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Impact of FIIs Investment on Indian Stock Market: An Analysis

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Abstract

Indian Stock Market is a hotspot of investment not only among the retail investors but also among Indian Institutional Investors and Foreign Institutional Investors since 1991, when PM Narsimha Rao government opened the door of Indian Economy to the global investors. The investment by Foreign Institutional Investors (FIIs) has become a dynamic force in the development of Indian stock market and a cause of stock market volatility. In the present study an attempt has been done to develop an understanding of the FIIs investment and its impact on stock market volatility. The study is conducted with the help of time series based on monthly closing data of NIFTY, SENSEX and FIIs activity over a period of twenty five years from January, 1994 to November, 2018. In this study, different statistical techniques such as Mean, SD, Coefficient of Variance Karl Pearsons' Skewness and Correlation are used to test the impact of investment by FIIs on volatility of Indian stock market. The study reveals that FIIs investment has statistically significant influence on volatility of NIFTY and SENSEX, used as key indicators of Indian stock market.

Keywords: *Volatility; FIIs Investment Trends; NIFTY; SENSEX; Indian Stock Market; and Correlation & Regression.*

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1. INTRODUCTION

With rapid changes in the world economy because of liberal economic policies and fast pace changes due to globalisation, Indian stock market has become a focus point for foreign investors. Organisations tend to target for large volume of trade in this era of globalisation. Trade flows are indeed one of the most visible aspects of globalization. FII refers to the investment made by resident of one country in the financial capital and asset of another country. It facilitates and persuades large productivity and help in shaping up balance of payments. FII flows in India have continuously grown to a remarkable extent.

Volatility is defined as the degree of price variation between the share prices during a particular period and is a symptom of a high liquid market. Though some quantum of volatility is desirable because it highlights the changing values across economic activities and it facilitates resource allocation, yet volatility created by the flow of funds by FIIs is detrimental for stock markets and investors. Volatility characterizes the stability or instability of any random variable. It is a common statistical measure of depression around the average of any random variable such as earnings, market-to-market values, market value, losses due to default etc. Volatility has an adverse impact on the investors' decisions pertaining to the effective allocation of resources and thereby on investment in stock markets. Volatility makes investors averse to hold various stocks due to increased uncertainty in stock markets. Investors, in turn demand higher risk premium so as to cover increased risk resulted because of market volatility. In Indian stock market significant portion of investment comes through FII mode. The FIIs and its outflow all depends on the return and sentiment of the stock market. The inflow of investment by them swell up the stock market indices and their exit brings down the market indices and as such creates huge fluctuations in the stock market of host country, resulting in volatility. Present study has been undertaken to analyze the influence of FIIs investment on stock market volatility.

2. REVIEW OF LITERATURE

1. **Anju Bala (2013)** explained in her article that Stock Market was the mitigation of risk through the spreading of investments across multiple entities, which was achieved by the pooling of a number of small investments into a large bucket. Stock Market was the most suitable investment for the common man as it offers an opportunity to invest in a diversified, professionally managed portfolio at a relatively low cost.
2. **Juhi Ahuja (2012)** presents a review of Indian Capital Market & its structure. In last decade or so, it has been observed that there has been a paradigm shift in Indian capital market. The application of many reforms & developments in Indian capital market has made the Indian capital market comparable with the international capital markets. Now, the market features a developed regulatory mechanism and a modern market infrastructure with growing market capitalization, market liquidity, and mobilization of resources. The emergence of Private Corporate Debt market is also a good innovation replacing the banking mode of corporate finance. However, the market has witnessed its worst time with the recent global financial crisis that originated from the US sub-prime mortgage market and spread over to the entire world as a contagion. The capital market of India delivered a sluggish performance.
3. **Rastogi, Dr. S. K. and Kumar, P. (2018**), studied that capital market in any country plays a pivotal role in the growth of economy and meeting country's socio-economic goals. They

were an important constituent of the financial system, given their role in the financial intermediation process and capital formation of the country. The importance of the capital market could not be underemphasized for developing economy like India which needs significant amount of capital for the development of strong infrastructure. In this paper authors have discussed the conceptual framework of the capital market; trends in the capital market in India; and various issues and challenges of the capital market in India.

4. **Sam & Salami, K. (2014),** elucidated that there was positive significant effect of capital market development (MKT) and FDI on GDP growth. However, GFI, T-Bills, and INF met their expected signs, but they had insignificant effects on GDP growth. There was also a bi-directional relationship between GDP growth and capital market development. However, the direction of causality is stronger from capital market development to economic growth. This supports the supply-leading hypothesis view of financial development which states that economic growth and development spring from availability of credit facilities from surplus spending units to deficit spending units in an economy.
5. **Shenoy, S. S. and Dr. Hebbar, C. K. (2015),** made it clear that India being an emerging economy need more innovations and reforms in the capital market. Innovation and reforms not only add value in the existing technology and system but also lead to decrease in the cost of capital and mitigate the risk exposure of the capital market instruments. However, this may entail huge investment in IT infrastructure. Economic growth needs sound financial system which further requires a well-developed capital market. Emerging economies like India need to further sustain the reforms that have been initiated, remove bottlenecks, educate investors, provide investor protection, bring in more transparency in operations and refine policies to increase the depth and reach of the capital market and to make it as competitive as the world's best stock markets.
6. **Suman and Warne (2012)** investigated that FIIs played an important role in Indian stock market. Securities Exchange Board of India (SEBI) gave a lot of stock market reforms after the year 2000. These reforms affected the FIIs to a large extent. They included the stock market reforms which were directly related to FIIs. These reforms were, the increased limit of investment up to 100% in tourism, highways etc., get permission to invest in debt and government securities up to a certain limit, internet trading, get permission for short selling according to the rule of SEBI, ban on carried forward transactions etc. The authors showed the effect of these stock market reforms on FIIs with the help of increased trend of investment in foreign institutional investment, increased no. of SEBI registered FIIs etc. Finally these reforms have positive effect on FIIs.
7. **V. Aditya Srinivas (2016)** studied the importance of FII money for Indian stock market. He focused on the global integration of economies and its effects on the Indian economy and stock market. The author covered the statistical analysis of FII (Foreign Institutional investor) flows and its impact on the index from 2008 to 2013, with a focus on Global financial crisis of 2008 and Euro zone crisis of 2011. The impact of the FII flows during the two crises has been analyzed. The researcher has used t-test, correlation, regression analysis to identify the relation between FII and Indian stock market. The coefficient of correlation is 0.41 showed positive correlation and proved the significant relationship between the FII flows and the

index. In this paper the author also suggested that investors' protection should be made mandatory. There should be an early education of the finance and stock market so that investors understand it better.

8. **Varughese and Thomas (2015),** explained that the FIIs have been playing a key role in the Indian financial markets since their entry into this country in the early 1990s. Their importance has been growing over time as their net investment is on the rise over time. This paper analysed importance of foreign capital, the role of FIIs in Indian Equity and Debt market and compared the investment activities of FIIs and domestic institutional Investments. They concluded that FIIs has certainly posed some threats to the Indian stock market considering its influence on the market.

3. OBJECTIVE OF THE STUDY

The present study has been undertaken with the following objectives:

- To find out the relationship between FII and Indian Stock Market; and
- To analyse the rate of return of Indian stock market

4. HYPOTHESES OF THE STUDY

- There is no impact of FIIs investment on the volatility of Indian stock Market; and
- There is no difference in the monthly return of NIFTY and SENSEX over a period of last 25 years.

5. RESEARCH METHODOLOGY

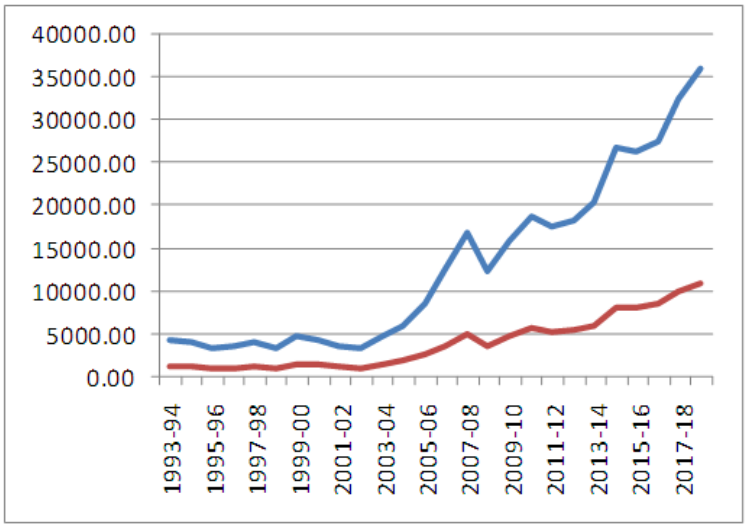
The study is descriptive in nature. The primarily aim of this study is to examine the impact of FIIs Investment on the volatility of Indian Stock Market. Secondary data is used in this study. **Sample Design:** The study has been carried out by selecting main Index of both the premier Stock Exchanges of India such as NIFTY and SENSEX. **Data Collection Method:** The data required for this study have been collected from published annual report and information available on the official website of NSE, BSE, RBI, SEBI and Money control. The data are collected purely in secondary form. **Study Period:** This study covered a period of 25 years starting from 1994-2018 taking into consideration, the availability of data for the choosing study period. **Tools and Techniques of Data Analysis:** Various **s**tatistical techniques are used for data analysis. The statistical tools applied in this study are basically calculation of Mean, SD, Coefficient of Variance, Skewness and Correlation. Graphic presentation is also used wherever applicable.

6. DATA ANALYSIS AND INTERPRETATION

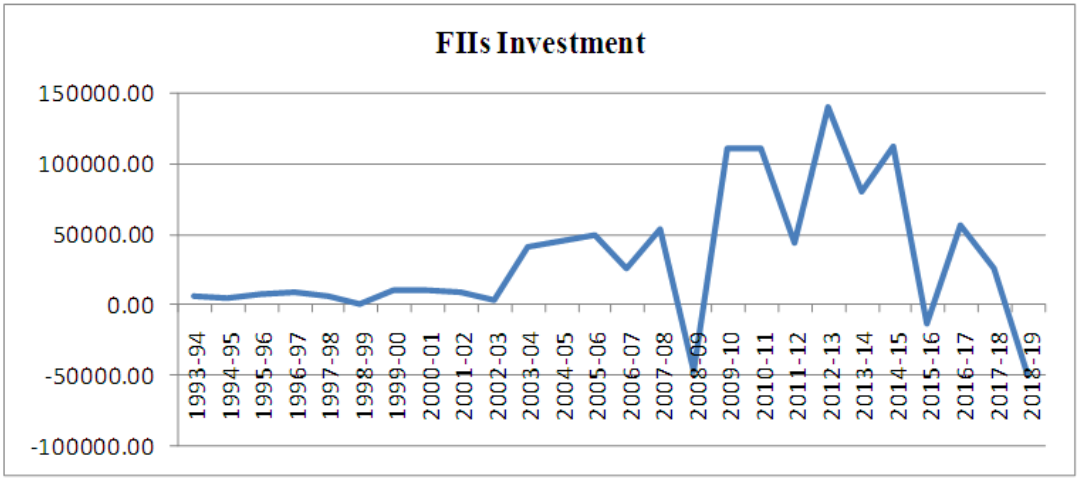
Firstly, with the help of trend analysis the relationship between Indian Stock Market and FIIs Investment has been analyzed. For this purpose Sensex and Nifty, the benchmark Indices, are selected to represent Indian Stock Market. Graph - I shows the performance of Sensex and Nifty during the period of study. These indices (Sensex and Nifty) have been increased to 36127.67 and 10927.58 on 30th Nov. 2018 from 4020.02 and 1257.73 of 1993-94. Graph – II shows the yearly investment made by FIIs in Indian Stock Market. It shows the fluctuating trends throughout the period of study. During the years 1998-99, 2008-09, 2015-16 and 2017-18, FIIs have withdrawn their money from Indian Stock Market, otherwise FIIs are net investors. Graph – III shows that

Indian Stock Market shows downward trend whenever FIIs withdrawn investment from Indian Stock Market and vice versa.

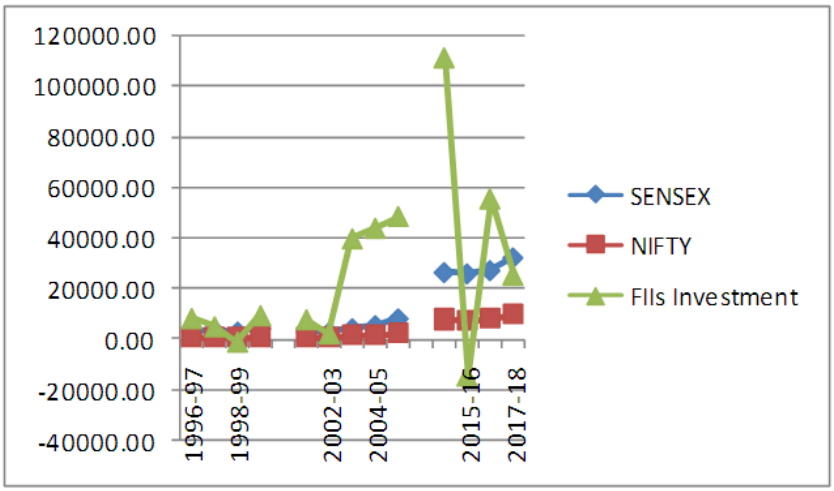
Graph - I
Graph-1 Trend of NSE NIFTY and BSE SENSEX



Graph – II
Graph-2 Trend of Net FIIs Investment in Indian Capital Market



Graph - III
Graph - 3 Impact of FIIs Investment on Nifty and Sensex



Source: Annual and Monthly Reports of NSE, BES, RBI and SEBI

7. VOLATILITY ANALYSIS

In the Second section with the help of **Mean, SD, CV,** and **Skewness,** the yearly volatility for the three variables (Sensex and Nifty) representing Indian Stock Market and FIIs Net Investment is calculated. Unit Root Test (**Augmented Dickey Fuller Test)** has been performed with the help of **Time Series**.

The Table 1 shows the descriptive statistics of three variables viz. NIFTY, SENSEX and Net FIIs Investments in Indian Stock Market. This table shows a picture of Indian Stock Market. In this table, Yearly Average (Mean); Volatility (SD and CV) and Growth (Skewness) are calculated with the help of SPSS. The analysis presented in the table shows that yearly mean of all the variables is showing fluctuating trend. Average of Sensex and Nifty shows the downtrend only in 1995, 1998, 2001, 2002, 2008, 2009, 2011 and 2016 on the other hand Yearly average of FIIs Investment in India shows a fluctuating trend throughout the period of study. The standard deviation shows the same trend in the line of average. Coefficient of Variance (CV) is highest in 2003, 2008 and 2009 for the variable Sensex and Nifty, but it was extreme in 2017, 1998 and 2013 for FIIs Investment in Indian Stock Market. It shows that Sensex and Nifty are on their upward move with cyclic and fluctuating trend and the impact of FIIs Investment in Indian Stock Market is only for a temporary phase.

Table: 1: Descriptive Statistics of Sensex, Nifty and FII's Investment

Year	Sensex				Nifty				FIIs			
	Mean	SD	CV	Skewness	Mean	SD	CV	Skewness	Mean	SD	CV	Skewness
1994	4091.97	249.63	6.10	0.33	1249.84	68.49	5.48	0.36	634.44	455.52	71.80	0.72
1995	**3315.69**	175.73	5.30	**-0.24**	**976.13**	53.88	5.52	**-0.59**	**327.48**	160.67	49.06	0.95
1996	3373.76	322.22	9.55	**-0.02**	983.92	99.64	10.13	**-0.10**	900.31	437.76	48.62	**-0.07**
1997	3779.50	293.12	7.76	0.46	1075.14	79.52	7.40	0.43	**504.58**	594.54	117.83	**-0.66**

1998	**3300.77**	407.90	12.36	0.55	**960.03**	114.93	11.97	0.48	**-123.33**	535.02	**-433.80**	0.26
1999	4180.23	622.62	14.89	**-0.25**	1220.09	189.34	15.52	**-0.16**	558.06	844.39	151.31	**-0.05**
2000	4501.85	531.42	11.80	0.35	1390.91	140.13	10.07	0.36	**542.61**	1346.76	248.20	0.58
2001	**3475.92**	446.76	12.85	0.78	**1117.58**	134.04	11.99	0.78	1107.73	1261.26	113.86	1.42
2002	**3230.58**	194.38	6.02	0.05	**1045.48**	64.60	6.18	**-0.16**	**306.49**	832.11	271.50	0.98
2003	3967.64	928.30	**23.40**	0.78	1264.07	299.85	**23.72**	0.84	2929.45	2074.51	70.82	0.73
2004	5551.60	531.42	9.57	0.33	1750.25	170.95	9.77	0.19	3504.03	3832.03	109.36	0.04
2005	7498.37	1038.34	13.85	0.52	2297.10	284.74	12.40	0.57	**3471.95**	4583.64	132.02	**-0.39**
2006	11663.58	1331.93	11.42	0.43	3420.48	345.77	10.11	0.40	**3382.40**	4936.34	145.94	**-0.63**
2007	15901.44	2640.50	16.61	0.72	4680.65	829.69	17.73	0.81	6742.90	10362.82	153.68	0.41
2008	**14028.76**	3137.13	**22.36**	**-0.49**	**4198.83**	909.32	**21.66**	**-0.57**	**-3434.63**	6630.66	-193.05	**-0.94**
2009	**13941.48**	3195.10	**22.92**	**-0.64**	**4183.45**	901.83	**21.56**	**-0.63**	7332.27	8558.56	116.72	**-0.10**
2010	18207.56	1455.59	7.99	0.43	5462.09	439.73	8.05	0.38	14972.83	11832.33	79.03	**-0.21**
2011	**17724.38**	1273.56	7.19	**-0.47**	**5319.93**	386.13	7.26	**-0.50**	**3279.41**	8144.36	248.35	0.89
2012	17834.85	966.65	5.42	0.42	5410.56	299.86	5.54	0.47	13612.33	12205.24	89.66	0.23
2013	19727.08	879.50	4.46	0.70	5908.09	261.70	4.43	0.18	**5190.50**	21921.84	**422.35**	**-1.08**
2014	24941.00	2757.95	11.06	**-0.37**	7453.50	840.36	11.27	**-0.38**	21351.08	10716.90	50.19	**-0.36**
2015	27382.92	1163.55	4.25	0.47	8298.82	342.82	4.13	0.52	**5305.25**	17388.35	327.76	0.25
2016	**26505.69**	1580.49	5.96	**-0.91**	**8138.21**	527.64	6.48	**-0.88**	16670.67	18256.66	109.51	0.49
2017	31162.84	1926.57	6.18	**-0.30**	9661.42	602.44	6.24	**-0.37**	**-1923.25**	19213.63	**-999.02**	**-0.54**
2018	35649.01	1572.36	4.41	0.33	10823.17	436.48	4.03	0.46	**-8073.45**	18500.97	-229.16	**-0.05**

Source: *Annual Reports of NSE, BSE, RBI and SEBI for the corresponding years*

The FIIs investments in Indian Stock Market have witnessed higher volatility after 2010. The volatility of Sensex, Nifty and FIIs Investment is also tested with the help of Skewness. The Volatility has increased at an alarming rate after 2005 for all the three variables as skewness is negative only for 3 to 4 times upto 2005, but later on evidence of negative skewness in Sensex, Nifty and FIIs Investment are 6, 6 and 8 times it means volatility has been twice in the second half or after 2005 of the study.

Augmented Dickey Fuller (ADF) Test

Null Hypothesis: Sensex, Nifty and FIIs Net Investment contain a unit root.

Stationary of data is a precondition for the application of **Augmented Dickey Fuller (ADF) Test**. So first data series are tested whether it is stationary or not and Augmented Dickey Fuller (ADF) test has been applied for this purpose. First the check stationary of Sensex, Nifty and FIIs Net Investment is taken. The null hypotheses is framed about the monthly returns of Sensex, Nifty and FIIs Net Investment which are tested at 1 per cent, 5 per cent and 10 per cent level of significance. The results generated by the test are exhibited in the Table 3.

The results of ADF test discloses that null hypothesis is rejected because the P-Value of computed ADF test is 0.27444, 029289 and 3.69223 for Sensex, Nifty and FIIs Net Investment respectively which are more than .05. moreover t-Statistic for the three variables are also more than modus Critical Value -2.577945, -1.942614,-1.615522 at 1%, 5% and 10% level of significance respectively, Therefore, the null hypothesis is rejected. Hence, it is concluded that the Sensex, Nifty and FIIs Net Investment do not have a unit root problem and the series is stationary, which is significant at 1 per cent, 5 per cent and 10 percent level of significance.

Table: 3: Stationary Test

Augmented Dickey-Fuller (ADF) test statistic	t-Statistic	P-Value
Sensex	1.09494	0.27444
Nifty	1.05368	0.29289
FIIs Investment	-12.8094	3.69223
	-2.577945	1% level
Test Critical Values	-1.942614	5% level
	-1.615522	10% level

***Source**: Annual Reports of BSE, NSE, RBI and SEBI from 1994 to 2018*
**indicates significant at 0.1, 0.05 and 0.01 marginal level.*

8. CORRELATION ANALYSIS

In this section, with the help of correlation analysis the relationship between FIIs investment and selected stock market indices has been analyzed. Pearson correlation analysis is used to study the degree of statistical relationship between the Net FIIs Net Investment, Sensex and Nifty. Table 4 reveals the result of correlation analysis calculated with the help of SPSS for a period of 299 monthly data of FIIs Net Investment in Indian Stock Market, Closing value of Sensex and Nifty. On the basis of Correlation results it can be concluded that there is low degree of positive correlation between FIIs Net Investment and Indian Stock Market with Sensex (.216) and Nifty (.215). The result of correlation analysis also revealed that these are significant at 1 per cent level of significance. So, it can be concluded that FIIs Net Investment has significant and positive relationship with Indian Stock Market Volatility.

Table 4: Correlations Analyses

		FIIs Net Investment	Sensex	Nifty
FIIs Net Investment	**Pearson Correlation**	1	.216**	.215**
	Sig. (2-tailed)		.000	.000
	N	299	299	299
**. Correlation is significant at the 0.01 level (2-tailed).				

***Source**: Annual Reports of BSE, NSE, RBI and SEBI from 1994 to 2018*

9. CONCLUSION

Based on the findings from the Graphs and Tables it can be concluded that there is a low correlation between FIIs Net Investment and the Sensex and Nifty, indices of Indian stock market in a longer period. Trend analysis calculated with the help of Graphs has shown that both Indices are increasing in the longer period; FIIs Net Investment has fluctuating and volatile trend during the period of study; and Indian Stock Market has shown downward trend whenever FIIs withdrawn investment from Indian Stock Market and vice versa. Volatility analysis has been performed with various statistical tools such as Mean, SD, CV, Skewness and Augmented Dickey Fuller (ADF) Test. Result showed that in the second half of study, i.e., after 2005 volatility in the Indian Stock Market has increased and FIIs Investment is one of the major cause for this volatility. Correlation analysis has resulted that FIIs Net Investment has significant impact over Indian Stock Market.

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