

A Study on Impact of Stock Indices on Foreign Direct Investment

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Abstract — This study investigates the relationship between Foreign Direct Investment (FDI) inflows and the performance of key Indian stock indices, specifically the Nifty 50 and BSE Sensex, from April 2020 to December 2023. Despite FDI's crucial role in economic growth, existing research has often overlooked the nuanced interplay between stock market fluctuations and FDI within the Indian context. This study aims to fill this gap by analyzing the correlation and causal effects between these indices and FDI inflows, alongside a sectoral FDI trend analysis from 2020 to 2023. Utilizing secondary data, descriptive statistics, correlation, and regression analysis, the study found moderate positive correlations between the stock indices and FDI inflows; however, these relationships were not statistically significant, potentially due to the limited sample size. The regression models demonstrated weak predictive power and substantial unexplained variability, indicating that factors beyond stock market performance likely influence FDI inflows. Despite these limitations, the study highlights the need for more comprehensive data and analysis to better understand the dynamics between stock indices and FDI, providing valuable insights for policymakers to enhance India's investment climate and global competitiveness.

Keywords — Moderate positive correlations, Limited sample size, statistically significant, Predictive power, Unexplained variability & Investment climate

I. INTRODUCTION

The interplay between stock indices and foreign direct investment (FDI) constitutes a vital area of study in the realm of global finance. This research delves into the intricate relationship between these two elements, exploring how fluctuations and trends in stock indices influence the flow of FDI across borders. Stock indices serve as barometers of market sentiment and economic health, reflecting the collective performance of listed companies within a particular market. On the other hand, FDI represents long-term investments made by foreign entities into domestic economies, contributing to economic growth and development.

Understanding the impact of stock indices on FDI is crucial for policymakers, investors, and businesses alike, as it sheds light on the dynamics driving cross-border investment decisions. Factors such as market volatility, investor confidence, and macroeconomic conditions can significantly influence both stock indices and FDI flows. By analyzing these relationships, researchers aim to provide insights into how changes in stock market performance affect the attractiveness of a country as a destination for foreign investment. Ultimately, this study contributes to a deeper understanding of the interconnectedness between financial markets and real economic activity in an increasingly globalized world.

2. Review of Literature

Yimer, A. (2023). This study investigates the impact of foreign direct investment (FDI) on economic growth in Africa spanning from 1990 to 2016. Employing an error-correction model with a dynamically common correlated effect approach, it categorizes African economies into fragile, factor-driven, and investment-driven groups. Unlike previous studies, this analysis accounts for interaction effects and cross-sectional dependence. Results indicate that FDI exerts a significantly positive long-term influence on growth in investment- and factor-driven economies. However, its short-term impact is not significant in factor-driven economies. Conversely, in fragile economies, both short-term and long-term effects of FDI on growth are found to be insignificant. This nuanced understanding sheds light on the diverse dynamics of FDI's contribution to economic growth across different types of African economies over the examined period.

Destek, M. A., Sohag, K., Aydın, S., & Destek, G. (2023). This study examines the impact of domestic and foreign capital on carbon emissions across 42 countries from 1990 to 2017. It explores variables including economic growth, urbanization, trade openness, and energy usage on a sustainable development index. Findings



reveal that nations with lower emission levels demonstrate higher environmental efficiency in domestic capital accumulation, while foreign capital exhibits minimal influence on emission levels across all quantiles. This highlights the importance of domestic investment in achieving sustainable development goals and suggests a nuanced relationship between capital sources and environmental impact.

Ciftci, C., & Durumu-Ciftci, D. (2022). Economic freedom, foreign direct investment, and economic growth: The role of sub-components of freedom. This study aims to examine the causal relationships between economic freedom, foreign direct investment (FDI), and economic growth in the top FDI attracting countries from 1995 to 2019. Unlike previous research, this study simultaneously investigates these relationships and utilizes the panel Granger causality test, which accounts for heterogeneity and cross-sectional dependency across the panel members, thereby enhancing the robustness of the analysis. The findings of this study suggest that there is weak evidence supporting causal links between economic freedom, FDI, and economic growth when considering the overall score of the economic freedom index.

Mahboob Ullah, M. K., Rasheed, S., Ullah, H., Ullah, H., Jan, K., Alam, S., & Qazi, U. (2022). This study investigates the impact of foreign direct investment (FDI) and foreign portfolio investment (FPI) on stock market returns (SMR) in SAARC countries from 2014 to 2019. Utilizing data from the World Development Indicators and global economy, robust data analysis techniques were employed. Findings reveal a weak correlation between both FDI and FPI with SMR, indicating no multicollinearity. Diagnostic tests suggest a random effect model for analysis. The coefficient of FDI negatively and significantly affects SMR, implying decreasing returns with rising FDI. Conversely, FPI growth correlates with higher stock market returns in the examined period.

Amade, M. A., Mohammed, I., Ibizan, E. V., Owolabi, A. T., & Joshua, U. (2022). This study investigates the interplay among domestic investment, foreign direct investment (FDI), and economic growth in Nigeria from 1981 to 2018. Utilizing secondary time series data and the Autoregressive Distributed Lags (ARDL) technique, it assesses short-term and long-term dynamics. Findings reveal that in the short term, FDI and interest rates significantly impact real GDP, while in the long run, domestic investment, FDI, and exchange rates are pivotal for economic growth. Recommendations include optimizing local investment opportunities and addressing exchange rate and trade operations for policymakers to foster sustainable economic growth in Nigeria.

Nguyen, L. T. H. (2022). This study explores the impact of foreign direct investment (FDI) on Vietnam's economic growth from 1990 to 2020, post the Doi Moi reforms. Utilizing the VAR model and various analytical techniques, it uncovers FDI's effects. Results indicate a positive short-term impact on growth but a hindrance to long-term growth. Despite rising FDI inflows, overall effectiveness remains constrained. The research provides a detailed analysis of factors influencing FDI and their implications for Vietnam's economy, highlighting the need for strategic policies to maximize FDI benefits while mitigating long-term growth constraints.

Lee, C. C., Lee, C. C., & Cheng, C. Y. (2022). This study investigates the impact of foreign direct investment (FDI) on income inequality in 37 countries from 2001 to 2015, considering financial development (FV). Utilizing the panel smooth transition regression (PSTR) model, it uncovers that FDI initially reduces income inequality, but this effect diminishes at a certain level of financial development. Results suggest a combination of foreign and domestic funds can enhance income distribution, especially in non-high income and non-lending countries. For nations with low FDI levels, prioritizing the enhancement of financial development emerges as pivotal in tackling income inequality.

Sharfuddin, F., & Setiawan, M. (2022). This research explores the nexus between the COVID-19 pandemic, foreign direct investment (FDI), and gross domestic product (GDP) in Indonesia. Employing local projection estimation and panel vector autoregression, it scrutinizes the pandemic's effects on FDI and its relationship with GDP. Findings unveil sector-specific variations in the pandemic's impact on FDI and its influence on the FDI-GDP relationship. Quarterly data from 2000Q1 to 2021Q2, with a focus on the pandemic period from 2020Q1 to 2021Q2, are analyzed. The study underscores the significance of considering the pandemic's influence on FDI and its interaction with GDP dynamics, offering valuable insights for economic policymakers in Indonesia.

Odhiambo, N. M. (2022). This study investigates the causal link between foreign direct investment (FDI) and economic growth in Kenya from 1980 to 2018. Introducing money supply and trade as intermittent variables, it employs the ARDL bounds testing approach to address previous studies omitted variable concerns. Findings reveal a unidirectional causal flow from economic growth to FDI, persisting in both short and long run analyses. This suggests that Kenya's substantial FDI inflows in recent years are chiefly driven by its robust economic growth trajectory and well-established macroeconomic policies implemented over the preceding decades.



Qureshi, Mohd Mohsin, and S. K. S. Yadav. (2021) This analytical study delves into the impact of Foreign Direct Investment (FDI) on India's Gross Domestic Product (GDP). FDI holds immense significance for emerging nations like India, aiding in addressing savings shortages and bolstering GDP growth. Leveraging secondary data from Indian financial institutions' annual reports spanning a decade (2012-13 to 2021-22), the study employs statistical techniques like correlation and linear regression. Results underscore a significant relationship between FDI and India's GDP, emphasizing FDI's pivotal role in propelling economic development in emerging economies like India.

3. RESEARCH METHODOLOGY

OBJECTIVES OF THE STUDY:

1. To study the Foreign Direct Investment in Indian Stock Markets.
2. To find the relationship between Nifty 50 and BSE Sensex with Foreign direct investment.
3. To analyze the impact of Nifty 50 and BSE Sensex performance on Foreign direct investment.

SAMPLE SIZE AND PROFILE OF THE SAMPLE

The sample size for this study is five years i.e. 1st April 2020 to DECEMBER 2023

TOOLS FOR ANALYSIS

To analyze the collected data, statistical tools used are

- ☐ Descriptive statistics
- ☐ Correlation and
- ☐ Regression

The methodology adopted in this study was based on primary and secondary data, i.e.,

Secondary Data

1. Data collected from Newspaper & Magazines.
2. Data obtained from the internet.
3. Data collected from SEBI.
4. Data obtained from company journals.
5. Companies Annual Reports
6. Information from Internet
7. Publications
8. Information provided by NSE, BSE AND RBI.
9. Data collected from various books and sites.

4. DATA ANALYSIS

Table 4.1 FDI inflows per year

Years	FDI	Percentage
2020-21	4,42,569	29.3
2021-22	4,37,188	28.9
2022-23	3,67,435	24.3
2023-24 (upto December, 23)	2,65,030	17.5
Total	1,512,222	100

Figure 4.1 FDI Distribution Over Years

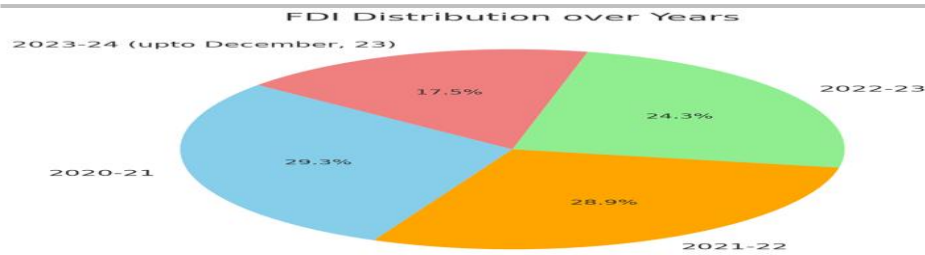


Table 4.1 and Graph 4.1 depict the distribution of Foreign Direct Investment (FDI) across four fiscal years, revealing a notable decline over time. In 2020-21, FDI peaked at 29.3%, dropping slightly to 28.9% in 2021-22, further decreasing to 24.3% in 2022-23, and hitting the lowest point at 17.5% in the current fiscal year up to December 2023. This downward trend suggests potential concerns regarding investor confidence or shifting economic conditions, necessitating strategic measures to attract more FDI in the future.

OBJECTIVE 2 – To find the relationship between Nifty 50 and BSE Sensex with Foreign direct investment.

Table 4.2 FDI equity inflow and Nifty fifty index

Financial Year (April – March)	Amount of FDI Equity inflow	% age growth over previous year (in terms of USD)	Nifty 50 Index
2019–20	353,557	(+) 13%	11623.90
2020-21	442,569	(+) 19%	14690.70
2021-22	437,188	(-) 1%	17464.75
2022-23	367,435	(-) 22%	17359.75

Figure 4.2 Correlation analysis between Amount of FDI Equity inflow and Nifty 50

Correlations

		Amount of FDI Equity inflow	Nifty 50 Index
Amount of FDI Equity inflow	Pearson Correlation	1	.414
	Sig. (2-tailed)		.586
	N	4	4
Nifty 50 Index	Pearson Correlation	.414	1
	Sig. (2-tailed)	.586	
	N	4	4

Index

Table 4.3 displays the correlation analysis between "Amount of FDI Equity inflow" and the "Nifty 50 Index." The Pearson Correlation coefficient of 0.414 suggests a moderate positive relationship, yet it lacks statistical significance (Sig. = 0.586), likely due to the small sample size of only 4 observations for both variables. Thus, while a correlation exists, its meaningfulness is uncertain, emphasizing the need for additional data and analysis to ascertain their true relationship.

Table 4.3 FDI inflows and BSE Sensex

Financial Year (April – March)	Amount of FDI Equity inflow	% age growth over previous year (in terms of USD)	Nifty 50 Index	BSE Sensex

2019-20	353,557	(+) 13%	11623.90	29,468.49
2020-21	442,569	(+) 19%	14690.70	49,509.15
2021-22	437,188	(-) 1%	17464.75	58,568.58
2022-23	367,435	(-) 22%	17359.75	58,991.52

Figure 4.3 Correlation analysis between Amount of FDI Equity inflow and BSE Sensex

Correlations

		Amount of FDI Equity inflow	Bse Sensex
Amount of FDI Equity inflow	Pearson Correlation	1	.500
	Sig. (2-tailed)		.500
	N	4	4
Bse Sensex	Pearson Correlation	.500	1
	Sig. (2-tailed)	.500	
	N	4	4

Table 4.4 shows the correlation between "Amount of FDI Equity inflow" and the "BSE Sensex." The Pearson Correlation coefficient is 0.500, indicating a moderate positive relationship. However, the significance level (Sig. = 0.500) exceeds 0.05, suggesting the correlation may be random. With a small sample size of 4 observations for both variables, the findings lack reliability and generalizability. Thus, further data and analysis are necessary to confirm any potential relationship between FDI and the BSE Sensex.

OBJECTIVE 3: To analyze the impact of Nifty 50 and BSE Sensex performance on Foreign direct investment.

H0: There is no impact of Nifty 50 performance on Foreign direct investment.

HA: There is impact of Nifty 50 performance on Foreign direct investment.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	294171.379	166970.124		1.762	.220
	Nifty 50 Index	6.936	10.793	.414	.643	.586

a. Dependent Variable: Amount of FDI Equity inflow

The regression analysis investigates the link between the Nifty 50 Index and Foreign Direct Investment (FDI) equity inflow. Hypothesis tests suggest that the intercept lacks statistical significance ($p = 0.220$), indicating no significant deviation from zero when the Nifty 50 Index is zero. The coefficient for the Nifty 50 Index implies a 6.936-unit FDI increase per unit increase in the index, yet its relationship lacks statistical significance ($p = 0.586$). Thus, insufficient evidence exists to support Nifty 50 performance impacting FDI significantly. Consequently, we fail to reject the null hypothesis, indicating no statistically significant association between the Nifty 50 Index and FDI equity inflow.

H0: There is no impact of BSE Sensex performance on Foreign direct investment.

HA: There is impact of BSE Sensex performance on Foreign direct investment.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	317949.613	103568.834		3.070	.092
	Bse Sensex	1.674	2.048	.500	.817	.500

a. Dependent Variable: Amount of FDI Equity inflow

The regression analysis investigates the link between BSE Sensex and Foreign Direct Investment (FDI) equity inflow. Hypothesis tests suggest that the constant term lacks statistical significance ($p = 0.092$), indicating it may not significantly impact FDI. The coefficient for BSE Sensex is 1.674, with a Beta of 0.500, indicating a potential association with FDI. However, its p-value of 0.500 suggests this relationship is not statistically

significant. Therefore, there is insufficient evidence to support BSE Sensex performance significantly impacting FDI. We fail to reject the null hypothesis, suggesting no statistically significant relationship between BSE Sensex and FDI equity inflow.

5. FINDINGS

- The analysis reveals several key findings regarding the relationship between the Nifty 50 Index, BSE Sensex, and the amount of Foreign Direct Investment (FDI) equity inflow over four fiscal years. Firstly, there is a noticeable decline in FDI shares over the years, with the highest share recorded in 2020-21 at 29.3% and the lowest up to December 2023 at 17.5%. This declining trend raises concerns about decreasing investor confidence or changing economic conditions.
- Correlation analysis between the "Amount of FDI Equity inflow" and the "Nifty 50 Index" shows a moderate positive Pearson Correlation coefficient of 0.414, but this relationship is not statistically significant (p -value = 0.586). The small sample size of only four observations further reduces the reliability of this result. Similarly, the correlation between the "Amount of FDI Equity inflow" and the "BSE Sensex" also indicates a moderate positive relationship (Pearson Correlation coefficient = 0.500) but lacks statistical significance (p -value = 0.500), with the same issue of a small sample size affecting the robustness of the findings.
- Regression analysis between the Nifty 50 Index and FDI equity inflow indicates a moderate positive relationship, with a correlation coefficient (R) of 0.414. However, the model's explanatory power is weak, as evidenced by an R Square value of 0.171 and a negative Adjusted R Square value of -0.243. The high standard error of the estimate (51550.300) and non-significant coefficients (p -value for Nifty 50 Index = 0.586) suggest that the Nifty 50 Index is not a reliable predictor of FDI equity inflow.
- Similarly, the regression analysis with the BSE Sensex as the predictor shows a moderate positive correlation (R = 0.500) but a low R Square value of 0.250. The negative Adjusted R Square value (-0.124) and high standard error of the estimate (49025.623) indicate that the model poorly fits the data. The non-significant coefficients (p -value for BSE Sensex = 0.500) further suggest that changes in the BSE Sensex do not significantly predict FDI equity inflow.

5. SUGGESTIONS

The data reveals a concerning decline in Foreign Direct Investment (FDI) over recent fiscal years, from 29.3% in 2020-21 to 17.5% by December 2023, signaling potential investor confidence issues. Correlation analyses with both the Nifty 50 Index and BSE Sensex show moderate positive relationships, but non-significant results and small sample sizes imply the need for further data and analysis. Regression analyses highlight limited explanatory power of these indices in predicting FDI equity inflow, emphasizing the importance of considering additional variables like economic policies and market conditions. Policymakers should focus on enhancing the investment climate through stable regulations and administrative simplification while diversifying data analysis to include more variables like interest rates and sector-specific incentives. Strengthening economic policies, promoting key sectors, and adapting strategies based on continuous monitoring of FDI trends and investor feedback are crucial for attracting and sustaining FDI, thus fostering economic growth and development.

6. CONCLUSIONS

The analysis reveals a consistent decline in Foreign Direct Investment (FDI) over the past four fiscal years, dropping from 29.3% in 2020-21 to 17.5% by December 2023. This decline signals potential weakening investor confidence or shifting economic conditions, underscoring the urgency for strategic initiatives to boost future FDI. Correlation assessments between FDI Equity Inflow and both the Nifty 50 Index and BSE Sensex demonstrate moderate positive relationships, with Pearson correlation coefficients of 0.414 and 0.500, respectively. However, these correlations lack statistical significance, as reflected in the p -values exceeding 0.05. Moreover, the small sample size ($N=4$) compromises the robustness and generalizability of these findings, necessitating further data and thorough analysis to confirm any potential associations.

Regression analyses focusing on the Nifty 50 Index and BSE Sensex as predictors of FDI Equity Inflow show moderate positive correlations, yet exhibit weak model fits. The Nifty 50 Index explains only 17.1% of FDI variance, with a negative Adjusted R Square and large standard error indicating limited predictive capability. Similarly, the BSE Sensex explains only 25% of FDI variance, with non-significant coefficients and limited explanatory power. Consequently, while stock market indices demonstrate some correlation with FDI Equity Inflow, their statistical insignificance and weak predictive abilities suggest other factors likely have more substantial influences. Further comprehensive data collection and analysis are imperative to establish clearer and more reliable relationships.



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