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BEHAVIOUR OF FOREIGN CAPITAL FLOWS IN THE INDIAN STOCK MARKET

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ABSTRACT

Foreign investments have gained a significant role in the Indian stock market. The indicators of stock market performance, that is, Sensex and Nifty reached their highest peaks and fall with the dawn of 21st Century. The present paper attempts to analyse the linkages between the trends of foreign capital flows (in the form of Foreign Institutional Investors and Foreign Direct Investments) and the performance of stock market by studying the impact of FDI and FII on Indian stock market. BSE Sensex, S&P CNX Nifty have been used as the indicators of stock market performance. Annual closing values of Sensex and Nifty from 2000-01 to 2014-15 were used for the purpose of study. Further, a correlation analysis has been made between the variables to study the nature and extent of relationship between them. Multiple Regression, ANOVA, Percentages have also been calculated for the analysis. The results indicated that the foreign capital flows in the form of FII and FDI have a significant impact on the Indian stock market during the period of the study.

KEY WORDS: Foreign Institutional Investors, Foreign Direct Investments, BSE Sensex, S&P CNX Nifty etc.

INTRODUCTION

The reform process in India was initiated with the process of economic liberalisation in the early 1990s. Massive reforms were introduced with the implementation of LPG policy. The policy framework was meant to encourage the inflow of foreign capital into the country. Various restrictions and legislation involved in foreign trade have now been done away with. Globalisation of the economy has led to double digit economic growth and also fostered economic integration.

A favourable business environment was developed in India after the reform process in 1991, when the Indian government opened the doors to foreign capital. Consequently the policies were drafted so as to stimulate the foreign capital so as to fulfil the capital requirements of the nation.

Any investment which flows from one country into another may be in the form of FDI or FII. The foreign investment in which the investment is made through the stock exchange is known as foreign institutional investment.

Whereas, FDI refers to an investment made by a company based in one country into another country by taking significant degree of control over the company into which the investment is being made. FDI is considered to be better than FII investments since the former involves direct investment into another country. In case of FDI, direct investment is targeted into a specific enterprise so as to increase its productivity/capacity or to change its management control, whereas FII investments direct the flow of funds into the secondary market, thereby increasing the capital availability in the economy as a whole. FDI tends to be comparatively stable form of foreign investment than the FII investments. Apart from bringing capital, FDI also brings better management, innovative abilities, corporate governance practices and technological transfers. Cumulative amount of FDI flows into India (From April 2002-February 2015) were US$ 3,64,785 mn. FDI inflows into India during financial year 2014-15 (April 2014- Feb2015) stood at US $41,223 mn. Services sector attracted highest percentage of total inflows, being 17% of the total FDI inflows.

The entry of foreign institutional investors was permitted by the Union Government with a view to encourage the growth of capital market and also to attract the flow of funds by foreign investors in India. FIIs are allowed to invest in all the securities which are traded on the primary and secondary markets including the securities which are listed or to be listed on the stock exchanges including the derivatives and schemes floated by domestic mutual funds. The original guidelines relating to FIIs were issued in September 1992. Subsequently, SEBI (Foreign Institutional Investors) Regulations, 1995 were notified by the Securities and Exchange Board of India (SEBI) in November 1995.

Over the years, SEBI allowed different types of FIIs to operate in the Indian stock markets. They include institutions such as asset management companies, pension funds, foundations, university funds, endowments, investment trusts, mutual funds, nominee companies, charitable trusts/societies and incorporated/institutional portfolio managers with a sound track record. Subject to the fulfillment of certain conditions, Proprietary funds have also been permitted to make investments in India through the FII route.

Under the portfolio investment scheme, NRIs/ PIOs/ OCBs are authorised to acquire shares/debentures the primary and secondary capital markets in India through stock exchanges in India. The strong inflows in the recent months have taken the cumulative net investments of FIIs into India close to $197 billion, while in rupee terms is a bit away from Rs. 10 lakh crore level. There are over 1,700 registered FIIs in the country, along with close to 6,400 sub-accounts. (The Hindu)

The FIIs has been playing a crucial role in improving the infrastructure of the Indian stock market. The capital requirement for the growth of any stock market is fulfilled by the funds brought by these class of investors. Further, they are contributing significantly to the foreign exchange inflows since the funds from foreign direct investments and multilateral financial institutions are not sufficient. However, FII investments are considered to be volatile and market driven, yet the inflow of foreign funds by FIIs are essential to ensure steady quantum of investments in the Indian stock market. The present paper

attempts to analyse the trends and impact of foreign Capital flows (in the form of FII and FDI) in the Indian capital market.

RESEARCH METHODOLOGY

Scope of the study

The period of the study is from 2000-01 to 2014-15. BSE Sensex and CNX Nifty have been used as a proxy for the Indian stock Market.

Data Collection

The present study is based on secondary sources of data. The data regarding FDI and FII was collected from the website of Department of Industrial Policy and Promotion. The movements of Sensex were traced from the website of BSE whereas the data regarding NSE was collected from yahoofinance.com.

STATISTICAL TOOLS AND TECHNIQUES

Analysis of investments by FIIs and FDI has been made for the purpose of the study. Coefficient of Correlation, Multiple Regression, ANOVA and Percentages have been calculated for the analysis. SPSS Software has been used for the purpose of analysis.

Coefficient of Correlation was applied to study the extent and direction of relationship between foreign capital flows and Indian stock market returns. Multiple regression was applied to evaluate the effect of FII and FDI (independent variables) on the dependent variables (BSE and NSE).

Two separate model equations were framed. The variables for the purpose of model building can be tabulated as:

	Independent variable	Dependent Variable
MODEL 1	FDI, FII	BSE
MODEL 2	FDI, FII	NSE

So, the two model equations can be expressed as:
BSE SENSEX = a + b1 (FDI) + b2 (FII)

CNX NIFTY = a + b1 (FDI) + b2 (FII)

ANALYSIS OF DATA

TABLE-1

Amount Invested by Foreign Institutional Investors and Foreign Direct Investments

TABLE-1

Amount Invested by Foreign Institutional Investors and Foreign Direct Investments

	FIIs		FDI		Aggregate
Year	**Amount (US$ mn)**	**% in relation to aggregate**	**Amount (US$ mn)**	**% in relation to aggregate**	**Amount**
2000-01	1847	42.85	2463	57.15	4310
2001-02	1505	27.02	4065	72.98	5570
2002-03	377	12.23	2705	87.77	3082
2003-04	10918	83.31	2188	16.69	13106
2004-05	8686	72.96	3219	27.04	11905
2005-06	9926	64.18	5540	35.82	15466
2006-07	3225	20.52	12492	79.48	15717
2007-08	20328	45.27	24575	54.73	44903
2008-09	-15017	-91.68	31396	191.7	16379
2009-10	29048	52.93	25834	47.07	54882
2010-11	29422	57.91	21383	42.09	50805
2011-12	16812	32.37	35121	67.63	51933
2012-13	27582	55.16	22423	44.84	50005
2013-14	5010	17.09	24299	82.91	29309
2014-15	17157	37.32	28813	62.68	45970

Source: DIPP Factsheet on FDI, Annual report of SEBI for different years.

Table 1 shows that the percentage of investments by FIIs and in the form of FDI followed a fluctuating trend during the study period. It can be observed from the table that FII investments were greater than the FDI in 2003-04, 2004-05, 2005-06, 2009-10, 2010-11 and in 2012-13.

On the other hand FDI was found to be greater than FII in the rest of the period of the study. During 2008-09, there were massive withdrawals of funds by FIIs due to global recession. However, FDI investments were found to be positive in the same year. In case of FDI, there was decline in investments in 2002-03, 2003-04, 2009-10, 2010-11 and in 2012-13 in comparison to the previous year. In case of FII, net investments by FIIs declined in 2001-02, 2002-03, 2004-05, 2006-07, 2008-09, 2009-10, 2011-12 and in 2013-14.

TABLE-2
Net FII and FDI Investments and Closing Values of the Market Indices

Financial Year (April-March)	FDI_INV (US$ mn)	FII_INV (US$ mn)	BSE	NSE
2000-01	2463	1847	3604.38	1138.1
2001-02	4065	1505	3469.35	1129.55
2002-03	2705	377	3048.72	978.2
2003-04	2188	10918	5590.6	1771.9
2004-05	3219	8686	6492.82	2035.65
2005-06	5540	9926	11279.96	3402.55
2006-07	12492	3225	13072.1	3821.55
2007-08	24575	20328	15644.44	4734.5
2008-09	31396	-15017	9708.5	3020.95
2009-10	25834	29048	17527.77	5248.1
2010-11	21383	29422	19445.22	5826.05
2011-12	35121	16812	17404.2	5317.9
2012-13	22423	27582	18835.77	5748.1
2013-14	24299	5010	22386.27	6704.2
2014-15	28813	17157	27,957.49	8,491.00

Source: DIPP, BSE's website, moneycontrol.com and yahoofinance.com

Table 2 shows the net investments by FII and FDI and the closing values of BSE Sensex and CNX Nifty. Both the Indexes generated positive annual returns except in the year 2001-02, 02-03,08-09 and 2011-12. There were massive withdrawal of funds by FIIs in 2008-09.

TABLE-3
Correlations

		BSE	NSE	FDI_INV	FII_INV
BSE	Pearson Correlation	1	1.000**	.781**	.602*
	Sig. (2-tailed)		.000	.001	.023
	N	14	14	14	14
NSE	Pearson Correlation	1.000**	1	.789**	.604*
	Sig. (2-tailed)	.000		.001	.022
	N	14	14	14	14
FDI_INV	Pearson Correlation	.781**	.789**	1	.284
	Sig. (2-tailed)	.001	.001		.324
	N	14	14	14	14
FII_INV	Pearson Correlation	.602*	.604*	.284	1
	Sig. (2-tailed)	.023	.022	.324	
	N	14	14	14	14

**. Correlation is significant at the 0.01 level (2-tailed).

Coefficient of correlation measures the extent and degree of relationship between two variables. As shown in Table 3, the coefficient of correlation between BSE and FDI is 0.781 and coefficient of correlation between BSE and FII is .602 (r = .602). The coefficient of correlation between NSE and FDI is 0.789 and coefficient of correlation between NSE and FII is .604 (r = .604). It signifies that there is high degree of positive correlation between the market indexes (BSE, NSE) and foreign capital flows (FDI and FII). The correlation values are significant at 1% and 5% level of significance respectively.

ANALYSIS OF DATA USING REGRESSION

Multi regression OLS has been used to analyse the data. While framing Model 1, FDI and FII have been taken as independent variables while BSE Sensex is taken as dependent variable. Table 4 gives the summary output which is reporting the strength of relationship between the independent and dependent variable. The coefficient 'R' represents the multiple correlation coefficient which shows the linear correlation between the observed values and the values of dependent variable as predicted by the model. The larger the value, the stronger is the relationship among the variables.

TABLE-4
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.859[a]	.737	.693	4245.983	.821

a. Predictors: (Constant), FII_INV, FDI_INV
b. Dependent Variable: BSE

IMPACT OF FDI FLOWS AND FII FLOWS ON BSE SENSEX

R Square (or the coefficient of determination) is the square of the multiple correlation coefficients. The value of R Square is 0.737 which shows that FDI and FII (Independent variables) accounts for 73.7% of the variation of the Sensex (Dependent Variable).

ANOVA

The table 5 shows the value of ANOVA. The testing of model from a statistical perspective so as to accept the model is done by ANOVA. F statistic is found to be significant, since the p value (.00032) is less than 0.05.

TABLE-5

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	6.07E+08	3.04E+08	16.84096639	0.000328565
Residual	12	2.16E+08	18026406		
Total	14	8.23E+08			

TESTING FOR COLINEARITY IN THE DATA

Table 6 presents the colinearity statistics when multiple regression is applied. The colinearity statistics included in the study are Tolerance and Variance Inflation Factor (VIF). To avoid the problem of colinearity among the variables, the value of VIF should be less than 5 and the level of tolerance should be higher than 0.2. In our current model, the VIF value=1.105 and tolerance= 0.905. Therefore, both the values fulfil the required condition. The results indicate that there is no problem of colinearity among the variables as used in the model.

TABLE - 6

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3525.450	1974.180		1.786	.099		
	FDI_INV	.425	.099	.670	4.308	.001	.905	1.105
	FII_INV	.227	.096	.369	2.370	.035	.905	1.105

a. Dependent Variable: BSE

So, the multiple regression equation by taking BSE Sensex as dependent variable and FDI and FII as Independent variables will be as:

BSE SENSEX = a + b1 (FDI) + b2 (FII)

BSE SENSEX = 3525.40+ 0.425 (FDI) + 0.227 (FII)

HYPOTHESIS TESTING FOR FDI AND BSE SENSEX

The null and alternative hypothesis for FDI and BSE Sensex can be written as:

Ho: FDI have no significant impact on BSE Sensex Index.

Hi: FDI have significant impact on BSE Sensex Index.

The 'p' value in case of FDI is .001 which is less than .05, so the null hypothesis will be rejected at 5% significance level. It implies that the alternative hypothesis that FDI have a significant impact on BSE will be accepted.

HYPOTHESIS TESTING FOR FII AND BSE SENSEX

The null and alternative hypothesis for FDI and BSE Sensex can be written as:

Ho: FII have no significant impact on BSE Sensex Index.

Hi: FII have significant impact on BSE Sensex Index.

The 'p' value in case of FII is .035 which is less than .05, So the null hypothesis will be rejected at 5% significance level. It implies that the alternative hypothesis that FIIs have a significant impact on BSE is accepted

IMPACT OF FDI FLOWS AND FIIs ON CNX NIFTY

R Square (or the coefficient of determination) is the square of the multiple correlation coefficients. As shown in table 7, the value of R Square is 0.74. It shows that FDI and FII (independent variables) accounts for 74% of the variation of the Nifty (Dependent Variable).

TABLE - 7

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.862[a]	.743	.700	1254.456	.769

a. Predictors: (Constant), FII_INV, FDI_INV
b. Dependent Variable: NSE

ANOVA

The table 8 shows the value of ANOVA. The testing of model from a statistical perspective so as to accept the model is done by ANOVA. F statistic is found to be significant, since the p value (.0002897) is less than 0.05.

TABLE - 8

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	54527342.38	27263671	17.32502	0.000289718
Residual	12	18883910.14	1573659		
Total	14	73411252.52			

TesTesting for Colinearity in the Data

Table 9 presents the colinearity statistics when multiple regression is applied. The colinearity statistics included in the study are Tolerance and Variance Inflation Factor (VIF). To avoid the problem of colinearity among the variables, the value of VIF should be less than 5 and the level of tolerance should be higher than 0.2. In our current model, the VIF value=1.105 and tolerance= 0.905. Therefore, both the values fulfil our condition. The results indicate that there is no problem of colinearity among the variables as used in the model.

TABLE - 9

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1108.272	583.262		1.900	.082		
	FDI INV	.128	.029	.675	4.389	.001	.905	1.105
	FII INV	.067	.028	.366	2.379	.035	.905	1.105

Dependent Variable: NSE

So, the multiple regression equation by taking CNX Nifty as dependent variable and FDI and FII as Independent variables will be as:

CNX NIFTY = a + b1 (FDI) + b2 (FII)

CNX NIFTY = 1108.272+ 0.128 (FDI) + 0.67 (FII)

Hypothesis Testing for FDI and CNX NIFTY

The null and alternative hypothesis for FDI and CNX NIFTY can be written as:

Ho: FDI have no significant impact on CNX NIFTY Index.

Hi: FDI have significant impact on CNX NIFTY Index.

The 'p' value in case of FDI is .001 which is less than .05, So the null hypothesis will be rejected at 5% significance level. It implies that the alternative hypothesis that FDI has a significant impact on NSE will be accepted.

Hypothesis Testing for FII and CNX NIFTY

The null and alternative hypothesis for FDI and CNX Nifty can be written as:

Ho : FII have no significant impact on CNX NIFTY Index.

Hi : FII have significant impact on CNX NIFTY Index.

The 'p' value in case of FII is .035 which is less than .05, So the null hypothesis will be rejected at 5% significance level. It implies that the alternative hypothesis that FII have a significant impact on NSE will be accepted.

Table 10 shows the summary statistics of Regression Tables

TABLE - 10

Regression Statistics (Summary of the two models)

Independent Variable	R Square	Independent variable	Beta	p
Sensex	0.737	FDI	0.670	0.001
		FII	0.369	0.035
Nify	0.743	FDI	0.675	0.001
		FII	0.366	0.035

*significance at 5 percent level of significance

SUMMARY AND CONCLUSION

The flow of foreign capital into India in the form of FII and FDI provided momentum to the Indian stock market. It is evident from the current study that there is high degree of positive correlation between FDI and BSE Sensex and FDI and CNX Nifty as also between FII and BSE Sensex and FII and CNX Nifty. In the event of huge withdrawal of funds by FIIs, the net inflow of funds in India in the form of FDI were found to be positive. The summary statistics of regression showed that the foreign capital flows in the form of FII and FDI have a significant impact on the Indian stock market.

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