capital that is, foreign capital can be reduced.

### 2.1 Objectives of Research

Select objectives of research are –

To study relationship between FDI and SENSEX and NIFTY

To study relationship between FII and SENSEX and NIFTY

## 3. Research Methodology

### 3.1 Data Collection

The research is based on secondary data taken from

BSE, NSE and DIPP websites where FDI, FII data of period 2009-10 to 2018-19 was taken and was compared with closing balances of both indices for the same period to find relationship between two independent variable FDI, FII and two dependent variables SENSEX and NIFY.

### 3.2 Data Analysis

For data analysis, yearly average of closing balances of NIFTY and SENSEX were calculated for the period of 2009-10 to 2018-19 and was compared with yearly inflows of FDI and FII. Two hypotheses were tested using Karl Pearson's coefficient of correlation with SPSS software.

The hypotheses tested were –

- i) Changes in FDI inflow and stock market indices are directly related
- ii) Changes in FII inflow and stock market indices are directly related

## 4. Discussion

### 4.1 Over-view of FDI and FII

A foreign direct investment (FDI) is an investment made by a firm or individual in one country into business interests located in another Country. Due to the significantly higher level of investment required, foreign direct investment is usually undertaken by multinational companies, large institutions, or

venture capital firms. It includes the physical investments and purchases made by a company in a foreign country. It involves opening plants and buying buildings, machines, factories and other equipment in foreign country. It is a risky option, because of the huge investment it is difficult to liquidate and pull out of investment.

Foreign Institutional Investor (FII) means an institution established or incorporated outside country which proposes to make investment in securities of that country. FIIs are allowed to invest in securities already issued or to be issued in stock exchange of that country. Foreign Portfolio Investors was formed by merging the following classes of investors i.e. FIIs, QFIs, and sub-accounts of FIIs

Since 1991, with adoption of Liberalization Privatization and Globalization policies Indian policies became pro-foreign investments gradually. As a result, FDI in India increased from 4029 US \$ million in 2000-01 to 62001 US \$ million in 2018-19. Whereas FII investments have increased from 1847 million \$ in 2000-01 to 22165 million \$ in 2017-18.

It has been observed that Foreign Direct Investment often exceeded 5-6% of GDP

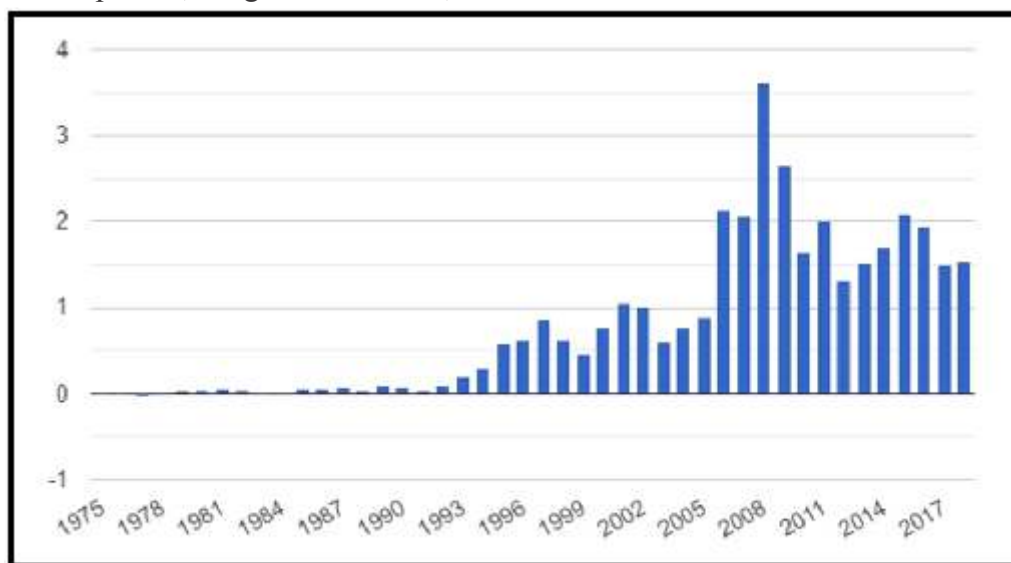


Fig. 1: Foreign Direct Investment in India as percentage of GDP  
(Source: The Global Economy.com, World Bank)

As the fig. 1 suggests, contribution of FDI to Indian GDP has grown since 1993 and is significant. Where FII is concerned, it has shown significant growth of Rs 13.39 trillion (US\$ 191.60 billion) in India between FY02-20 (till December 4, 2019).

Looking at the growing volumes of FDI and FII, it is natural that changes in foreign investments flow will have great impact on financial markets and economy.

Peculiar feature of foreign investments is, those are always uncertain and any small change in socio-political-economic environment globally, may lead to capital flight. So FDI and FII inflows will have inbuilt volatility and it may transmit into stock market indices

#### 4.2 Comparative analysis of trends in FDI, FII and SENSEX-NIFTY

In order to get insight over whether there is any relationship between foreign investment inflows and stock market indices, FDI-FII inflows for the year were compared with SENSEX and NIFTY for the period of 2009-10 to 2016-17. The results are as follows –

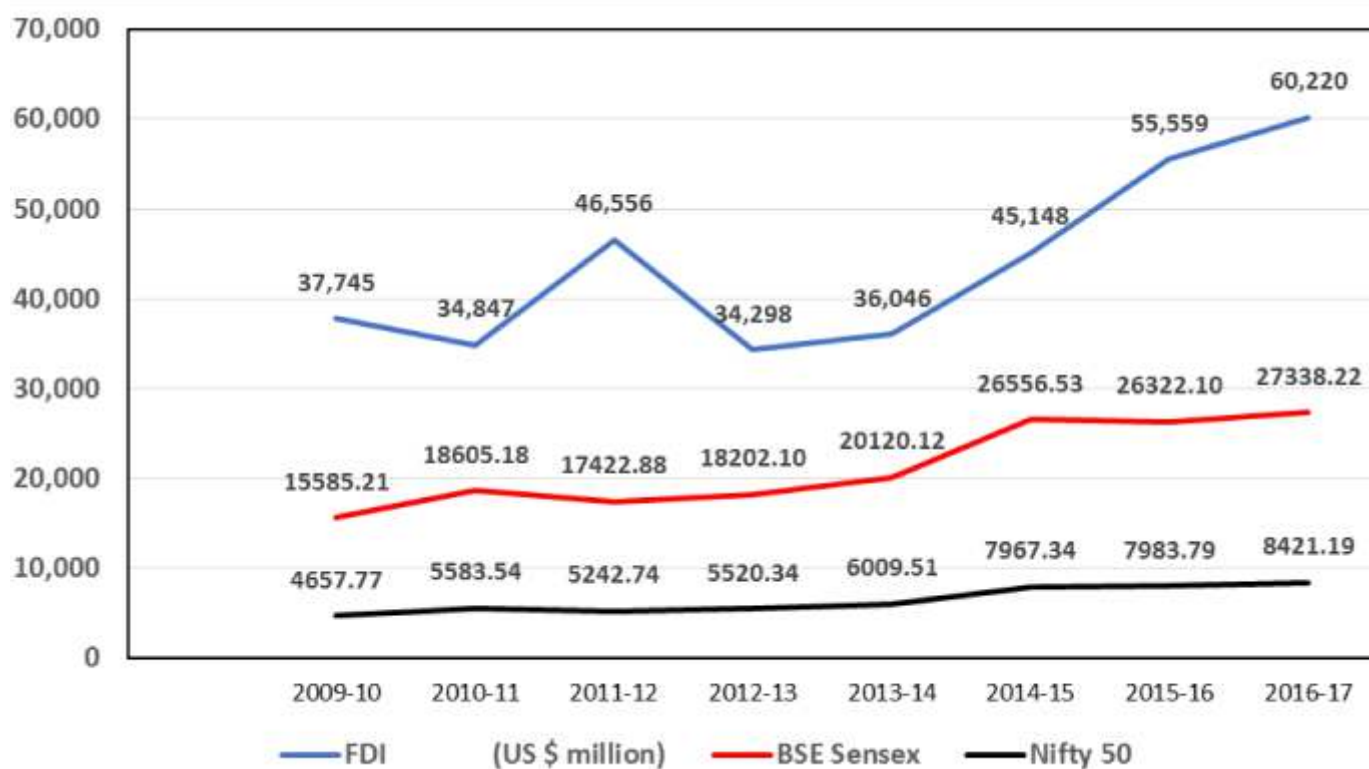


Fig. 2: Trends between FDI inflows, SENSEX-NIFTY

(Source: bseindia.com, nseindia.com & Department for Promotion of Industry and Internal Trade)

As shown in fig. 2, simple trend line are establishing some association between SENSEX and NIFTY but not much association can be seen between FDI-SENSEX-NIFTY

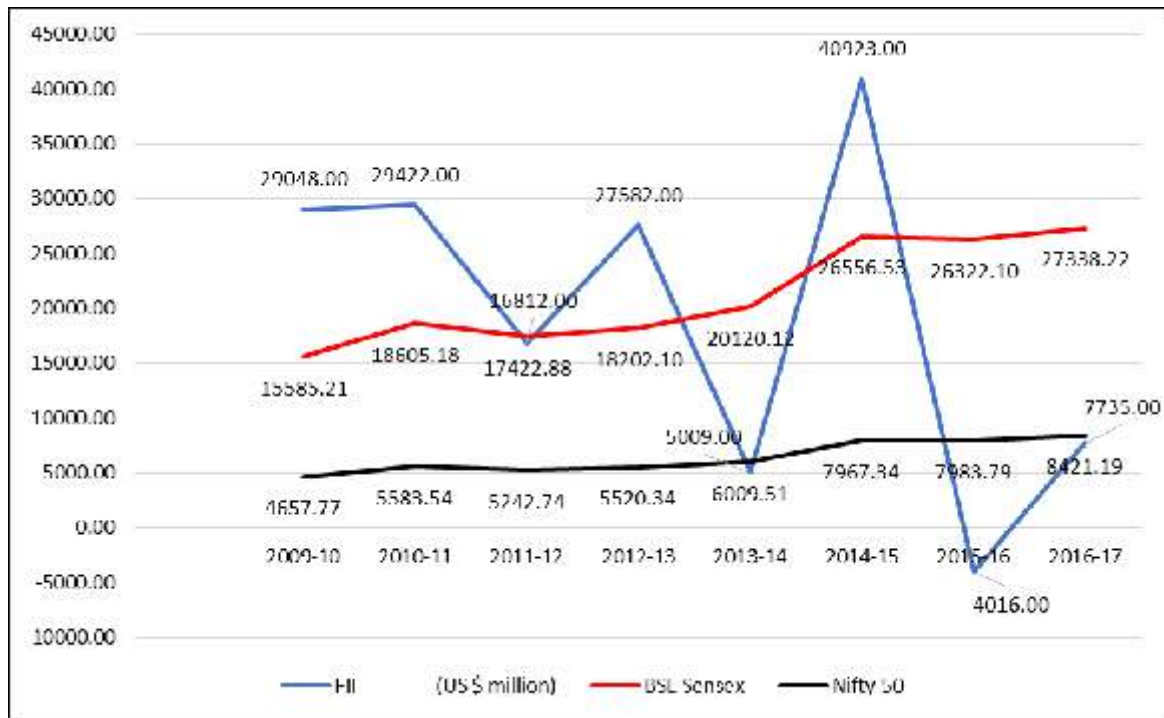


Fig. 3: Trends between FII inflows, SENSEX-NIFTY  
 (Source: bseindia.com, nseindia.com & Department for Promotion of Industry and Internal Trade)

Similarly as seen in the fig. 3, association can be seen between SENSEX and NIFTY but not much association can be seen between FII-SENSEX-NIFTY.

Simple trend line have indicated that they might be some association between FDI-SENSEX-NIFTY but comparatively weaker association between FII-SENSEX-NIFTY.

In order to get better insight of possible association between FDI-SENSEX-NIFTY and FII-SENSEX-NIFTY, Karl Pearson's Correlation of Coefficient was used to test hypotheses with the use of SPSS software. Yearly average of SENSEX-NIFTY closing balance was calculated for the period of 2009-10 to 2018-19 as shown in table 1

Years	FDI (US \$ million)	FII (US \$ million)	BSE Sensex	Nifty 50
2009-10	37,745	29048.00	15585.21	4657.77
2010-11	34,847	29422.00	18605.18	5583.54
2011-12	46,556	16812.00	17422.88	5242.74
2012-13	34,298	27582.00	18202.10	5520.34
2013-14	36,046	5009.00	20120.12	6009.51
2014-15	45,148	40923.00	26556.53	7967.34
2015-16	55,559	-4016.00	26322.10	7983.79
2016-17	60,220	7735.00	27338.22	8421.19
2017-18	60,974	22165.00	32396.83	10030.13
2018-19	62,001	-2225.00	35971.79	10859.51

Table 1: FDI-FII inflows as well as yearly averages of closing balances of SENSEX & NIFTY  
 (Source: bseindia.com, nseindia.com & Department for Promotion of Industry and Internal Trade)

On the basis of the data thus collected following hypotheses were tested

Two hypotheses were tested

**Null Hypothesis:**

**HO<sub>1</sub>:** There is no significant relationship between FDI and SENSEX-NIFTY

**Alternate hypothesis:**

**H1<sub>1</sub>:** There is significant relationship between FDI and SENSEX-NIFTY

**Null Hypothesis:**

**HO<sub>2</sub>:** There is no significant relationship between FII and SENSEX-NIFTY

**Alternate hypothesis:**

**H1<sub>2</sub>:** There is significant relationship between FII and SENSEX-NIFTY

		FDI	FII	BSE_SENSE	NIFTY50
BSE_SENSE	Pearson Correlation	<b>.869*</b>	-.397	1	
	Sig. (2 tailed)	<b>.001</b>	.255		
	N	<b>10</b>	10	10	
NIFTY_50	Pearson Correlation	<b>.878*</b>	-.395	<b>.999*</b>	1
	Sig. (2 tailed)	<b>.001</b>	.258	<b>.000</b>	
	N	<b>10</b>	10	10	<b>10</b>
<b>** . Correlation is significant at the 0.01 level (2</b>					

Table 2: Correlation between FDI and SENSEX-NIFTY as well as FII and SENSEX-NIFTY

As shown in the table there is strong correlation between FDI and SENSEX- NIFTY. However weaker correlation is found in FII and SENSEX-NIFTY

Thus H1<sub>1</sub> is accepted that there is significant relationship between FDI and SENSEX-NIFTY

At the same we accept HO<sub>2</sub> that there is no significant correlation ship between FII and SENSEX-NIFTY.

**5. Findings**

The research clearly indicates that FDI inflows have lot of influence on Indian stock market indices. However FII doesn't seem to have more influence on stock markets. Thus volatile FDI inflows may lead to

volatile stock market.

**6. Conclusion**

The research indicates that Foreign Direct Investment has strong influence over Indian stock market and volatility in FDI causes volatility in the stock market and thus creates uncertainty. To solve the problem, over the period of time volume of transactions by domestic funds needs to grow. In short India's dependency on foreign capital needs to decline which can happen only if domestic investments grow. Country needs to promote domestic financial investment more rigorously through introducing innovative investment options and promoting all domestic investment options in an

innovative way. This can be future scope of the study.

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