

IMPACT OF FDI AND FIIs ON SENSEX AND NIFTY IN INDIA

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ABSTRACT

The present paper highlights the impact of Foreign Direct investments (FDI) and Foreign Institutional Investments (FIIs) in India on BSE and NSE. The study is purely based on secondary data and the analysis of which was made through the application of Karl Pearson's coefficient of Correlation and Multi Regression OLS model (Ordinary Least Square). Based on 15 years data starting from 2001 to 2015, it was found that the flow of FDI & FIIs was moving in cycle with Sensex and Nifty. There is a very strong positive correlation between FDI & Sensex and FDI & Nifty. There is a moderate positive correlation between FII & Sensex but the correlation is not significant between FII & Nifty. It can be concluded that the impact of flow of FDI & FIIs on Indian stock market is significant.

Key words : FDI, FIIs, BSE Sensex, NSE CNX Nifty.

INTRODUCTION

The financial crisis in global markets has made the outlook of Indian economy grim. While the consistently volatile markets and the rupee plunging to an all-time low against the USD are some major concern at this moment, natural calamities and economic scandals seem to be the icing on the cake. Two decades ago, in the early 90's, India faced a similar crisis. At that time India's major concerns were the problem in balance of payments and poor foreign exchange reserves.

During the crisis, Dr. Manmohan Singh, the Finance Minister of India at that time, came up with a solution to reform the Indian economy. He liberalized the economy by ending the license raj¹ (License Raj: A term used to describe the regulation of the private sector in India between 1947 and the early 1990s. In India at that time, one needed the approval of numerous agencies in order to set up a business legally) and gave rise to the phenomena of foreign investments in India. Thus, opening the gates for foreign players to

come and invest in India. Since then, foreign investments have been the backbone of the Indian economy and like the 90's this time too, it would seem that foreign investments might be holding the magic wand that may be able to pull India out of the current economic slump. Foreign investments are flows of capital from one nation to another in exchange for significant ownership stakes in domestic companies or other domestic assets. There are two types of foreign investments that play a major role in the growth of Indian economy; Foreign Direct Investments (FDI) and Foreign Institutional Investments (FII).

Since 1991 Foreign investments in the country are allowed to take the form of investments (thru stock market) in listed companies referred as FII investments and investments in listed/unlisted companies other than through stock exchanges are referred as Foreign Direct Investment. In other words FDI refers to an investment made by a company based in one country, into a company based in another country, companies making such direct

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investments have a significant degree of influence and control over the company into which the investment is made. FDI is preferred over FII investments as it is considered to be the most beneficial form of foreign investment for the economy as a whole. Direct investment targets a specific enterprise, with the aim of increasing its capacity/productivity or changing its management control.

Direct investment in order to create or augment capacity ensures that the capital inflow gets translated into additional production. In the case of FII investment that flows into the secondary market, the effect is to increase capital availability in general, rather than availability of capital to a particular enterprise. Translating an FII inflow into increased production depends on production decisions of the local investor who has to explore and design production plans drawn upon the additional capital made available via FII inflows to augment production. For instance, when FDI flows into an enterprise for mere acquisition of an existing asset, no addition to production capacity takes place as the direct effect of FDI inflow. Thus, like in the case of FII inflows, in this case too, addition to production capacity does not merely result from the action of the foreign investor - but on designs and actions of the domestic seller who has to invest the proceeds of the sale in a manner that augments capacity or productivity for the foreign capital inflow to boost domestic production. There is a widespread notion that FII inflows are hot money - that it comes and goes, creating volatility in the stock market and exchange rates. While this might be true of individual funds, cumulatively, FII inflows have only provided net inflows of capital.

FDI tends to be much more stable than FII inflows. Moreover, FDI brings not just capital but also better management and governance practices and, often, technology transfer. Prominently, the know-how that gets transferred along with FDI is often more crucial and significant than the capital itself! Though no such irreplaceable benefits accrue in the case of FII inflows, the search by FIIs for credible investment options has improved accounting and governance

practices among many listed Indian companies.

Foreign investment is also seen as an emerging measure of growing economic globalization. Investment has always been an issue for the developing economies such as India and so those countries have drafted measures to liberalize their policies for welcoming investment from countries which are abundant in capital resources. The countries which are developed are focusing on new markets where there is availability of abundant labors, scope for products, and high profits are achieved to fulfill their growth ambitions.

Make in India impact:

Foreign Institutional Investment (FII) inflows surged a record 71.7 per cent to \$40.92 billion in 2014-15 and Foreign Direct Investment (FDI) inflows jumped 48 per cent since Prime Minister Narendra Modi launched the 'Make In India' initiative in September 2014. FDI equity inflows from October 2014 to April 2015 over the corresponding period last year rose 48 per cent. The inflows through the approval route grew 87 per cent during 2014-15 to \$2.22 billion despite more sectors having been liberalized during this period and with more than 90 per cent of FDI being on automatic route. Overall, FDI inflows during 2014-15 were spread across sectors - services sector (\$3.2 billion), telecommunication (\$2.8 billion), trading (\$2.7 billion), automobile industry (\$2.5 billion), computer software & hardware (\$2.2 billion), drugs and pharmaceuticals (\$1.5 billion) and construction (infra) activities (\$0.75 billion).

The Modi Government amended the FDI policy to foster a positive investment climate and sync it with the vision and focus areas of the present Government such as affordable housing, Smart Cities, financial inclusion and reforms in railway infrastructure. The construction development sector was allowed easy exit norms with rationalized area restrictions and due emphasis on affordable housing. The cap on FDI in the insurance and pension sector was raised to 49 per cent, and 100 per cent FDI was allowed in the railway infrastructure (excluding operations) and also in the medical devices sector.

The definition of non-resident Indians (NRIs) itself was expanded to include OCI (Overseas Citizenship Of India) cardholders as well as PIO (Persons of Indian Origin) cardholders, and NRIs investment are now deemed to be domestic investment made by residents, thereby giving flexibility to NRIs to invest in India. India stands committed to have a FDI policy and regime, which is investor-friendly and also promotes investment leading to increased manufacturing, job creation and overall economic growth.

SIGNIFICANCE OF FDI & FII IN INDIA

Growing India needs abundant foreign capital in the form of FDI & FII for the development of basic infrastructure like Roads, Railways, Sea Ports, Warehouses, Banking Services and Insurance Services etc. Moreover, rapid industrialization since 1991 has further strengthened the need of foreign capital across various industries. Many developing countries suffer from severe scarcity of funds in highly capital intensive areas such as infrastructure. This problem can be diverted to the foreign capitalists by allowing them to invest. Other words, foreign capital are the panacea for the scarcity of all resources.

The variations in the cost of capital are also one of the important factors resulting in attracting foreign capital in India. For example; Interest rates are high in India as compared to developed economies. In several countries the interest rates are as low as 1 per cent to 3 per cent, where as in some countries like India the interest rates are very high as 8 per cent to 10 per cent per annum. Thus, for enterprises in India, foreign capital is an easy route to reduce the cost of capital. Thus investors tend to invest in countries like India where they can gain maximum return on their investments. Gradual Integration of global financial markets ultimately results in explosive growth of FDI around the globe.

OBJECTIVES OF THE STUDY

1. To study the trends and patterns of foreign capital flow in to India in the form of FDI & FII

2. To study the impact of Foreign Direct Investment (FDI) on Indian stock market (Sensex and Nifty).
3. To study the impact of Foreign Institutional Investment (FII) on Indian stock market (Sensex and Nifty).

HYPOTHESIS

BSE SENSEX

1. FDI: The null hypothesis and alternative hypothesis with respect to BSE Sensex and FDI can be stated as follows:

H₀₁: Flow of FDIs in to India and BSE Sensex trend are independent.

H_{a1}: Flow of FDIs in to India and BSE Sensex trend are dependent.

2. FII: The null hypothesis and alternative hypothesis with respect to BSE Sensex and FII can be stated as follows:

H₀₂: Flow of FIIs in to India and BSE Sensex trend are independent.

H_{a2}: Flow of FIIs in to India and BSE Sensex trend are dependent.

NSE CNX NIFTY

- 1) FDI: The null hypothesis and alternative hypothesis with respect to CNX NIFTY and FDI can be stated as follows:

H₀₃: Flow of FDIs in to India and NIFTY trend are independent.

H_{a3}: Flow of FDIs in to India and NIFTY trend are dependent.

- 2) FII: The null hypothesis and alternative hypothesis with respect to CNX NIFTY and FII can be stated as follows:

H₀₄: Flow of FIIs in to India and CNX NIFTY trend are independent.

H_{a4}: Flow of FIIs in to India and CNX NIFTY trend are dependent.

SCOPE OF THE STUDY

The present study takes 15 years data into consideration. To study the impact of FDI & FII on Indian stock market, Sensex and Nifty was a natural choice to be considered in the study, as it is the most popular stock market indices and widely used by market participants for

benchmarking.

RESEARCH METHODOLOGY

Data Collection

This study is based on secondary data. The required data related to FDI and FII have been collected from various sources i.e. Bulletins of Reserve Bank of India, publications from Ministry of Commerce, Govt. of India. The BSE Sensex and CNXNifty data is down loaded from the websites of bseindia and nseindia 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 anyone day's/month's closing figure of the index. The present study considers 15 years data starting from 2001 to 2015.

Analytical Tools & Technique

In order to analyze the collected data the statistical tools such as correlation and Multi regression OLS model is used. Correlation coefficient is a statistical measure that determines the degree to which two variable's movements are associated. Correlation coefficient value ranges from -1 to +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 study the linear relationship between variables such as FDI & FII and Sensex & Nifty correlation is applied. The multiple regression analysis is a statistical technique used to evaluate the effects of two or more independent

variables on a single dependent variable.

In the current paper attempt is made to study the impact of FDI & FII on Sensex and Nifty. So FDI & FII are considered as the two independent variables the dependent variable for model 1 is Sensex and Nifty for model 2.

Model Building:

Further, to study the impact of Foreign Direct Investment and Foreign Institutional Investors on Indian stock market, two models were framed and fitted.

Model 1 depicts Sensex as dependent variable; whereas independent variables are FDI and FII.

Model 2 depicts Nifty as dependent variable; whereas independent variables are FDI and FII.

Equations: The two model equations are expressed below:

1. BSE SENSEX = a + b1 (FDI) + b2 (FII)
2. CNX NIFTY = a + b1 (FDI) + b2 (FII)

DATA ANALYSIS

The following table 1 presents the amount of flow of FDI and FII in India in terms of US\$ million. The flow of FDI has shown an increasing trend during the considered period except during the years i.e. 2003 to 2004, 2010 to 2011 and the year 2013. The flow of FII has shown a mixed trend, during the year 2008 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 in to India except for five years i.e. from 2003 to 2005, 2007 and the year 2012 (also shown in figure 1).

Table 1
Inflow of FDI, FII and Movements in Indian Stock Market (Amount in US\$ million)

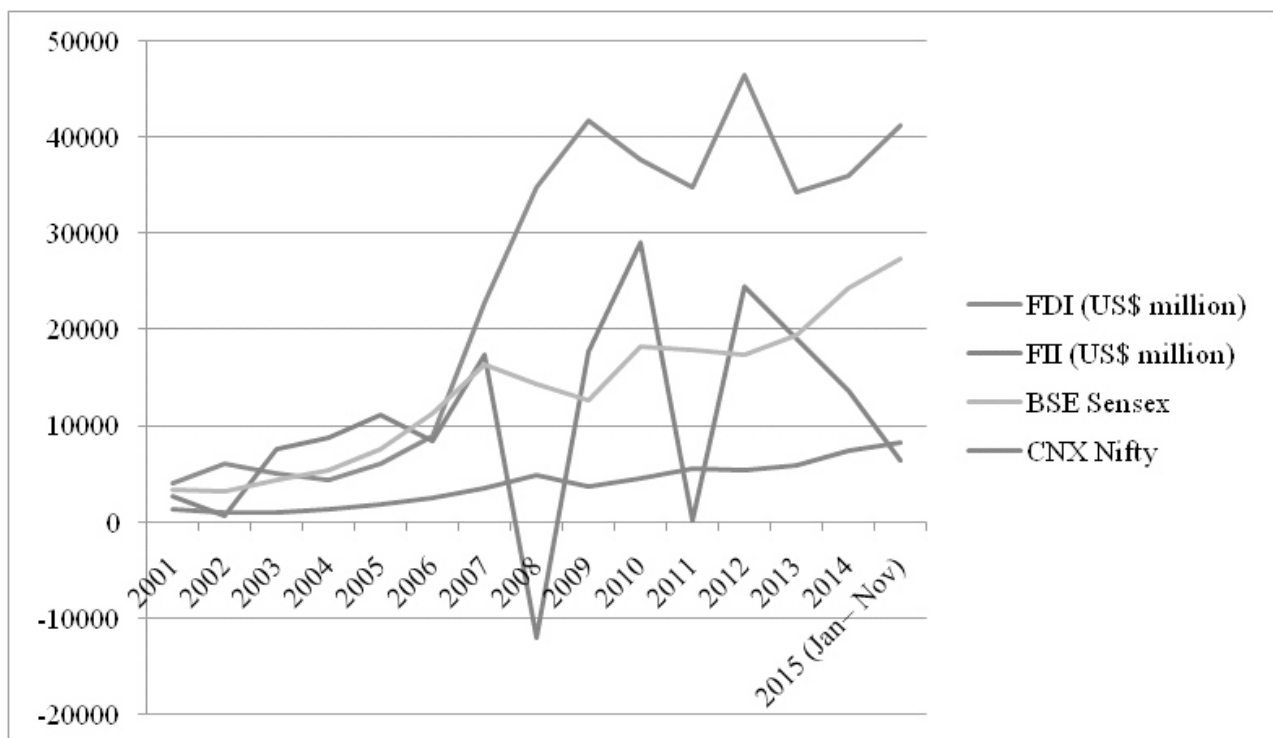
Year	FDI (US\$ million)	FII (US\$ million)	BSE Sensex	CNX Nifty
2001	4029	2667	3528.49	1334.76
2002	6130	744	3293.38	1077.02
2003	5035	7627	4412.6	1037.22
2004	4322	8866	5422.33	1427.5
2005	6051	11185	7756.16	1805.26

Year	FDI (US\$ million)	FII (US\$ million)	BSE Sensex	CNX Nifty
2006	8961	8533	11417.2	2513.44
2007	22826	17327	16407.1	3572.44
2008	34843	-11931	14452.1	4896.59
2009	41873	17764	12789.1	3731.02
2010	37745	29043	18380.3	4657.76
2011	34847	251	17900.3	5583.54
2012	46556	24434	17485.1	5410.56
2013	34298	19096	19466.2	5908.09
2014	36046	13690	24392.7	7453
2015 (Jan- Nov)	41223	6490	27429.1	8331.54
Total	364785	155786	204532	58739.7
Mean	24319	10385.733	13635.5	3915.98
S.D.	15944.5	10057.548	7328.86	2284.43

Source: 1. FDI & FII from various reports of DIPP

2. BSE & NSE from bseindia and nseindia websites

Figure 1: Inflow of FDI, FII and Movements in Indian Stock Market (Amount in US\$ million)



A. 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. The following table 2 presents the output, when correlation is run to the 15 years data considered. Based on the results it can be concluded that there is a very strong

positive correlation between FDI & Sensex (0.843) and FDI & Nifty (0.867), and the correlation is found to be significant at 1 percent level of significance. When it comes to FII it was found that there is a moderate positive correlation between FII & Sensex (0.309) but the correlation is not significant between FII & Nifty (0.186) at 1 percent level of significance.

Table 2
Correlations

	FDI (US\$ million)	FII (US\$ million)	CNX Nifty	BSE Sensex
FDI (US\$ million)	1	0.345	0.867	0.843
FII (US\$ million)	0.345	1	0.186	0.309

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

B. Impact of flow of FDIs and FIIs on BSE Sensex Multi regression OLS is used to analyze the data.

Independent Variable: FDI and FII

Dependent Variable: BSE SENSEX

The table 3 is the model summary reports the strength of the relationship between the model and the dependent variable. R, the multiple correlation coefficients, is the linear correlation between the observed and model predicted values of the dependent variable. Its large value (0.957) indicates a strong relationship. R Square, the

coefficient of determination, is the squared value of the multiple correlation coefficients. The value of R² is 0.916; it shows that the model explains 91.6 per cent of the variation. In other words the dependent variables FDI and FII are able to explain around 92 per cent the variation of the dependent variable (SENSEX). Durbin-Watson static informs us whether the assumption of independent errors is acceptable. The closer to 1 the value is the better and for the data it was 1.022 which is close to the 1.

Table 3
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.957a	.916	.903	4830.23043	1.022

a. Predictors: FII (US\$ million), FDI (US\$ million)

b. Dependent Variable: BSE Sensex

The ANOVA table 4, tests the acceptability of the model from a statistical perspective. The Regression row displays information about the variation accounted for by the model. The Residual row displays information about the variation that has not been accounted by the

model. The regression much is less than residual sums of squares, which indicates that around 92 per cent of the variation in SENSEX is explained by the model. However, F statistic is found significant, since the p value (0.000) less than 0.05.

Table 4
ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.291E9	2	1.646E9	70.534	.000a
	Residual	3.033E8	13	2.333E7		
	Total	3.595E9 ^b	15			

a. Predictors: FII (US\$ million), FDI (US\$ million)
b. Dependent Variable: BSE Sensex

C. Testing for Collinearity in the data

Table 5 presents the coefficients and Collinearity statistics when multi regression is applied. The two Collinearity statistics are tolerance and VIF. A value of VIF higher than 10, and tolerance less than 0.2 indicates a potential

problem. For our current model the VIF values are all well below 10 and the tolerance statistic is as well above 0.2 for all the independent variables. Hence there is no problem of Collinearity among the variables used in the model and multi regression is appropriate

Table 5
Coefficients^a

Model		Unstandardized Coefficients		Standardized Collinearity	t	Sig.	Coefficients Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	FDI (US\$ million)	.479	.063	0.901	7.611	.000	0.464	2.157
	FII (US\$ million)	0.787	0.194	0.735	4.051	0.001	0.464	2.157

a. Dependent Variable: BSE Sensex
b. *Significant at 5 percent level of significance

Testing the hypothesis:

FDI:

The null hypothesis and alternative hypothesis with respect to BSE Sensex and FDI can be stated as follows:

H01: Flow of FDIs in to India and BSE Sensex trend are independent.

Ha1: Flow of FDIs in to India and BSE Sensex trend are dependent.

The p-value related to FDI shown in table 5, is .000 less than 0.05, so null hypothesis H01 is not accepted. Hence it is concluded that Flow of FDIs in to India and BSE Sensex trend are dependent.

FII:

The null hypothesis and alternative hypothesis with respect to BSE Sensex and FII

can be stated as follows:

H02: Flow of FIIs in to India and BSE Sensex trend are independent.

Ha2: Flow of FIIs in to India and BSE Sensex trend are dependent.

The p-value related to FII shown in table 5, is .001 less than 0.05, so null hypothesis H02 is not accepted. Hence it is concluded that Flow of FIIs in to India and BSE Sensex trend are dependent.

D. Impact of flow of FDIs and FIIs on CNX NIFTY

Multi regression OLS is used to analyze the data.

Independent Variable: FDI and FII

Dependent Variable: CNX NIFTY.

The table 6 is the model summary reports the strength of the relationship between the model

and the dependent variable. R, the multiple correlation coefficients, is the linear correlation between the observed and model predicted values of the dependent variable. Its large value (0.962) indicates a strong relationship. R Square, the coefficient of determination, is the squared value of the multiple correlation coefficients. The value of R² is 0.925; it shows that the model explains

92.5 per cent of the variation. In other words the dependent variables FDI and FII are able to explain around 93 per cent the variation of the dependent variable (NIFTY). Durbin-Watson static informs us whether the assumption of independent errors is tenable. The closer to 1 the value is the better and for the data it was 0.952 which is very close to the 1.

Table 6
Model Summaryb

Model	R	R Square	Adjusted R	Std. Error of the Square	Durbin-Watson Estimate
2	.962a	.925	.920	1282.94853	.952
a. Predictors: FDI (US\$ million)					
b. Dependent Variable: CNX Nifty					

The ANOVA table 7, tests the acceptability of the model from a statistical perspective. The Regression row displays information about the variation accounted for by the model. The Residual row displays information about the variation that has not been accounted by the

model. The regression is much less than residual sums of squares, which indicates that around 93 per cent of the variation in NIFTY is explained by the model. However, F statistic is found significant, since the p value (0.000) less than 0.05.

Table 7
ANOVA^b

Model	Sum of Squares	df	Mean Square	F	Sig.	
2	Regression	2.853E8	1	2.853E8	173.309	.000a
	Residual	2.304E7	14	1645956.942		
	Total	3.083E8 ^b	15			
a. Predictors: FDI (US\$ million)						
b. Dependent Variable: CNX Nifty						

E. Testing for Collinearity in the data

Table 8 presents the coefficients and collinearity statistics when multi regression is applied. The two Collinearity statistics are tolerance and VIF. A value of VIF higher than 10, and tolerance less than 0.2 indicates a potential

problem. For our current model the VIF (2.157) values are all well below 10 and the tolerance (0.464) statistic is as well above 0.2 for all the independent variables. Hence there is no problem of Collinearity among the variables used in the model and multi regression is appropriate.

Table 8
Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
2	FDI (US\$ million)	0.155	0.017	0.992	8.95	0.000	0.464	2.157
	FII (US\$ million)	0.215	0.061	0.686	3.525	0.003	0.464	2.157
a. Dependent Variable: CNX Nifty								

Testing the hypothesis:

FDI:

The null hypothesis and alternative hypothesis with respect to CNX NIFTY and FDI can be stated as follows:

H03: Flow of FDIs in to India and NIFTY trend are independent.

Ha3: Flow of FDIs in to India and NIFTY trend are dependent.

The p-value related to FDI shown in table 8, is .000 less than 0.05, so null hypothesis H03 is not accepted. Hence it is concluded that Flow of FDIs in to India and CNX NIFTY trend are dependent.

FII:

The null hypothesis and alternative hypothesis with respect to CNX NIFTY and FII can be stated as follows:

H04: Flow of FIIs in to India and CNX NIFTY trend are independent.

Ha4: Flow of FIIs in to India and CNX NIFTY trend are dependent.

The p-value related to FDI shown in table 8, is .003 less than 0.05, so null hypothesis H04 is not accepted. Hence it is concluded that Flow of FIIs in to India and CNX NIFTY trend are dependent.

FINDINGS OF THE STUDY

- The FDIs flow has shown increasing trend during the considered period except during the years i.e. 2003 to 2004, 2010 to 2011 and the year 2013.
- The flow of FIIs did not show one single trend during the considered period of study.
- The flow of FII is less than flow of FDI in to India except for five years i.e. from 2003 to 2005, 2007 and the year 2012.
- There is a very strong positive correlation between FDI & Sensex (0.843) and FDI & Nifty (0.867) and the correlation is significant at 1 percent level of significance.
- There is a moderate positive correlation between FII & Sensex (0.309) but the correlation is not significant between FII & Nifty (0.186) at 1 percent level of significance.
- Flow of FDIs into India and BSE Sensex trend are dependent.
- Flow of FIIs into India and BSE Sensex trend are dependent.
- Flow of FDIs into India and CNX Nifty trend are dependent.
- Flow of FIIs into India and CNX Nifty trend are dependent.

Table 9
Summary of two models developed

Independent Variable	R2	Dependent Variable	Beta	p
Sensex	0.957	FDI	0.901	.000
		FII	0.735	0.001
Nifty	0.962	FDI	0.992	0.000
		FII	0.686	0.003
*Significant at 5 percent level of significance				

CONCLUSION

The flow of FDI & FII accelerated the Indian economy and also gave opportunities to Indian industry 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. Most importantly FDI is central for India's integration into global production chains which involves production by MNCs spread across locations all over the world. From the current study it is evident that there is a strong positive correlation between FDI & Sensex and FDI & Nifty and moderate positive correlation between FII & Sensex but the correlation is not significant between FII & Nifty. Table 9 presents the summary of the two models developed. Using Multi regression two significant models emerged. 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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