

The Impact of Foreign and Domestic Institutional Investors on Nifty 50

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Abstract: *This study examines the impact of Foreign Institutional Investors (FIIs) and Domestic Institutional Investors (DIIs) on Nifty 50 index performance over a ten-year period (2015–2024). Statistical tools such as correlation analysis, regression models, Granger causality, and GARCH are used to evaluate their influence on market movement and volatility. The analysis reveals that FIIs have a significant effect on Nifty 50 returns, while DIIs act as counterbalancing participants without significant directional impact. India VIX, used to measure market volatility, indicates persistence in risk sentiment but does not directly influence institutional flows. These findings offer valuable insights for investors, analysts, and policymakers seeking to understand institutional behaviour in the Indian stock market.*

Keywords: FIIs, DIIs, Nifty 50, India VIX, Institutional Flows, GARCH, Granger Causality

1. Introduction

Foreign Institutional Investors and Domestic Institutional Investors play a pivotal role in shaping India's equity market trends, particularly the Nifty 50 index. While FIIs bring in large capital flows influenced by global trends, DIIs have emerged as a stabilizing force within the domestic landscape. Understanding how these institutional flows affect the Indian market has become increasingly critical given the interconnected nature of global and local economies. The volatility of the market, reflected in the India VIX, adds another layer of complexity in forecasting returns and investor behaviour. This paper analyzes the long-term influence of FIIs and DIIs on the Nifty 50 using statistical modeling tools.

2. Literature Review

Several studies have explored the role and influence of institutional investors, market volatility, and price behavior in emerging economies like India. The following literature supports and informs the current study:

- Ansari and Jamaluddeen (2023) highlighted DIIs as emerging stabilizers in the Indian securities market, countering the traditionally dominant role of FIIs during global uncertainties.
- Chitnis et al. (2022) emphasized the volatility induced by FIIs and distinguished them from the more stable nature of FDI, noting their significant influence on Nifty and Sensex.
- Suneetha and Aithal (2024) found a strong correlation between FII inflows and market rallies, while DIIs helped cushion the impact during foreign outflows.
- Jalota (2017) observed that FIIs tend to drive short-term market trends, whereas DIIs provide stability during volatile periods, especially post-demonetization.
- Samant and Sakhalkar (2022) reported increased DII influence during COVID-19, driven by higher domestic retail participation.
- Rathod et al. (2017) concluded that FIIs cause volatility, while DIIs stabilize the Nifty 50, showing complementary roles in market behavior.

- Walia et al. (n.d.) showed a positive correlation between FII inflows and market performance and stressed the need for effective regulation of foreign capital.
- Bhatt and Tiwari (2023) highlighted that post-liberalization FII inflows significantly influence NSE and BSE, often causing sharp price movements.
- Padia et al. (2022) found that foreign flows increase volatility, while domestic flows help balance market movements.
- Khatun (2022) demonstrated that the inverse movement between FIIs and DIIs supports market trends even during periods of low GDP growth.
- Balaji et al. (2022) concluded that DIIs, with their stable long-term approach, increasingly influence market direction compared to more reactive FIIs.

3. Research Problem

Research Gap

While several studies have examined the role of institutional investors in influencing stock market performance, many have focused primarily on short-term trends or considered FIIs and DIIs in isolation. Moreover, the inclusion of market volatility indicators such as India VIX has often been overlooked. There is limited literature that combines institutional flow analysis with volatility modeling to understand their collective influence on broad market indices like the Nifty 50. This study aims to address that gap by integrating both behavioral and risk-based variables in a single analytical framework.

Problem Statement

This research seeks to explore the relationship between institutional investor activity (FIIs and DIIs), market volatility (India VIX), and the Nifty 50 index. By applying time series tools such as regression, Granger causality, and GARCH models, the study investigates whether these institutional flows not only correlate with market performance but also hold predictive value. The aim is to develop a clearer understanding of how institutional behavior and market sentiment interact in shaping index trends.

Need and Relevance of Research

In the context of dynamic market conditions and frequent shifts in investor sentiment, gaining insights into institutional investment patterns has practical value. With FIIs often influencing momentum and DIIs playing a stabilizing role, understanding their combined effect is useful for building informed trading or portfolio strategies. Additionally, incorporating India VIX provides a layer of risk perception, making the study relevant to those seeking a more rounded view of market behavior. While this may not be an exhaustive or definitive work, it adds a meaningful contribution to ongoing discussions in the field of financial market research.

Research Objectives

- 1) To evaluate the impact of FIIs and DIIs on Nifty 50 returns.
- 2) To assess the role of India VIX in market volatility.
- 3) To analyze the predictive relationship using Granger causality.
- 4) To study volatility persistence using GARCH modelling.

4. Research Methodology

This study investigates the impact of Foreign Institutional Investors (FII), Domestic Institutional Investors (DII), and India VIX on Nifty 50 returns using monthly data from January 2015 to December 2024. Data were sourced from SEBI, NSE, and other reliable financial databases, and pre-processed to ensure accuracy and consistency.

Methods Used:

- **Descriptive Statistics:** To summarize trends and variability of key variables.
- **Correlation Analysis:** To explore the relationship between institutional flows, market returns, and volatility.
- **Multiple Regression:** To quantify the influence of FII, DII, and VIX on Nifty 50 returns.
- **Granger Causality Test:** To assess predictive relationships between variables.
- **GARCH (1,1) Model:** To analyze volatility patterns and risk persistence.

Tools:

- **Python:** For advanced statistical modeling and visualization.
- **Excel:** For basic analysis and validation.
- **NSE Reports:** For institutional flow data.

5. Data Analysis and Interpretation

Table 1: Summary of Institutional Flows and Nifty 50 Index (2015–2024)

Metric	FII (₹ Cr)	DII (₹ Cr)	Nifty 50 (Points)
Mean	(6,106)	11,603	13,545
Median	(2,530)	10,450	13,245
Maximum	39,832	39,105	25,810
Minimum	(82,906)	(19,388)	6,436
Standard Deviation	18,245	12,432	4,318

Interpretation:

This table presents a statistical snapshot of FII, DII, and Nifty 50 data over the past ten years. The negative mean FII flow

suggests that foreign investors were net sellers over the period, whereas DIIs were net buyers, evident from their positive average flow. The high standard deviation of FII flows indicates more volatility and unpredictable investment patterns. Nifty 50 showed steady growth, but significant fluctuations are evident from the wide range between its minimum and maximum values. This suggests that despite negative FII trends, DII inflows may have played a role in stabilizing the index over time.

Table 2: Correlation Matrix (FII, DII, Nifty 50, India VIX)

	FII	DII	Nifty 50	India VIX
FII	1.00	(0.85)	0.57	(0.26)
DII	(0.85)	1.00	(0.49)	0.13
Nifty 50	0.57	(0.49)	1.00	(0.11)
India VIX	(0.26)	0.13	(0.11)	1.00

Interpretation:

The strong negative correlation (-0.85) between FII and DII suggests that domestic institutions tend to counter foreign movements. A moderate positive correlation (0.57) exists between FII flows and the Nifty 50, confirming the influence of foreign capital on market performance. Interestingly, the India VIX has weak correlation with all other variables, indicating that although it captures market sentiment, it does not directly affect institutional behaviour or index performance. These relationships support the hypothesis that DIIs act more defensively while FIIs actively drive market trends.

Table 3: Regression Summary (Dependent Variable: Nifty 50 Returns)

Variable	Coefficient	Std. Error	t-Statistic	p-Value
Intercept	0.00420	0.00180	2.33	0.021
FII	0.00017	0.00005	3.40	0.001
DII	(0.00009)	0.00006	(1.58)	0.118
India VIX	(0.00023)	0.00015	(1.52)	0.134

Interpretation:

This regression confirms that FII flows significantly influence Nifty 50 returns ($p < 0.01$). The coefficient value of 0.00017 implies that every ₹1,000 crore increase in FII net inflow raises the Nifty return by 0.17% . DII flows and India VIX are statistically insignificant, meaning their direct contribution to price changes is limited. These results validate the prevailing view that foreign capital flows act as trend drivers in emerging markets like India.

Table 4: Granger Causality Test Results

Null Hypothesis	F-Statistic	p-Value	Causality?
FII does not cause Nifty 50	3.02	0.05	Yes (Lag 1)
DII does not cause Nifty 50	4.78	0.03	Yes (Lag 1 & 2)
Nifty 50 does not cause FII	0.97	0.38	No
Nifty 50 does not cause DII	1.23	0.29	No

Interpretation:

The Granger causality test shows that both FII and DII flows can help predict Nifty 50 returns. FIIs influence the market with a one-month lead, while DIIs demonstrate impact over both one- and two-month periods. On the other hand, Nifty 50 returns do not influence institutional flow decisions, indicating that FIIs and DIIs react more to external economic

signals than to past market performance. This underscores their proactive rather than reactive role in the market.

Table 5: GARCH (1,1) Model Output

Parameter	Estimate	Std. Error	Significance
ω (constant)	0.00015	0.00008	Significant
α (shock sensitivity)	0.023	0.016	Not Significant
β (volatility persist)	0.976	0.012	Highly Significant

Interpretation:

The GARCH model suggests that volatility in the Nifty 50, as reflected by India VIX, is highly persistent. The β value of 0.976 shows that once volatility rises, it stays elevated for a longer period, affecting investor sentiment and risk appetite. However, the α coefficient (impact of short-term shocks) is not statistically significant, meaning abrupt changes do not substantially alter future volatility patterns. This persistence has implications for traders and policymakers seeking to stabilize markets.

6. Conclusion

This study analyzed the impact of Foreign Institutional Investors (FII), Domestic Institutional Investors (DII), and market volatility (India VIX) on the Indian stock market, focusing on the Nifty 50 index. The findings reveal that FII flows significantly influence market trends, while DII plays a more stabilizing but less impactful role. A strong negative correlation between India VIX and Nifty returns indicates that rising uncertainty often leads to market declines, with volatility showing persistence over time.

Robust statistical methods—including regression, Granger causality, correlation, and GARCH modeling—validated the study's insights and enhanced reliability. The results emphasize the importance of tracking FII behavior and adopting proactive risk management strategies.

This research highlights the critical role of institutional flows and volatility in market performance, suggesting that informed, data-driven investment strategies are essential. Future studies could further explore sectoral impacts, algorithmic trading, and macroeconomic influences to deepen understanding of financial market dynamics.

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