

Impact of FDI & FII on Indian Stock Markets

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ABSTRACT

Foreign investment was introduced in 1991 under Foreign Exchange Management Act (FEMA). This step was taken to add some source of capital formation in India as other developing economies were already in this practice. As a result inflow of Foreign Capital has become striking measure of economic development in both developed and developing countries. Now the developing countries are witnessing changes in the composition of capital flows in their economies because of the expansion and integration of the world equity market. FDI and FII thus have become instruments of international economic integration and stimulation. The Indian stock markets are also experiencing this change. FDI & FII are becoming important source of finance in developing countries including India. It is widely assumed that FDI & FII along with some other external factors such as global economic cues, Exchange rate and Internal factors such as demand and supply, market capitalization, EPS generally drive and dictates the Indian stock market. The current paper makes an attempt to study the relationship and impact of FDI & FII on Indian stock market using statistical measures correlation and regression analysis. Sensex and CNX Nifty were considered as the representative of stock market as they are the most popular Indian stock market indices. Based on 10 years data starting from 2002 to 2011, it was found that the flow of FDI has no significant impact on stock market but FII in India determines the trend of Indian stock market.

Key words: - FEMA, EPS, SENSEX, CNX Nifty, FDI &, FII

I. Introduction

To understand the FDI means in Indian context, we have to look into our history, in early 1498 when a Portuguese Vaskodigama arrived at Calicut. He saw the prosperity of Indians. He introduced India in whole world. Later people started to visit India. Portuguese, Dutch, British and French established their premises in India and started trading with Indian people and dynasties. Sir Tomas Roe was the first British who came as the ambassador of British emperor and get the permission of trading in Mughal India. After this they created the 'East India Company' and started their business. It was the initial form of FDI in India. Later it got many changes according to the world's financial status and become more popular word as foreign direct investment. But due to bad experiences of 'East India Company' at the time of independence, the attitude towards foreign capital was one of fear and suspicion. This was natural on account of the previous exploitative role played by it in 'draining away' resources from this country. The suspicion and hostility found expression in the Industrial Policy of 1948 which, though recognizing the role of private foreign investment in the country emphasized that its regulation was necessary in the national interest. Because of this attitude expressed in the 1948 resolution, foreign capitalists got dissatisfied.

But the year-1991 marked a turning point in the economic history of India. In response to the major balance of payment stimulated by the collapse of Soviet Union (U.S.S.R), India's major trading partner of the era, and hike in oil prices due to Gulf War, the Government of India sought the IMF (International Monetary Fund) to grant a bailout loan of 1.8 billion US Dollars. IMF agreed to India's request for this bailout loan but demanded it to absorb several reforms into its economic policy in return. Government agreed upon this and absorbed some reforms into the economic policy of India. These reforms are famously referred to as the Economic Liberalization of 1991 in India. Under these reforms, major stress was laid by the government on three areas, namely – Liberalization, Privatization & Globalization. It is for this reason that the Economic Reforms of 1991 are sometimes also referred as the LPG policy of India. Here our subject matter is Globalization, in simple terms; the aim of the globalization was to integrate the Indian Economy with the World Economy, by enabling an unhindered Trade flow, Technology flow and Capital flow across the National and State Borders. For this purpose, several steps were undertaken by the Government of India, one of them was Encouragement to Foreign Investment i.e. FDI & FII

II. Review of Literature

A study conducted by the World Bank in 1997 reports that stock market liquidity improved in those emerging economies that received higher foreign investments.

John Andreas¹ in his work "The Effects of FDI Inflows on Host Country Economic Growth" discusses the potential of FDI inflows to affect host country economic growth. The paper argues that FDI should have a positive effect on economic growth as a result of technology spillovers and physical capital inflows. A cross section and panel data analysis on a dataset covering 90 countries during the period 1980 to 2002, finds that FDI inflows enhance economic growth in developing economies only but not in developed economies. This paper has assumed that the direction of causality goes from inflow of FDI to host country economic growth. However, economic growth could itself cause an increase in FDI inflows. Economic growth increases the market size of the host country market and strengthens the incentives for market seeking FDI. This could result in a situation where FDI and economic growth are mutually supporting. However, for the ease of most of the developing economies growth is unlikely to result in market – seeking FDI due to the low income

¹ Johnson Andreas "The Effects of FDI Inflows on Host Country Economic Growth", 2004. <http://www.infra.kth.se/cesis/research/publications/working>

² Chopra, C. "Determinates of FDI Inflows in India", Decision, IIM, Calcutta, 27(2): 137-152. 2002.

levels. Therefore, causality is primarily expected to run from FDI inflows to economic growth for these economies.

According to Dornbusch and Park (1995), foreign investors pursue a positive feedback strategy, which makes stocks to overreact to change in fundamentals.

Nitin Kansal examined the "Impact of FDI & FII on India". The objective of his research is to find the trends & patterns in the FDI from different countries flown into India during 1991-2007 period means i.e. during post liberalization period & Influence of FII on movement of Indian stock exchange during the post liberalization period that is 1991 to 2007. It concludes that FDI did have high significant impact on the Indian capital market.

Chopra² examines the effect of policy reforms on the FDI in India. The analysis has been carried out with the help of annual data from 1980-2000. The research includes policy related variables such as the degree of openness of the economy, debt-service ratio, foreign exchange rate and GDP as the explanatory variables of FDI inflows in India. Empirical result shows that GDP is an important factor which motivates FDI in the country.

A research by Bohn and Tesar (1996) and Brennan and Cao (1997) based on quarterly data of US investments on foreign equity markets found a positive correlation of these flows and local returns on majority of the sample countries. In order to investigate whether FDI announcements provide information to investors, Ding & Sun (1997) studied whether shareholder benefits were a product of their firms' FDI decisions, and whether abnormal returns were attainable by trading shares. Their results showed that an average 2.73% additional return could be observed by investors buying and holding the stock of an announcing firm 21 days around the announcement date.

Jayachandran and Seilan³ investigate the relationship between trade, Foreign Direct Investment (FDI) and economic growth of India over the period 1970-2007. The results of Granger causality test show that there is a causal relationship between the examined variables. The direction of causality relationship is from FDIs to growth rate and there is no causality relationship from growth rates to FDIs. Most of empirical studies carried out in the past used multi regression model to study the impact of flow of FDI & FII.

According to Morgan Stanley⁴ report FIIs strongly influence short-term market movements during bear markets. However, the correlation between returns and flows reduces during bull markets as other market participants raise their involvement reducing the influence of FIIs. Research by Morgan Stanley shows that the correlation between foreign inflows and market returns is high during bear and weakens with strengthening equity prices due to increased participation by other players.

Agarwal⁵, Chakrabarti⁶ have found in their research that the equity return has a significant and positive impact on the FII.

³ Jayachandran, G. and Seilan, A. "A Causal Relationship between Trade, Foreign Direct Investment and Economic Growth for India", *International Research Journal of Finance and Economics*, (42): 74-88. 2010.

⁴ Stanley Morgan, "FII's influence on Stock Market", *Journal: Journal of impact of Institutional Investors on ism*. Vol 17. Publisher: Emerald Group Publishing Limited. 2002.

Agarwal⁵, Chakrabarti⁶ have found in their research that the equity return has a significant and positive impact on the FII.

⁵ Agarwal, R.N. (1997). "Foreign portfolio investment in some developing countries: A study of determinants and macroeconomic impact", *Indian Economic Review*, Vol,32, Issue 2, pages 217-229.

⁶ Chakrabarti, Rajesh. (2001). "FII Flows to India: Nature and Causes." *Money and Finance* "Vol. 2, No. 7, October-December, pages 61-81.

III.Objectives

1. To study the trends and patterns of Foreign direct Investment (FDI) & Foreign Institutional Investment (FII) into India.
2. To study the relationship and impact of FDI & FII on Indian stock market with special reference to SENSEX and CNX Nifty

IV.Research Methodology

Coverage of the study

The universe of the present study is FDI & FII in India and Indian Stock Market, with special reference SENSEX & CNX Nifty. The SENSEX & CNX NIFTY indices considered as the representative of Indian stock market as they are the only & popular indices of Indian stock market.

Data Collection

This study is based on secondary data. The data related to FDI & FII have been collected from various sources i.e. Bulletins of Reserve Bank of India, publications from Ministry of Commerce, Govt. of India. The Sensex and CNX Nifty data is down loaded from the websites of Bombay stock exchange and National stock exchange respectively. Daily closing index value are taken and averaged to get the index value for each year, which is considered as more representative figure of index for the entire year rather any one day's/month's closing figure of the index. The present study considers 13 years data starting from 2001-02 to 2013-14.

The collected data, FDI & FII versus SENSEX & CNX Nifty, is tabulated and found that it is not comparable. As the data on FDI is value of net inflow during the year and index values are cumulative values. Therefore the index values are converted into net increase/decrease in the index during the year. Hence both values reflecting the net inflow/outflow thus can be compared.

Tools & Techniques

To analyze the data, the statistical tools such as correlation and regression analysis are used. Correlation coefficient is a statistical measure that determines the degree to which two variable's movements are associated. Correlation coefficient value ranges from -1to 1. Negative value of correlation indicates: if one variable increases in its values, the other variable decreases in its value and positive value indicates: if one variable increases in its values the other variable also increases in its value. In the current study to know the linear relationship between variables such as FDI & SENSEX, FDI & CNX nifty, FII & SENSEX and FII & CNX Nifty correlation is applied.

The regression analysis is a statistical technique used to evaluate the effects of an independent variable on another dependent variable.

In the current paper attempt is made to study the impact of FDI & FII on SENSEX & FDI & FII on CNX nifty. So FDI & FII are considered as independent variables and SENSEX & CNX Nifty as the dependent variable for model.

Model Building:

Further, to study the impact of Foreign Direct Investment & Foreign Institutional Investment on Indian stock market, model is farmed and fitted; it depicts SENSEX and CNX Nifty as dependent variables; whereas independent variables are FDI & FII.

$$a) Y (\text{SENSEX}) = a + b_1 X_1(\text{FDI}) + b_2 X_2 (\text{FII})$$

$$b) Y (\text{CNX Nifty}) = a + b_1 X_1 (\text{FDI}) + b_2 X_2 (\text{FII})$$

Hypothesis

The null hypothesis for above models is; $b_1=0$ & $b_2=0$ against the alternative hypothesis i.e. $b_1\neq 0$ & $b_2\neq 0$. It can be stated for model a & b as follows:

Model (a)

H01: FDI & FII has no significant impact on BSE Sensex movements.

Ha1: FDI or FII has significant impact on BSE Sensex movements.

Model (b)

H01: FDI& FII has no significant impact on Nifty movements.

Ha1: FDI or FII has significant impact on Nifty movements.

V. Analysis

Table No.1 presents the amount of flow of FDI and FII in India in terms of US\$ million. As the data of FDI &FII is value of net inflow during the year, therefore the index values are converted into net increase/decrease in the index during the year. Hence both values reflecting the net inflow/outflow thus can be compared.

Table No.1
Year wise net value of FDI, FII, SENSEX & Nifty

Year	FDI (US\$ Million)	FII (US\$ Million)	Sensex Net Value	Nifty Net Value
2001-02	6130	1505	-938	-258
2002-03	5035	377	-126	-40
2003-04	4322	10918	1286	390
2004-05	6051	8686	1249	378
2005-06	8961	9926	2539	708
2006-07	22826	3225	3997	1059
2007-08	34843	20328	4291	1324
2008-09	41873	-15017	-4203	-1166
2009-10	37745	29048	3220	927
2010-11	34847	29422	3020	926
2011-12	46566	16812	-1183	-341
2012-13	34298	27582	780	278
2013-14	36046	5010	1918	489

Source: FDI & FII from website of DIPP, Sensex & Nifty from website of bseindia & nseindia

Correlation between FDI & FII and Sensex & Nifty:

Correlation is applied to study the statistical relationship of the variables FDI, FII, BSE sensex and CNX Nifty. When correlation is applied on the above mentioned 10 years data. Based on the results it can be concluded that there is a weak negative correlation between FDI & sensex and FDI & nifty i.e. -0.06 & -0.05 respectively. When it comes to FII it was found that there is a strong positive correlation between FII & sensex and FII & nifty i.e. 0.60 & 0.63 respectively.

Regression Analysis**1. (Independent Variable: FDI & FII, Dependent Variable: BSE SENSEX)**

- a) Regression analysis for model (a) $Y (\text{SENSEX}) = a + b_1 X_1 (\text{FDI}) + b_2 X_2 (\text{FII})$ gives following results.

Table 2
Regression Statistics

		The Correlation between Y and Y (Estimated)
Multiple R	0.65	
R Square	0.43	0.63% of the variation in SENSEX is explained by FDI
Adjusted R Square	0.31	Used to test if an additional independent variable improves the model
Standard Error	1982.47	Expected error between actual value of SENSEX & value predicted by the model
Observations	13	Total No. of observations considered

Table 3
ANOVA

	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F (P-value)</i>
Regression	2	29158524.11	14579262.05	3.71	0.06
Residual	10	39302018.20	3930201.82		
Total	12	68460542.31			

Table 4
t-Stat & P-value

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	759.20	1061.70	0.72	0.49	-1606.41	3124.82
FDI	-0.04	0.04	-1.05	0.32	-0.12	0.04
FII	0.12	0.05	2.71	0.02	0.02	0.23

A simple summary of the above output is that the fitted line is;

$$Y (\text{SENSEX}) = 759.20 - 0.04 X_1 (\text{FDI}) + 0.12 X_2 (\text{FII})$$

From the ANOVA table the F-test statistic is 3.71 with p-value of 0.06. Since the p-value is greater than 0.05 (.06 > 0.05) we cannot reject the null hypothesis that the regression parameters (b_1 & b_2) are zero at significance level 0.05. Conclude that the model is statistically insignificant at significance level 0.05.

The coefficient of FDI has estimated standard error of 0.040, t-statistic of -1.05 and p-value of 0.32. It is therefore statistically insignificant at significance level $\alpha = .05$ as $p > 0.05$. Lower 95% & Upper 95% shows the limits of a confidence interval for the slope of the regression line i.e. we are 95% confident that $-0.12 \leq b_1 \leq 0.04$. Apart from this, if $t > t^c$ we can reject the null hypothesis and vice versa

For this model value of $t (-1.05) < t^c (1.83)$ at significance level 0.05 one tailed or $t (-1.05) < t^c (2.26)$ at significance level 0.05 two tailed

As a result we cannot reject the null hypothesis, thus for the above model $b_1=0$ i.e. FDI has no impact on significant BSE SENSEX movement.

The coefficient of FII has estimated standard error of 0.05, t-statistic of 2.71 and p-value of 0.02. It is therefore statistically significant at significance level $\alpha = .05$ as $p < 0.05$. Lower 95% & Upper 95% shows the limits of a confidence interval for the slope of the regression line i.e. we are 95% confident that $0.02 \leq b_2 \leq 0.23$. Apart from this, if $t > t^c$ we can reject the null hypothesis and vice versa

For this model value of $t (2.71) > t^c (1.83)$ at significance level 0.05 one tailed or $t (2.71) > t^c (2.26)$ at significance level 0.05 two tailed

As a result we can reject the null hypothesis, thus for the above model $b_2 \neq 0$ i.e. FII has significant impact on significant BSE SENSEX movement.

2. (Independent Variable: FDI & FII, Dependent Variable: CNX NIFTY)

b) Regression analysis for model (a) $Y (\text{CNX Nifty}) = a + b_1 X_1 (\text{FDI}) + b_2 X_2 (\text{FII})$ gives following results.

Table 5
Regression Statistics

The Correlation between Y and Y (Estimated)		
Multiple R	0.68	
R Square	0.46	0.66% of the variation in NIFTY is explained by FDI
Adjusted R Square		Used to test if an additional independent variable improves the model
	0.35	
Standard Error		Expected error between actual value of CNX Nifty & value predicted by the model
	547.79	
Observations	13	Total No. of observations considered

Table 6
ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F (P-value)</i>
Regression	2	2566741.90	1283370.95	4.28	0.045
Residual	10	3000691.33	300069.13		
Total	12	5567433.23			

Table 6
t-Stat & P-value

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	207.63	293.36	0.71	0.50	-446.02	861.28
FDI	-0.01	0.01	-1.07	0.31	-0.03	0.01
FII	0.04	0.01	2.92	0.02	0.01	0.07

A simple summary of the above output is that the fitted line is;

$$Y (\text{Nifty}) = 206.63 - 0.01 X_1 (\text{FDI}) + 0.04 X_2 (\text{FII})$$

From the ANOVA table the F-test statistic is 4.28 with p-value of 0.045. Since the p-value is less than 0.05 ($0.045 < 0.05$) we can reject the null hypothesis that the regression parameters (b_1 & b_2) are zero at significance level 0.05. Conclude that the model is statistically significant at significance level 0.05.

The coefficient of FDI has estimated standard error of 0.01, t-statistic of -1.07 and p-value of 0.31. It is therefore statistically insignificant at significance level $\alpha = .05$ as $p > 0.05$. Lower 95% & Upper 95% shows the limits of a confidence interval for the slope of the regression line i.e. we are 95% confident that $-0.03 \leq b_1 \leq 0.01$. Apart from this, if $t > t^c$ we can reject the null hypothesis and vice versa

For this model value of $t (-1.07) < t^c (1.83)$ at significance level 0.05 one tailed or

$t (-1.07) < t^c (2.26)$ at significance level 0.05 two tailed

As a result we cannot reject the null hypothesis, thus for the above model $b_1=0$ i.e. FDI has no impact on significant CNX Nifty.

The coefficient of FII has estimated standard error of 0.01, t-statistic of 2.92 and p-value of 0.02. It is therefore statistically significant at significance level $\alpha = .05$ as $p < 0.05$. Lower 95% & Upper 95% shows the limits of a confidence interval for the slope of the regression line i.e. we are 95% confident that $0.01 \leq b_2 \leq 0.07$. Apart from this, if $t > t^c$ we can reject the null hypothesis and vice versa

For this model value of $t (2.92) > t^c (1.83)$ at significance level 0.05 one tailed or

$t (2.92) > t^c (2.26)$ at significance level 0.05 two tailed

As a result we can reject the null hypothesis, thus for the above model $b_2 \neq 0$ i.e. FII has significant impact on significant CNX Nifty movement.

VI. Findings of the Study

- The flow of FDIs has shown an increasing trend during the considered period except during the years i.e. 2002-03, 2003-04, 2009-10, 2010-11 & 2012-13.
- The flow of FII has shown a mixed trend, during the year 2008-09 there was a negative flow of FII.
- When flow of FII and FDI are compared, the flow of FII is less than flow of FDI into India except for three years i.e. from 2003-04, 2004-05 & 2005-06.
- The value of both indices show a mixed trend but both of them are moving up or down at same time.
- There is a negative correlation between FDI & sensex and FDI & nifty i.e. -0.06 & -0.05 respectively.
- There is a strong positive correlation between FII & sensex and FII & nifty i.e. 0.60 & 0.63 respectively.
- Flow of FDI has no significant impact on BSE Sensex.
- Flow of FII has significant impact on BSE Sensex.
- Flow of FDI has no significant impact on CNX Nifty.
- Flow of FII has significant impact on CNX Nifty.

VII. Conclusion

The flow of foreign capital is playing a significant role in the development of Indian stock markets. These foreign investors are coming to India in two ways i.e. FDI or FII. As far as FDI is concerned, it is not directly related with stock markets but provides opportunities to industries for technological up-gradation, gaining access to global managerial skills and practices, optimizing utilization of human and natural resources and global competitive advantage with greater efficiency. On the other hand FII is directly concerned with stock markets and helpful in the development & growth of stock markets. It increases the size of the stock markets along with the transparency, technology, investor protection, informational standards and operational standards at par with international stock markets. From the current study it is evident that there is a weak positive correlation between FDI & sensex and FDI & nifty and strong positive correlation between FII & sensex and FII & Nifty.

Table 7
Summary of Developed Models

Independent Variables	R ²	Dependent Variables	Beta (β)	p-value
BSE SENSEX	0.43	FDI	-0.04	0.32
		FII	0.12	0.02
CNX Nifty	0.46	FDI	-0.01	0.31
		FII	0.04	0.02

Table 7 presents the summary of the two models developed. In the first model Sensex as a dependent variable, both FDI and FII were found to be significant predictor. Similar results were obtained for second model Nifty as a dependent variable. Hence it can be concluded that the impact of flow of FDI & FII on Indian stock market is significant.

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