An Analysis Of Impact Of FDI On Indian Stock Market.

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ABSTRACT—
With the radical liberalization in the Foreign Direct Investment (FDI) regime during past years, Indian capital market has been able to attract foreign investors considerably. There has been significant upsurge in the foreign direct investment in India. With this, India has emerged as one of the most favored destination for investment in the world. Since the development and the volatility of the Indian stock market has been substantially influenced by the inflow of FDI. Therefore, the present paper attempts to analyse the impact of FDI inflows on the movement of BSE (Bombay Stock Exchange) SENSEX and NSE (National stock exchange) CNX Nifty during the period under study. The study is primarily based on ten years secondary data for the period from April, 2006 to March, 2016. The Simple Linear Regression (step-wise method), Karl Pearson's coefficient of correlation, Analysis of Variance, Normal P-P plot, Scatter plot, Histogram, descriptive statistics (Mean & Standard Deviation), Compounded Annual Growth Rate, Trend Percentage etc. are the tools for the analysis of data using the statistical package for social sciences (SPSS). FDI was found significantly correlated with both the markets with the coefficient of correlation being 0.666 and 0.682 respectively. It was further found that FDI has affected BSE SENSEX up to 44 percent and CNX Nifty up to 47 percent. The study concluded that flow of FDI in India has significant impact on BSE SENSEX and NSE Nifty movements. Keeping in view the findings of the study, it has been suggested that the government of India along with its implementing bodies should try to attract more and more FDI for the smooth and rapid development of the stock market and the economy as a whole.

Keywords: *Regression, Correlation, Indian Stock Market, BSE- Sensex, NSE-Nifty, FDI.*

INTRODUCTION

With the radical liberalization in the Foreign Direct Investment (FDI) regime and the relaxation of FDI norms under automatic route in many sectors in recent past, Indian capital market has been able to attract foreign investors considerably. There has been significant upsurge in the

foreign direct investment in India. With this, India has emerged as one of the most favored destination for investment in the world. Various studies in the past has revealed that the development and the volatility of the Indian stock market has been substantially influenced by several macroeconomic variables (e.g. GDP, inflation and exchange rates etc.) and the inflow of FDI being one of them. A large number of empirical studies have proved that FDI has played a vital role in the overall economic growth and development of the host countries. Since, the growth of the economy promotes the development stock market, therefore, it has become essential to analyse the impact of FDI on the Indian stock market.

Meaning of FDI

According to the International Monetary Fund, FDI can be defined as "An Investment that is made to acquire a lasting interest in an enterprise operating in an economy other than that of the investor. The investor's purpose is to have an effective voice in the management of the enterprise."

In simple terms, Foreign Direct Investment (FDI) refers to the long-term direct investment made by a foreign entity, in the production and management of an entity in another country either by buying a company in the that country or by expanding the operations of existing business in that country, with the objective of establishing a lasting interest in the management of the latter entity. Along with the inflow of funds, it also involves participation in the management, joint venture, transfer of technology and expertise.

REVIEW OF LITERATURE

Following are some of the relevant literatures which have been reviewed. [1] Nagpal et al. (2016) examined the impact of FDI and FII flow on Indian Stock market (BSE Sensex and NSE Nifty) during the period from 2005-06 to 2014-15. The analysis concluded that the impact of flow of FDI & FII on Indian stock market was found significant. [2] Banerjee (2013) studied the impact of FDI and FII on Indian Stock Market (BSE and Nifty) during the recession period (Jan, 2008-June, 2009) using multiple regression analysis. It was found that FDI had a significant impact on the Indian Stock market during recession while FII negatively influenced the Indian

Stock Market. [3] Tamilarasu.J (2015) investigated the level of contribution of Foreign Direct Investment in the volatility various Indices of BSE and NSE during the period of April 2009 to March 2014 using the correlation matrix analysis and simple regression. The analysis revealed that Foreign Direct Investment does not have much influence the movement of stock market indices namely, BSE100, BSE 200, BSE 500, BSE SENSEX, CNX100, CNX 500, CNX MIDCAP, and

CNX NIFTY but FDI and BSE 100 are significantly correlated. [4] Dhiman and Sharma (2013) studied the impact of foreign direct investment on the Indian stock market (Sensex and Nifty) during the period 2001-2012 using coefficient of correlation and regression analysis. The study concluded that FDI in India determines the trend of Indian Stock Market. [5] Sameera P. (2014) (Tripathi, A. 2019).

examined the trend and pattern of FII and FDI flow in India and its correlation with the Bombay stock exchange index. The secondary data of 15 years has been analysed by employing Correlation technique. The analysis revealed that FDI & Sensex have strong positive correlation which was found significant at 1 percent level of significance. [6] Chauhan (2013) analyzed the impact of FDI, FIIs (Foreign Institutional Investment), and FPIs (Foreign Portfolio investment) inflows on the movement of BSE and NSE during period 2001-2012. The secondary data were analyzed through Regression (OLS Model), Karl Pearson's correlation, Analysis of Variance.

The flow of FDI and FPI were found to have significant impact on BSE Sensex and NSE Nifty movements while FIIs indicated a very low impact on Sensex and had comparatively higher impact on NSE. [7] Kapoor and Sachan (2015) studied the relationship and impact of FDI & FII on Indian stock market (Sensex and CNX Nifty) by means of statistical measures of correlation and regression analysis. The analysis of data from 2002 to 2011 revealed that the impact of flow of FDI & FII on Indian stock market was significant (Tripathi, A. 2014).

3. OBJECTIVES

- The objectives of the study are:

- To study the trends of FDI inflows in India.

- To analyse the impact of FDI inflows on the movement of BSE (Bombay Stock Exchange) SENSEX and NSE (National stock exchange) CNX Nifty.

HYPOTHESES
H_{01}: The impact of FDI inflows on the movements of BSE- SENSEX is statistically insignificant.
H_{a1}: The impact of FDI inflows on the movements of BSE- SENSEX is statistically significant.
H_{02}: The impact of FDI inflows on the movements of NSE- CNX Nifty is statistically insignificant.
H_{a2}: The impact of FDI inflows on the movements of NSE- CNX Nifty is statistically significant.

RESEARCH METHODOLOGY
The following research methodology is followed in the present study:
Research Design
The present study is empirical in nature and a descriptive research approach has been adopted.
Period of the Study
The present study covers the time period of 10 years from April, 2006 to March, 2016.
Type of Data and Data Sources
The study is primarily based on secondary data relating to FDI, BSE (Bombay Stock Exchange) SENSEX and NSE (National stock exchange) CNX Nifty. The data related to FDI inflows has been collected from various sources like Bulletins of Reserve Bank of India and Fact sheets of the Department of Industrial Policy & Promotion, Ministry of Commerce and Industry, Government of India. The BSE SENSEX and NSE- CNX Nifty data have been collected from the website of www.bseindia.com and www.nseindia.com respectively and then the daily closing index value is averaged to get the index value for each year. The various evidences and facts has been derived from the different sources e.g. journals, research papers, articles, etc.
Statistical Tools & Techniques Applied
The Simple Linear Regression (step-wise method), Karl Pearson's coefficient of correlation, Analysis of Variance, Normal P-P plot, Scatter plot, Histogram, descriptive statistics (Mean & Standard Deviation), Compounded Annual Growth Rate, Trend Percentage etc. are the tools for the analysis of data using the statistical package for social sciences (SPSS).
Limitations of the study
Following are the major limitations of the study:
The study has taken into consideration only three variables but there are many other factors which could be studied further.
The study is limited to the time period of ten years only.

The study mainly depends upon the published secondary data which was assumed to be reliable.
ANALYSIS AND DISCUSSION
Table No.1 presents the amount of flow of FDI in India in terms of US$ million, the BSE Sensex
and Nifty during the period of study. The table clearly depicts that, FDI total inflows in the year
2006-07 was US $ 22826 million and thereafter it increased in next two years to US $ 41874
million in 2008-09. But due to the Global Economic Crisis (2008-09)

and changes in the FDI limits in various sectors, the FDI inflows into India had reduced to US $
37745 million in 2010 and further dropped to US $ 34847 million by the end of year 2011. In
2012, FDI inflows rose to US $ 46556 million however in the year 2013 and 2014 FDI inflows
into India declined. Thereafter the total FDI inflows increased to US $ 55457 million by the end
of financial year 2015-16. Thus, FDI total inflows in India showed a fluctuating trend during the
period of study with a significant upsurge in 2015-16 as compared to 2006-07 and recorded a
Compounded Annual Growth Rate (CAGR) of 9.28 percent.

Table 1: Year-wise FDI, BSE SENSEX & NSE CNX Nifty

Year	FDI	Trend %	BSE SENSEX	CNX Nifty
2006-07	22826	100	12277.33	3572.44
2007-08	34835	152.61	16568.89	4896.59
2008-09	41874	183.45	12365.55	3731.02
2009-10	37745	165.36	15585.21	4657.76
2010-11	34847	152.66	18605.18	5583.54
2011-12	46556	203.96	17422.88	5245.10
2012-13	34298	150.26	18202.10	5520.34
2013-14	36046	157.92	20120.12	6009.51
2014-15	45148	197.79	26556.53	7962.17
2015-16	55457	242.96	26322.10	7981.35
Total	389632	-	184025.89	55159.82
Mean	38963.2	-	18402.589	5515.982
S.D.	8835.36	-	4926.809	1508.017

Source: Compiled from Fact Sheet on Foreign Direct

Investment, DIPP, www.bseindia.com and www.nseindia.com
The beginning trend percentage of FDI has been at 100% level and it increased and reached to
242.96 % in the year ended 2016, which was highest among over years.
Impact of FDI on Indian Stock Market
To study the impact of FDI on BSE SENSEX and NSE-CNX Nifty during the period of study,
FDI is taken as independent variable and BSE SENSEX and NSE-CNX Nifty are taken as
dependent variable. For the purpose of analysis Simple Linear Regression (step-wise method) has
been applied using SPSS 20.
Model Building: $Y = a + b X$
Model (a): $SENSEX = a + b FDI$

Model (b):   NIFTY = a + b FDI
Where, a = intercept b = slope Y = Dependent Variable X = Independent Variable
The result of Regression Analysis is depicted in the tables below:

Table 2: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Durbin-Watson
BSE SENSEX	.666	.444	.374	3897.38677	1.419
NSE CNX Nifty	.682	.465	.398	1169.97086	1.423

Source: Author's Computation

Table 3: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
BSE SENSEX	Regression	96944114.541	1	96944114.541	6.382	.035 b
	Residual	121516989.339	8	15189623.667		
	Total	218461103.880	9			
NSE CNX Nifty	Regression	9516386.935	1	9516386.935	6.952	.030 b
	Residual	10950654.490	8	1368831.811		
	Total	20467041.425	9			
a. Dependent Variable: BSE_SENSEX and CNX_NIFTY						
b. Predictors: (Constant), FDI						

Source: Author's Computation

Table 4: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	B		
BSE SENSEX	(Constant)	3929.221	5860.114		.671	.521
	FDI	.371	.147	.666	2.526	.035*
NSE CNX Nifty	(Constant)	981.320	1759.169		.558	.592
	FDI	.116	.044	.682	2.637	.030*
*Significant at 5 percent significance level.						

Source: Author's Computation

The table 2 is the model summary revealed the strength of the relationship between the model and the dependent variable i.e., R, the Karl Person's correlation coefficients. Relation between Foreign Direct Investment (FDI) with BSE-Sensex is 0.666; CNX Nifty is 0.682. It showed that the two variables are in partial positive relation with FDI, which was found significant at 5 percent level of significance. R square, the coefficient of determination, showed the percent of variation in the dependent variable as explained by the model. Table 2 indicated that 44.4 percent and 46.5 percent of the variation in BSE SENSEX and NSE-CNX Nifty was explained by the model, FDI respectively. Durbin-Watson static informs whether the assumption of auto correlation. The closer the value is to 2, the better it is. The Durbin-Watson coefficient of 1.419 and 1.423 indicates that there exists no auto correlation as it is near to 2.

The Table 3 ANOVA, depicts test for the acceptability of the model from a statistical viewpoint. The Regression row shows information about the variation accounted for by the model i.e., Explained variance. The Residual row displays information about the variation that has not been accounted by the model i.e., unexplained variance. The regression is much less than residual sums of squares for both the dependent variables, which indicates that the variation in SENSEX and Nifty is explained by the model. F statistic is found significant, since the p values (0.035 and 0.030 respectively for Sensex and Nifty) are less than 0.05, so null hypotheses H_{01} and H_{02} are rejected and the alternative hypotheses H_{a1} and H_{a2} are accepted. Thus, there exists a linear relationship between the variables in the model. Hence, it has been concluded that Flow of FDI has significant impact on BSE SENSEX and NSE CNX Nifty movements.

The Unstandardized coefficient B = Beta value in Table 4 gives the slope value of the regression model and also showed how much the Dependent Variables (BSE Sensex and NSE CNX Nifty) are dependent upon the Independent variable. In table 4 the b-value for FDI is 0.371, it means

that if FDI increases by 1 unit, Sensex will increase by 0.371. Similarly, for every 1 unit increase in FDI, CNX Nifty will increase by
0.116. The estimated regression equations are:

$$\text{BSE SENSEX} = 3929.221 + 0.371 \text{ FDI}$$
$$\text{NSE CNX Nifty} = 981.320 + 0.116 \text{ FDI}$$

The Normal P-P plot, Scatter plot and Histogram were used to check homoscedasticity and normality of the residuals. The histogram indicated that the residuals approximate a normal distribution while the Normal P-P plot and Scatter plot showed that in the present linear regression analysis there is no tendency in the error terms.

6.2. Hypothesis Testing

The null hypothesis with respect to BSE SENSEX and NSE CNX Nifty and FDI can be stated as follows:

H_{01}: The impact of FDI inflows on the movements of BSE- SENSEX is statistically insignificant.

H_{a1}: The impact of FDI inflows on the movements of BSE- SENSEX is statistically significant.

The p-value related to FDI and BSE SENSEX is 0.035 which is less than 0.05. Since the p value is less than 0.05, there is enough evidence to reject the null hypothesis. Therefore, it can be concluded that Flow of FDI in India has significant impact on BSE SENSEX movements.

H_{02}: The impact of FDI inflows on the movements of NSE- CNX Nifty is statistically insignificant.

H_{a2}: The impact of FDI inflows on the movements of NSE- CNX Nifty is statistically significant.

The p-value related to FDI and NSE- CNX Nifty is 0.030, which is less than 0.05. Since the p value is less than 0.05, there is enough evidence to reject the null hypothesis. Therefore, it can be concluded that Flow of FDI in India has significant impact on NSE- CNX Nifty movements.

FINDINGS OF THE STUDY

The flow of FDIs has shown an increasing trend during the period of the study except for the years 2009-10, 2010-11 & 2012-13.

There has been a direct linear relationship between FDI & BSE Sensex and FDI & NSE CNX Nifty, means that if FDI increases then BSE Sensex and NSE CNX Nifty will increase in same direction.

There has been a moderate degree of positive correlation between FDI & BSE Sensex and FDI & NSE CNX Nifty.

There has been significant impact of FDI inflows in India on movements in Indian stock market i.e., BSE Sensex and NSE CNX Nifty.

CONCLUSION

The findings of the study revealed that there has been a moderate degree of positive correlation and direct linear relationship between FDI & BSE Sensex and FDI & NSE CNX Nifty. The results of the regression residual analysis revealed that FDI has been significant predictors to measure the bull and market trends in Indian stock market. Since the coefficient of determination is not equal to zero which indicated that FDI is one of the predictive variables for volatility in Indian stock market but there may be many other factors which drives the stock market. So, it can be concluded that the behaviour of foreign direct investors has influenced the performance

of stock market indices in India. Keeping in view the findings of the study, it has been suggested that the government of India along with its implementing and regulatory bodies should make further effort to attract more and more FDI for the smooth and rapid development of the stock market and the economy as a whole.

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