# IMPACT OF FOREIGN DIRECT INVESTMENT ON INDIAN STOCK MARKETS – AN EMPIRICAL STUDY

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**ABSTRACT**

*In past two decades in India the Foreign Direct Investment (FDI) is a non- debt financial force has been played a vital role in Indian Economy. FDI has become an important source of finance in India. The last fiscal (2015-16) year saw a considerable increase in the FDI made in India. India's business growth policies have contributed a great effort towards FDI increase. The ruling NDA government at the centre has announced a lot of relaxation for FDI. FDI have become instruments of international economic integration and stimulation. Foreign direct investment plays a crucial role in channelizing transfer of capital and technology and perceived to be an important factor in promoting economic growth in developing countries, like- India. Fast growing economies like Singapore, China, and Korea etc. have registered incredible growth at the onset of FDI.*


*Various External factors such as global economic cues, exchange rate and various internal factors such as demand and supply, market capitalisation, EPS generally drive and dictate the Indian stock market but at the same time the Indian stock market will also be affected due to the inflow of FDI. This paper studies the impact of foreign direct investment on the Indian stock market. Statistical measures correlation and regression analysis has been used for analysis. BSE Sensex and NSE Nifty were considered as the representative of the stock market as they are the most popular Indian stock market indices. Data of 15 years, starting from year 2001-02 to 2015-16 has been taken for the study and it was found that the flow of FDI has a direct impact on stock market. The study concludes that flow of FDI in India determines the trend of Indian Stock Market.*


**Keywords:** FDI, Stock Market, BSE SENSEX, CNX Nifty, Regression.

## Introduction

FDI is considered to be the most attractive type of capital flow for emerging economies like India as it is expected to bring latest technology and enhance production capabilities of the economy. Foreign Direct investment targets a specific enterprise, with the aim of increasing its capacity/productivity or changing its management control. FDI tends to be much more stable than FII inflows.

According to the international monetary fund, "FDI is defined as investment that is made to acquire lasting interest in an enterprise operating in an economy other than that of investor. The investor's purpose is being to have an effective voice in the management of enterprise''.

FDI refers to an investment made by a company based in one country to another country based company to have a significant degree of influence and control over that company into which the investment is made. It gives access to foreign capital and also generating additional economic activity as well as generating employment and helps the country to move towards advanced technology. After 1991, when the government of India opened the door for foreign direct investment, it creates favourable situation for FDI through Foreign Exchange Management Act (FEMA act). The policies drafted to stimulate the flow of foreign capital in India to emerge as an attractive destination for foreign investors. Consequently, the international capital inflows have been increased tremendously during last two decades. FDI has been a vital non-debt financial force behind the economic upsurge in India. Special investment advantages like cheap cost wages and tax exemptions on the amount being invested attract foreign companies to invest in India.

The FDI can take any route or form to enter into any nation. The three principal forms of FDI in India are joint ventures, acquisition of assets in a country and Greenfield ventures.

## 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.

Chopra (2002) 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.

John Andreas (2006) studied the impact of FDI inflow on host country economic growth. The paper says that FDI should have a positive impact on economic growth as a result of technology spillovers and capital inflows. He took almost 90 countries and find out that FDI inflow enhances the economic growth in developing economies but not in developed economies. Kumar and Karthika (2010) found out in their study on "Sectoral Performance through Inflows of Foreign Direct Investment (FDI)" that Foreign Direct Investment has a major role to play in the economic development of the host country. Most of the countries have been making use of foreign investment and foreign technology to accelerate the pace of their economic growth.

Jayachandran and Seilan (2010) studied 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.

Sultana and Pardhasaradhi (2012) found out in their study that FDI and FII accelerated the Indian economy and also gave the opportunities to Indian Industry. This study shows that the flow of FDI and FII in India determines the trend of Indian Stock Market.

Sharma Reetu and Khurana Nikita (2013) in their study on the sector wise distribution of FDI inflow to know about which has concerned with the chief share, used a data from 1991- 92 to2011-2012 (post-liberalization period). This paper also discusses the various problems about the foreign direct investment and suggests the some recommendations for the same. In this study found that, Indian economy is mostly based on agriculture. So, there is a most important scope of agriculture services. Therefore, the foreign direct investment in this sector should be encouraged.

Kantesha Sanningammanavara, Kiran Kumar, K. V. and Rakesh, H. M. (2014) in their study Movements in the stock market can be quite volatile and sometimes movements in share prices can seem divorced from economic factors. Within the framework of a Correlation Coefficient Model, they examine whether a number of macroeconomic variables influence stock prices in Indian Stock Market. A Correlation analysis is applied in order to model the long-term relationship between GDP, Exchange rates, Inflation Rate, Gross Domestic Savings, Capital formation/Investment (FDI & FII) and SENSEX in the Indian Capital market. During the past sixteen years there is down in the Indian stock market and foreign portfolio investment a pattern.

Dr. Sandeep Kapoor And Mr. Rcoky Sachan (2015) 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.

## OBJECTIVES OF THE STUDY:

1) To examine the foreign direct investment trend & pattern into India over the last fifteen years.
2) To find out the impact of Foreign Direct Investment (FDI) on Indian stock market (Sensex and Nifty).

## RESEARCH METHODOLOGY:

## SCOPE OF THE STUDY

There are various factors on which a stock index may depend i.e. Government policies, budgets, bullion market, inflation, economic and political condition of the country, FII, Re./Dollar exchange rate etc.    For this study only one independent variable i.e. FDI is selected. To study the impact of FDI on Indian stock market, BSE Sensex and NSE Nifty were taken into consideration as it is the most popular stock market indices and widely used by market participants for benchmarking. BSE and NSE represent themselves as synonyms of Indian stock market*.      .

## DATA COLLECTION

This study is based on secondary data. The required data related to FDI have been collected from website of DIPP. The data of Sensex and Nifty data is down loaded from the websites of Bombay

stock exchange and National stock exchange respectively (BSE India and NSE India 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

### YEAR OF THE STUDY.
The present study considers 15 years data starting from financial year 2001-02 to 2015- 16.

### TOOLS & TECHNIQUES
This study uses the concept of correlation and regression to study the relationship between FDI and stock index**.** 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 & 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 on SENSEX &FDI on Nifty. So FDI is considered as independent variables and SENSEX & Nifty as the dependent variable.

### MODEL BUILDING:
To study the impact of Foreign Direct Investment on Indian stock market, two models are framed.
Model 1 depicts Sensex as dependent variable; whereas FDI as independent variable.
Model 2 depicts Nifty as dependent variable; whereas FDI as independent variable.

The two model equations are expressed below:
$Y = a + bX$ (Here "a" is the intercept and "b" is the slope)
$BSE\ SENSEX = a + b_1\ (FDI)$
$CNX\ NIFTY = a + b_1\ (FDI)$

### DATA ANALYSIS
The following table- 1presents the amount of flow of FDI in India in terms of US$ million. The flow of FDIs have shown an increasing trend during the considered period except during the years i.e. 2001-02 to 2015-16. The data related to BSE Sensex and NSE Nifty in average terms has been given below.

**TABLE 1-**
**YEAR WISE NET VALUE OF FDI, SENSEX & NIFTY**

| Year | FDI (US $ Million) | BSE Sensex Average values | NSE Nifty Average Value |
|---|---|---|---|
| 2001-02 | 6130 | 3293.375 | 1063.025 |
| 2002-03 | 5035 | 4412.6 | 1417.2 |
| 2003-04 | 4322 | 5422.325 | 1690.325 |
| 2004-05 | 6051 | 7756.155 | 2375.7 |
| 2005-06 | 8961 | 11417.16 | 3321.25 |
| 2006-07 | 22826 | 16407.11 | 4869.95 |
| 2007-08 | 34843 | 14452.08 | 4304.925 |
| 2008-09 | 41873 | 12789.06 | 3880.65 |
| 2009-10 | 37745 | 18380.32 | 5506.95 |
| 2010-11 | 34847 | 17900.33 | 5356.1 |
| 2011-12 | 46566 | 17485.1 | 5276.6 |
| 2012-13 | 34298 | 19466.23 | 5767.05 |
| 2013-14 | 36046 | 24392.75 | 7280.125 |
| 2014-15 | 44291 | 27429.14 | 8329.35 |
| 2015-16 | 55457 | 25785.95 | 7897.25 |

**Hypothesis**

H01: There is no significant impact of FDI on BSE Sensex.
Ha1:.There is significant impact of FDI on BSE Sensex.

H02: There is no significant impact of FDI on NSE Nifty.
Ha2: There is significant impact of FDI on NSE Nifty.

**DATA ANALYSIS- ANALYSIS BETWEEN FDI AND BSE SENSEX**

**TABLE-1**

**CORRELATIONS**

| | | BSE SENSEX | foreign direct investment |
|---|---|---|---|
| Pearson Correlation | BSE SENSEX | 1.000 | .864 |
| | foreign direct investment | .864 | 1.000 |
| Sig. (1-tailed) | BSE SENSEX | . | .000 |
| | foreign direct investment | .000 | . |
| N | BSE SENSEX | 15 | 15 |
| | foreign direct investment | 15 | 15 |

**INTERPRETATION-** The results indicate that the correlation between BSE and FDI is .864 or 86% which shows the relationship between FDI and BSE. They are highly correlated with each other. There is a positive correlation between the FDI and BSE. It shows that both variables move in the same directions. The p value for the correlation coefficient is .000, which is less than 0.514 at df =13 the assumed level of significance or .000<.514 it implies that the null hypothesis i.e. H01 has been rejected.

**TABLE-2**

**MODEL SUMMARY**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .864a | .746 | .727 | 3994.71913 |

a. Predictors: (Constant), foreign direct investment

b. Dependent Variable: BSE SENSEX

**INTERPRETATION-**

The model summary reports the strength of the relationship between the model and the dependent variable. Correlation coefficients, **r**, is the linear correlation between the observed and model predicted value of the dependent variable. There is a high degree of positive correlation of coefficients 86%. Its large value indicates a strong relationship. R Square, the coefficient of determination, is the squared value of the correlation coefficients. The value of $r^2$ is 0.746 or 74%; it shows that the 71% of the variations in the BSE Sensex are explained by the FDI (independent factor). To test the statistical significance of the slope coefficient, we calculate the standard error of the coefficient.

**TABLE-3**

**ANOVA**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 6.107E8 | 1 | 6.107E8 | 38.269 | .000a |
| | Residual | 2.075E8 | 13 | 1.596E7 | | |
| | Total | 8.181E8 | 14 | | | |

a. Predictors: (Constant), foreign direct investment

b. Dependent Variable: BSE SENSEX

**INTERPRETATION-**

The ANOVA table 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 86% of the variation** in SENSEX is explained by the model. The computed value of F is to be compared with the tabulated

value of F. The F value used to test the significance of $r^2$.The tabulated value of F at df=13 at 5% level of significance =4.67. Since, the computed F=38.27 is greater than the tabulated F = 4.67. It shows that the Null hypothesis is rejected. However, F statistic is found significant, since the p value (0.000) less than 0.05. So, our model is accepted.

**TABLE-4**
**COEFFICIENTS**

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| 1       (Constant) | 4582.411 | 1991.245 | | 2.301 | .039 |
| foreign direct investment | .376 | .061 | .864 | 6.186 | .000 |

a. Dependent Variable: BSE SENSEX

**INTERPRETATION -**

Independent Table value of **t** with 13 degree of freedom at 5 % level of significance 1.771, whereas the computed t value is 6.186. As the computed t value is greater than the critical value, its reject the $H_0$ which shows that the correlation coefficient is significant. To estimate the linear regression model, we calculate the β value. The intercept and slope terms are 4582.411 and .376. Therefore, y = α+ βx by estimated regression equation as y (BSE) = 4582.411 + 0.376x (FDI). This regression equation shows that as the FDI goes up by 1 unit then Sensex also increases by .376 units. It's concluded that FDI very much affected the BSE Sensex.

**GRAPHS-**
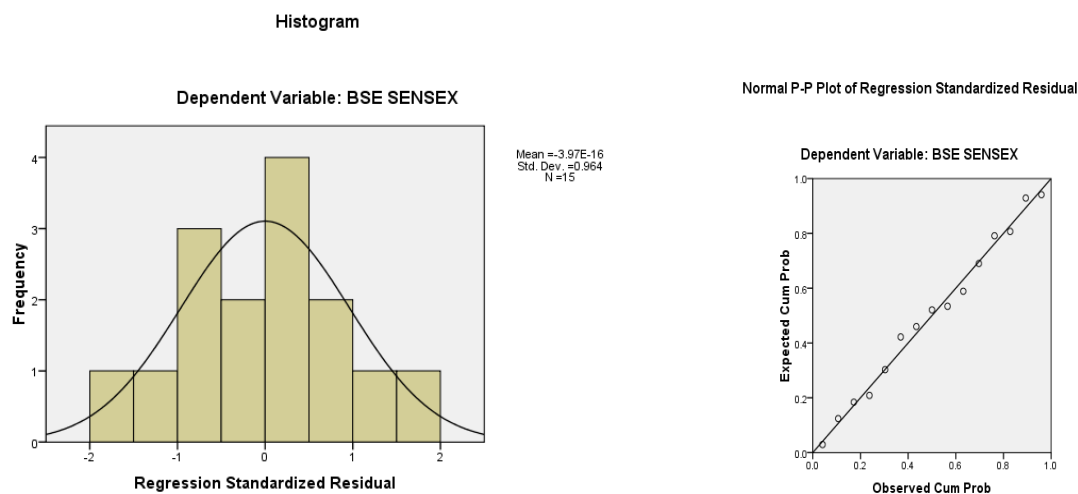
## INTERPRETATION-

These graphs are shown that there is a normal trend between the FDI inflows and BSE Sensex. Histogram shows that the data related to the BSE Sensex moves within the normal curve whereas normal p-plot shows that the there is a positive trend line and other variables moves around the trend line.

## DATA ANALYSIS- ANALYSIS BETWEEN FDI AND NSE NIFTY

### TABLE-1

#### CORRELATIONS

| | | NSE NIFTY | foreign direct investment |
|---|---|---|---|
| Pearson Correlation | NSE NIFTY | 1.000 | .868 |
| | foreign direct investment | .868 | 1.000 |
| Sig. (1-tailed) | NSE NIFTY | . | .000 |
| | foreign direct investment | .000 | . |
| N | NSE NIFTY | 15 | 15 |
| | foreign direct investment | 15 | 15 |

**INTERPRETATION**- The results indicate that the correlation between NSE and FDI is .868 or 86% which shows the relationship between FDI and NSE. They are highly correlated with each other. There is a positive correlation between the FDI and NSE. It shows that both variables move in the same directions. The p value for the correlation coefficient is .000, which is less than 0.514 at df =13 the assumed level of significance or .000<.514 it implies that the null hypothesis i.e. H02 has been rejected.

### TABLE-2

#### MODEL SUMMARY

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .868[a] | .754 | .735 | 1179.31392 |

a. Predictors: (Constant), foreign direct investment

b. Dependent Variable: NSE NIFTY

## INTERPRETATION-

The model summary reports the strength of the relationship between the model and the dependent variable. Correlation coefficients, **r**, is the linear correlation between the observed and model predicted value of the dependent variable. There is a high degree of positive correlation of coefficients 86%. Its large value indicates a strong relationship. R Square, the coefficient of

determination, is the squared value of the correlation coefficients. The value of $r^2$ is 0.754 or 75%; it shows that the 75% of the variations in the NSE Nifty are explained by the FDI (independent factor). To test the statistical significance of the slope coefficient, we calculate the standard error of the coefficient.

**TABLE-3**

**ANOVA**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 5.543E7 | 1 | 5.543E7 | 39.858 | .000a |
| | Residual | 1.808E7 | 13 | 1390781.311 | | |
| | Total | 7.351E7 | 14 | | | |

a. Predictors: (Constant), foreign direct investment

b. Dependent Variable: NSE NIFTY

**INTERPRETATION-**

The ANOVA table 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 86% of the variation in NSE nifty** is explained by the model. The computed value of F is to be compared with the tabulated value of F. The F value used to test the significance of $r^2$ .The tabulated value of F at df=13 at 5% level of significance =4.75. Since, the computed F=29.74 is greater than the tabulated F =4.75. It shows that the Null hypothesis is rejected. However, F statistic is found significant, since the p value (0.000) less than 0.05. So, our model is accepted.

**TABLE-4**

**COEFFICIENTS**

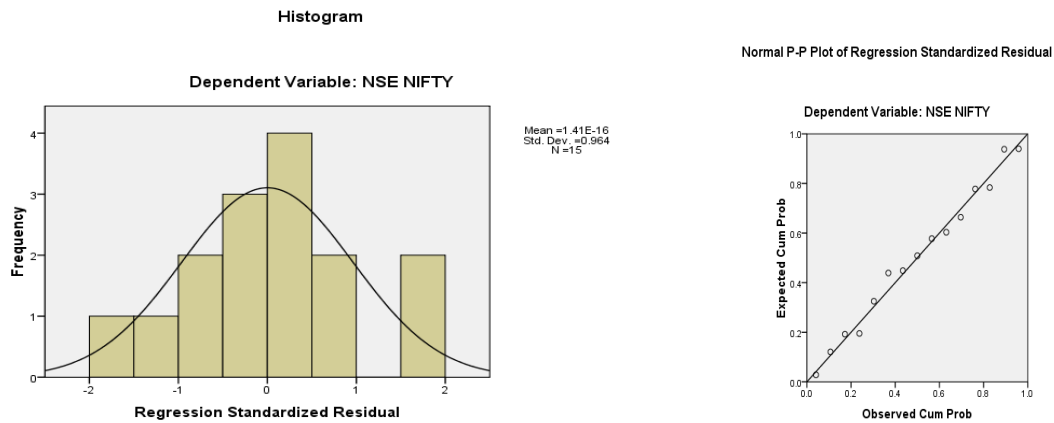| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1381.142 | 587.852 | | 2.349 | .035 |
| | foreign direct investment | .113 | .018 | .868 | 6.313 | .000 |

a. Dependent Variable: NSE NIFTY

**INTERPRETATION -**

Independent Table value of **t** with 12 degree of freedom at 5 % level of significance 1.771, whereas the computed t value is 6.313. As the computed t value is greater than the critical value, its reject the $H_0$ which shows that the correlation coefficient is significant. To estimate the linear regression model, we calculate the β value. The intercept and slope terms are 1381.142 and .113. Therefore, y = α+ βx by estimated regression equation as y (NSE) = 1381.142 + .113x (FDI). This regression

equation shows that as the FDI goes up by 1 unit then NSE Nifty also increases by .113 units. It's concluded that FDI very much affected the NSE Nifty.

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**GRAPHS-**



Histogram

Dependent Variable: NSE NIFTY

Mean =1.41E-16
Std. Dev. =0.964
N =15



Normal P-P Plot of Regression Standardized Residual

Dependent Variable: NSE NIFTY

**INTERPRETATION-**
These graphs are shown that there is a normal trend between the FDI inflows and NSE Nifty. Histogram shows that the data related to the NSE Nifty moves within the normal curve whereas normal p-plot shows that the there is a positive trend line and other variables moves around the trend line.

**FINDINGS-**
The FDIs flow has shown increasing trend during the considered period of study except in the recent past fourteen years 2001-02 to 2015-16.

➢ Testing the hypothesis: (Table 4) FDI:
The null hypothesis and alternative hypothesis with respect to BSE Sensex and FDI can be stated as follows:

➢ H01: There is no significant impact of FDI on BSE Sensex.
Ha1:.There is significant impact of FDI on BSE Sensex.
The p-value related to FDI shown in table 3in the last column, is .000 less than 0.05 (i.e. it falls in rejection area) so null hypothesis H01 is not accepted. Hence it is concluded that Flow of FDIs in to India and BSE Sensex trend are dependent. The alternate hypothesis is selected.

➢ H02: There is no significant impact of FDI on NSE Nifty.
Ha2: There is significant impact of FDI on NSE Nifty.
The p-value related to FDI shown in table 3in the last column, is .000 less than 0.05 (i.e. it falls in rejection area) so null hypothesis H01 is not accepted. Hence it is concluded that Flow of FDIs in to India and NSE Nifty trend are dependent. The alternate hypothesis is selected.

> ➢ There is a strong positive correlation between FDI & Sensex and FDI & nifty, and the correlation is Significant at 1 percent level of significance.
> ➢ Flow of FDIs into India and BSE Sensex trend are dependent.
> ➢ Flow of FDIs into India and CNX Nifty trend are dependent.

**CONCLUSION**

According to Data analysis and findings, it can be concluded that FDI do have significant impact on the Indian Stock Market. No doubt, FDI plays a crucial role in enhancing the economic growth and development of the country but there are other factors like government policies, budgets, bullion market, inflation, economic and political condition, etc. do also have an impact on the Indian stock market. There is a positive correlation between stock indices and FDI. FDI is needed by India for achieving the objectives of its economic reforms and for growth and development of the economy. From the current study it is quite evident that there is strong degree of correlation between FDI & Sensex, and FDI & Nifty. From table1 it is quite clear that larger inflow of FDI means bullish trend in the capital markets. In addition to table1 the statistical tools such as coefficient of correlation as well as regression analysis has proved the significant impact of the inflow of FDI on capital market

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