

Impact of Flow of FDI on Indian Capital Market

Dr.C.Mallesha¹, Karre Sri Harsha²

¹Assistant.Professor, School of Management, Anurag University

²Student, School of Management, Anurag University

Abstract: India is now a top investment spot thanks to the opening up of the Foreign Direct Investment (FDI) system. This has led to a huge increase in foreign investments. Using secondary data, this study looks at how FDI has affected the BSE SENSEX and NSE Nifty over the past fourteen years. The study used linear regression, correlation analysis, and descriptive statistics to find that FDI has a strong relationship with these markets (coefficients of 0.83995 for SENSEX and 0.83327 for Nifty) and has a big effect on them (69% on SENSEX and 70% on Nifty). The results show that more foreign direct investment (FDI) can greatly help the Indian stock market and economy grow and stay stable.

Key Words: Foreign Direct Investment (FDI), BSE SENSEX, NSE Nifty, Indian stock market

INTRODUCTION

Foreign Direct Investment (FDI) is a key part of global economic growth because it makes host economies more competitive and encourages new ideas. India's capital market has been greatly affected by the wide opening of its FDI policies, which has made the country a popular place to spend. The Bombay Stock Exchange (BSE) SENSEX and the National Stock Exchange (NSE) Nifty are the two important stock indices that this study looks at. By looking at secondary data from the past fourteen years, the study measures the effect of FDI on these indices. This helps lawmakers and investors understand how FDI affects the Indian market.

NEED OF THE STUDY

To evaluate economic growth and security, it is important to know how Foreign Direct Investment (FDI) affects the Indian capital market. This study is very important because it shows how foreign direct investment (FDI) affects the BSE SENSEX and NSE Nifty markets, which show larger economic trends.

The results will help officials come up with plans to get more FDI, which will help markets grow and the economy as a whole do well. Investors can also use this knowledge to make smart choices in the Indian market, which is always changing.

OBJECTIVES OF THE STUDY

1. To study the trends and patterns of flow of foreign capital into India in the form of FDI.
2. To study the impact of foreign capital in the form of FDI on the Indian capital market.
3. To study the sector wise Foreign Direct Investment in India capital market

RESEARCH METHODOLOGY

The data for this study was sourced from FDI fact sheets, the National Stock Exchange (Nifty), the Bombay Stock Exchange (SENSEX), the Ministry of Commerce and Industry, the Department of Industrial Policy and Promotion, the Reserve Bank of India, as well as various newspapers, journals, and articles. Unlike previous studies, which considered FDI impacts only up to 2016 using averaged index values, this study uses closing year index values up to 2019. The research employs secondary data and the following methodology:

Statistical Tools Used: Regression, One-way ANOVA, Correlation

Data Visualization Tools: Bar Chart, Pie Chart.

LIMITATIONS OF THE STUDY

This research looks at the connection between Foreign Direct Investment (FDI) and the Indian stock market. It does this by using FDI, NSE, and BSE statistics from a number of trustworthy websites. It only uses secondary data from the National Stock Exchange

(Nifty) and the Bombay Stock Exchange (SENSEX), and it only looks at FDI in India. The study uses quantitative methods, but it might not look at emotional aspects.

REVIEW OF LITERATURE

1. The research by Kumar, Sharma, and Yadav (2022) adds to this large body of work and gives us useful information about how FDI and FPI moves in India. The writers give policymakers and investors a more complete picture of these investments by looking at their trends, factors that affect them, and effects. Literature stresses how important it is to make the environment safe, open, and investor-friendly in order to attract and keep FDI and FPI, which leads to long-term economic growth.

2. Sharma and Kautish (2020) look into how macroeconomic factors affect foreign direct investment (FDI) in India. They find that the relationships are not linear, but rather complex and different from linear models. Key factors like GDP growth, inflation, and exchange rates are looked at in their study. It shows that these factors affect FDI in different and sometimes surprising ways. This study gives us more detailed information about the economic factors that encourage or discourage foreign investment. It stresses how important it is to have a stable and favorable macroeconomic situation for FDI to continue.

3. Singh (2019) looks at FDI coming into India in great detail, looking at trends, how they are spread out by sector, and how government policies affect them. The

study shows that FDI has grown a lot since liberalization and stresses the importance of economic changes in bringing in FDI. Singh also points out important problems, like regulatory hurdles and poor infrastructure, and makes suggestions for how India can become more appealing to foreign businesses.

Objective 1: To study the trends and patterns of flow of foreign capital into India in the form of FDI.

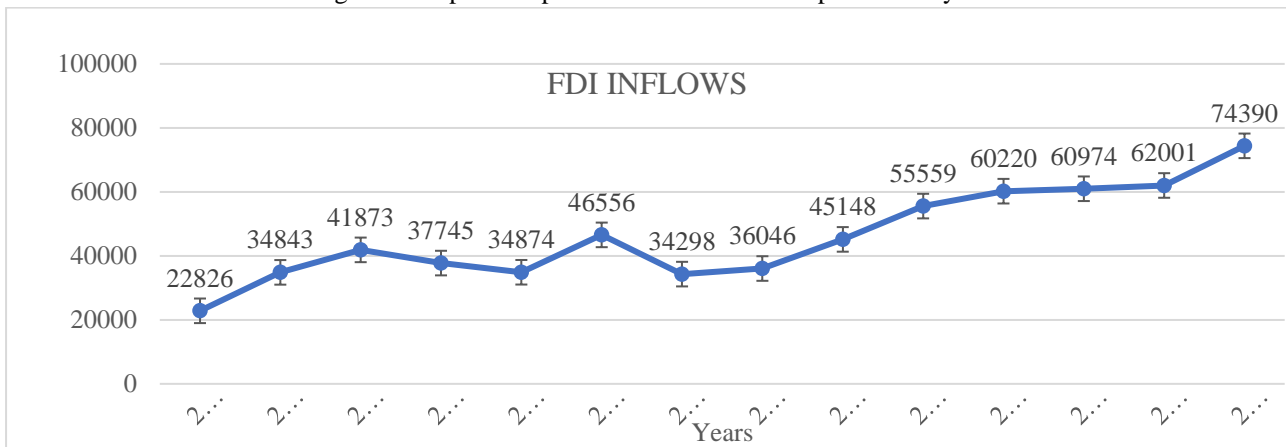
Table.1 To study about the trends and patterns in Indian capital market.

| YEARS | FDI INFLOWS | TREND |
|---------|-------------|-------|
| 2006-07 | 22826 | 100 |
| 2007-08 | 34843 | 152 |
| 2008-09 | 41873 | 183 |
| 2009-10 | 37745 | 165 |
| 2010-11 | 34874 | 152 |
| 2011-12 | 46556 | 203 |
| 2012-13 | 34298 | 150 |
| 2013-14 | 36046 | 157 |
| 2014-15 | 45148 | 197 |
| 2015-16 | 55559 | 243 |
| 2016-17 | 60220 | 263 |
| 2017-18 | 60974 | 267 |
| 2018-19 | 62001 | 271 |
| 2019-20 | 74390 | 325 |
| TOTAL | 647353 | |
| MEAN | 46239.5 | |

Source: Computed from secondary data

The table shows FDI inflow data, used to calculate trends. The line chart illustrates the upward and downward trends of FDI inflows in India from 2006 to 2020.

Figure.1 Graphical representation on trend and pattern analysis



Source: Computed from secondary data

INTERPRETATION:

The table shows FDI inflows in India from 2006 to 2020, measured in millions of US dollars. In 2006-2007, FDI inflow was \$22,826 million, rising significantly to \$41,873 million in 2008-2009. However, the global economic crisis reduced inflows

to \$37,745 million. In 2009-2010, policy changes further decreased FDI to \$34,874 million. By 2014, inflows had increased to \$45,148 million, continuing to grow to \$74,390 million by 2019-2020. The FDI inflow trend percentage rose from 100 in 2006 to 325.9 by 2020, indicating substantial growth.

Objective 2: To study the Impact of foreign capital in the form of FDI on the Indian stock market ie NSE and BSE.

| YEARS | FDI INFLOWS | TREND | NSE NIFTY | BSE SENSEX |
|---------|-------------|-------------|-------------|-------------|
| 2006-07 | 22826 | 100 | 3966.4 | 13786.91 |
| 2007-08 | 34843 | 152.6461053 | 6138.6 | 20286.99 |
| 2008-09 | 41873 | 183.4443179 | 2959.15 | 9647.31 |
| 2009-10 | 37745 | 165.3596776 | 5201.05 | 17464.81 |
| 2010-11 | 34874 | 152.7819154 | 6134.5 | 20509.09 |
| 2011-12 | 46556 | 203.960396 | 4624.3 | 15454.92 |
| 2012-13 | 34298 | 150.2584772 | 5905.1 | 19426.71 |
| 2013-14 | 36046 | 157.9164111 | 6304 | 21170.68 |
| 2014-15 | 45148 | 197.7919916 | 8282.7 | 27499.42 |
| 2015-16 | 55559 | 243.4022606 | 7964.35 | 26117.54 |
| 2016-17 | 60220 | 263.8219574 | 8185.8 | 26626.46 |
| 2017-18 | 60974 | 267.1252081 | 10530.7 | 34056.83 |
| 2018-19 | 62001 | 271.6244633 | 10862.55 | 36068.33 |
| 2019-20 | 74390 | 325.9002891 | 12168.45 | 41253.33 |
| TOTAL | 647353 | | 99227.65 | 329369.33 |
| MEAN | 46239.5 | | 7087.689286 | 23526.38071 |

Table 2 Foreign Direct Investment on Indian stock market on NSE and BSE

| | | |
|-------------|-------------|-------------|
| Correlation | 0.839957856 | 0.833271196 |
|-------------|-------------|-------------|

Source: Computed from Secondary Data

The table includes data on FDI, NSE NIFTY, and BSE SENSEX index values. To examine the impact of FDI on the Indian stock market, I used Excel to perform regression analysis, ANOVA, and correlation calculations.

For this analysis, the dependent variables are NSE (NIFTY) and BSE (SENSEX), while the independent variable is FDI. The regression models are structured as follows: The regression model can be built in the following manner.

NSE (NIFTY)

Table.3 Calculation of NSE.

| Regression Statistics | |
|-----------------------|-----------|
| Multiple R | 0.8399579 |
| R Square | 0.7055292 |
| Adjusted R Square | 0.68099 |
| Standard Error | 8119.4851 |
| Observations | 14 |

Model: $Y = a + b X$

In the above model

X is the independent variable

Y is the dependent variable

a is the intercept

b is the slope.

Model (a) NSE (NIFTY) = $a + b \text{ FDI}$

Model (b) BSE (SENSEX) = $a + b \text{ FDI}$

The following tables are regression analysis which is computed in the excel for the model (a) and (b) separately

BSE (SENSEX)

Table.4 Calculation of BSE.

| Regression Statistics | |
|-----------------------|----------|
| Multiple R | 0.833271 |
| R Square | 0.694341 |
| Adjusted R Square | 0.668869 |
| Standard Error | 8272.296 |
| Observations | 14 |

Source: Computed from secondary data

INTERPRETATION

The regression summaries for NSE (NIFTY) and BSE (SENSEX) show a strong relationship between FDI inflows and these indices, with Pearson correlation coefficients of 0.8399579 for NIFTY and 0.833271 for SENSEX. The R-squared values indicate that FDI explains 70% of the variation in NIFTY and 69% in SENSEX.

NSE (NIFTY)

Table.5 Calculation of National Stock Exchange Analysis

| ANOVA | | | | | |
|------------|-----------|-------------|-------------|-----------|-----------------------|
| | <i>df</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>Significance F</i> |
| Regression | 1 | 1895444079 | 1895444079 | 28.751069 | 0.000170255 |
| Residual | 12 | 791112450.8 | 65926037.56 | | |
| Total | 13 | 2686556530 | | | |

Source: Computed from secondary data.

BSE (SENSEX)

Table.6 Calculation of Bombay Stock Exchange Analysis

| ANOVA | | | | | |
|------------|-----------|-------------|-------------|----------|-----------------------|
| | <i>df</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>Significance F</i> |
| Regression | 1 | 1865386043 | 1865386043 | 27.25942 | 0.000214345 |
| Residual | 12 | 821170486.4 | 68430873.87 | | |
| Total | 13 | 2686556530 | | | |

Source: Computed from secondary data.

INTERPRETATION

The ANOVA tables for NSE (NIFTY) and BSE (SENSEX) show that the regression sums of squares are much less than the residual sums of squares (SS). The F-values are 28.751069 for NSE (NIFTY) and 27.25942 for BSE (SENSEX), both of which are less than 0.05. Therefore, the null hypotheses H01 and H02 are rejected, and the alternative hypotheses Ha1 and Ha2 are accepted.

NSE (NIFTY)

Table .7 Calculation of National Stock Exchange Analysis

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>t Stat</i> | <i>P-value</i> |
|--------------|---------------------|-----------------------|---------------|----------------|
| Intercept | 14672.896 | 6274.301546 | 2.338570499 | 0.0374828 |
| X Variable 1 | 4.4537228 | 0.830608141 | 5.362002365 | 0.0001703 |

Source: Computed from secondary data

BSE (SENSEX)

Table .8 Calculation of Bombay Stock Exchange Analysis

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>t Stat</i> | <i>P-value</i> |
|--------------|---------------------|-----------------------|---------------|----------------|
| Intercept | 14820 | 6411.113007 | 2.311611119 | 0.039361 |
| X Variable 1 | 1.335501 | 0.255791335 | 5.221055605 | 0.000214 |

Source: Computed from secondary data

INTERPRETATION

The ANOVA tables confirm the model's statistical validity, with the regression row indicating variance explained by the model and the residual row showing unexplained variance. In both NSE (NIFTY) and BSE (SENSEX) tables, the regression sum of squares is much less than the residual sum of squares (SS). The p-values are 0.0374828 for NSE and 0.039361 for BSE, both below 0.05, leading to the rejection of null hypotheses H01 and H02 in favor of alternative hypotheses Ha1 and Ha2.

This indicates a linear relationship between FDI inflows and the indices, implying that FDI

significantly impacts NSE and BSE movements. The unstandardized beta coefficients, 4.4537228 for NSE and 1.335501 for BSE, show the degree of dependence on FDI inflows, suggesting that an increase in FDI inflows leads to a rise in both NSE and BSE. The following regression equations can be framed by substituting the intercept and beta values in the following regression model.

Model (a) NSE (NIFTY) = a + b FDI
 Model (b) BSE (SENSEX) = a + b FDI
 NSE (NIFTY) = 14672.896 + 4.4537228 FDI
 BSE (SENSEX) = 14820 + 1.335501 FDI.

Objective 3: To study the sector wise in foreign direct investment in India capital market.

Table .9 To study the sector wise Foreign Direct Investment In Indian capital market.

| YEAR | SECTORS | AMOUNT OF FDI | PERCENTAGE ON FDI SECTORS |
|----------|--------------------------------------------|---------------|---------------------------|
| 2013-14 | Service Sector (Financial & Non-Financial) | 9,65,210.77 | 22.14 |
| 2014-15 | Computer Software and Hardware | 4,13,419.03 | 9.48 |
| 2015- 16 | Telecommunication | 3,68,899.62 | 8.46 |
| 2016-17 | Housing & Real Estate | 3,25,021.36 | 7.46 |
| 2017-18 | Construction Activities | 2,65,492.96 | 6.09 |
| 2018-19 | Automobile Industry | 1,90,172.22 | 4.36 |
| 2019-20 | Power | 1,79,849.92 | 4.13 |
| 2020-21 | Metallurgical Industries | 1,25,785.57 | 2.89 |
| 2021-22 | Petroleum & Natural Gas | 1,11,957.00 | 2.57 |
| 2022-23 | Chemical | 1,01,680.18 | 2.33 |

Source: Computed from secondary data

Figure 4.3 To know about sector wise in Foreign Direct Investment



Source: Computed from secondary data.

INTERPRETATION

The service sector, computer software and hardware sector emerged as the top recipients of FDI in India, accounting for 22.14% and 9.48% of total FDI, respectively. Other significant sectors included telecommunications, real estate, construction, and automobiles. FDI in chemicals (excluding fertilizers) experienced a remarkable 227% growth in 2021-2022, while the telecommunications sector saw a 103% increase following a rise in the FDI limit from 49% to 74%. The automobile sector recorded a 70% growth in foreign investment, while housing & real estate, computer software & hardware, and construction activities also saw notable increases in FDI. However, power, metallurgical industries, and petroleum and natural gas sectors witnessed declines in FDI inflows. These trends underscore the dynamic nature of FDI inflows across various sectors, reflecting both sector-specific factors and changes in government policies and regulations.

RESULTS AND DISCUSSION

The data reveals a fluctuating trend in FDI inflows, with significant increases from 2012-2020 after a downturn in 2009-2011. Positive correlations and direct linear relationships exist between FDI inflows and NSE Nifty and BSE SENSEX movements, indicating that FDI boosts capital markets. India's liberalized foreign investment regulations and increased FDI limits in key sectors demonstrate efforts to attract foreign investment. However, challenges persist, including untapped potential in sectors and the need for further increases in FDI ceilings. To enhance the investment climate, India should focus on regulatory improvements, infrastructure development, and attracting quality foreign investments.

CONCLUSION

In conclusion, the study highlights a positive correlation between FDI inflows and the NSE NIFTY & BSE SENSEX, indicating that FDI contributes to the rise in capital markets. With p-values less than 0.05, rejecting null hypotheses H01 and H02, it's evident that NSE NIFTY and BSE SENSEX significantly impact FDI inflows. The liberalization of India's FDI policy regime, coupled with structural

breakthroughs, led to fluctuating FDI trends. Notably, Mauritius, Singapore, and the USA contributed over 50% of total FDI, leveraging tax agreements. While FII impacts Sensex, correlations with Bankex and IT are less pronounced, suggesting broader market dynamics beyond FDI. Overall, FDI fosters economic development and growth, enhancing capital markets and attracting diverse foreign investments.

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