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Research Article

Impact of DIIs and FIIs on the Indian Stock Market

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Abstract
This study investigates the influence of Foreign Institutional Investors (FIIs) and Domestic Institutional Investors (DIIs) on the NIFTY50 index, a key benchmark of India's financial markets. Employing data transformation and statistical analysis, it explores correlations, builds a regression model, and evaluates multicollinearity to ensure robustness. The findings reveal that FIIs significantly impact market volatility, while DIIs contribute to stability, showcasing their complementary roles in shaping market dynamics. The study provides valuable insights into institutional investments and their implications for policymakers, investors, and market participants. It emphasises the need for balanced strategies to attract foreign investments while fostering strong domestic participation.

Keywords: DIIs, FIIs, Indian Stock Market, NIFTY

JEL Classifications: G11, G15, G23, C22

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Introduction

The performance of financial markets is often a mirror reflecting the broader economic landscape of a country. In emerging economies like India, stock markets play a pivotal role in driving economic growth and attracting investments. The Indian stock market, exemplified by indices such as the NIFTY50 and BSE Sensex, has witnessed remarkable growth over the past few decades, fueled by globalization, technological advancements, and increased participation from institutional investors. Among the various factors influencing market dynamics, the role of Foreign Institutional Investors (FIIs) and Domestic Institutional Investors (DIIs) has gained significant attention from researchers, policymakers, and market participants. Institutional investors bring in substantial capital flows, which often dictate the movement of equity indices. FIIs, in particular, have emerged as one of the most influential drivers of Indian financial markets. Their ability to infuse or withdraw large volumes of capital profoundly impacts market liquidity, volatility, and overall sentiment. On the other hand, DIIs, such as mutual funds, insurance companies, and other domestic entities, provide a stabilizing counterforce to the often unpredictable movements caused by FIIs. Understanding the dynamics of FIIs and DIIs and their

relationship with market indices like the NIFTY50 is crucial to developing insights into market behavior. The NIFTY50 index, representing the weighted average of the 50 largest and most liquid Indian companies listed on the National Stock Exchange (NSE), is a barometer of the country's economic health. Its movements are closely watched by investors, both domestic and international. The interaction between institutional investments and market indices forms the crux of this research. FIIs have been a major source of capital for the Indian stock market since the liberalization of the economy in the 1990s. The relaxation of regulatory policies and the integration of Indian markets with global financial systems attracted foreign capital into the country. This inflow of funds boosted market capitalization and enhanced liquidity. However, the large-scale withdrawals of FIIs during times of global financial crises underscored the volatility they bring to emerging markets.Conversely, DIIs have played a complementary role, acting as shock absorbers during periods of market distress. With a deeper understanding of local markets, DIIs have the potential to mitigate the impact of sudden foreign outflows, thereby contributing to market stability. Their long-term investment strategies and focus on value-based investing provide a counterbalance to the often speculative nature of FIIs. The interplay between FIIs, DIIs, and market indices has profound implications for various stakeholders. For policymakers, understanding these dynamics can help in formulating strategies to attract stable foreign investments while strengthening the role of domestic institutions. For investors, the ability to predict market movements based on institutional activities offers a strategic advantage. For companies, insights into institutional behavior can influence corporate decisions, including capital structuring and market positioning.

Despite the growing body of literature on the subject, gaps remain in understanding the nuanced relationship between FIIs, DIIs, and stock market indices. This research seeks to address these gaps by examining the correlation and causation between these variables, particularly in the context of the NIFTY50 index.

Literature Review

The relationship between institutional investments—both foreign and domestic—and the performance of stock markets, particularly indices like the NIFTY50, has been extensively studied. This review synthesizes scholarly research to elucidate how Foreign Institutional Investors (FIIs) and Domestic Institutional Investors (DIIs) influence the Indian stock market. FIIs have been pivotal in shaping the dynamics of the Indian stock market. Their investment patterns significantly impact market liquidity, volatility, and overall performance. Research indicates that FIIs' trading behavior is closely linked to market returns, with their investments often leading to increased market volatility. For instance, a study analyzing the relationship between FIIs and the NIFTY50 index found a significant correlation, suggesting that FII activities can predict market movements. (Madhavan, M., Dhandapani, T et. al., 2020) Further, the profitability of FIIs is influenced by market uncertainty. During periods of low uncertainty, FIIs tend to outperform benchmarks like the NIFTY50 and NIFTY500 indices. Conversely, during high uncertainty, their performance lags behind these benchmarks (Jain, S., & Saha, A. 2023). This indicates that FIIs adjust their investment strategies based on market conditions, thereby affecting market performance. The impact of FIIs extends beyond market indices to individual firms. Their holdings can influence a firm's risk-return profile, affecting corporate decisions and stock performance. A study examining this relationship found that increased FII holdings are associated with higher returns and risk, suggesting that FIIs prefer firms with higher growth potential and are willing to accept associated risks. (Banerjee, S., Mitra, A., et al., 2024). DIIs, including mutual funds, insurance companies, and financial institutions, play a crucial role in stabilizing the Indian stock market. Their investment behavior often counterbalances the volatility induced by FIIs. Research exploring the relationship between DII investments and stock market returns indicates a significant positive correlation, suggesting that DIIs contribute to market growth and stability (Srivastava, P., & Varshney, S., 2022).

The influence of DIIs extends to various sectoral indices of the National Stock Exchange (NSE). A study employing the Toda-Yamamoto causality approach found that investments by financial institutions, insurance companies, and mutual funds have a significant impact on sectoral indices, indicating that DIIs' investment decisions are sector-specific and can drive sectoral performance (Srivastava, P., & Varshney, S., 2023). Moreover, the trading behavior of DIIs during periods of market calm and turmoil reveals their role in market dynamics. During volatile periods, DIIs tend to adopt a contrarian investment strategy, buying when prices are low and selling when prices are high, thereby providing liquidity and stability to the market (Singh, A. K., Shrivastav, R. K., & Jain, S., 2024). The interplay between FIIs and DIIs significantly affects the Indian stock market. Studies have shown that while FIIs often follow momentum-based strategies, DIIs tend to adopt contrarian approaches, especially during periods of market stress. This complementary behavior contributes to market liquidity and efficiency. For instance, during the COVID-19 pandemic, DIIs increased their investments to counterbalance the withdrawal of FIIs, thereby stabilizing the market (Vimal, A., 2022). Additionally, the causality between FIIs, DIIs, and stock market indices like the NIFTY50 has been examined. Research indicates that FIIs and DIIs have a bidirectional causal relationship with market indices, meaning their investment decisions are both influenced by and influential to market performance (Parab, N., & Reddy, Y. V., 2020).

Scope of the Study

The scope of this study is confined to the analysis of institutional investments (FIIs and DIIs) and their relationship with the NIFTY50 index. The study covers a specific timeframe of 2008-2024, ensuring that the findings are relevant to current market conditions. While the focus is on the Indian stock market, the insights

generated can be extended to other emerging markets with similar investment dynamics.

Research Methodology

The Research is empirical in nature. We have Collected Yearly Data from 2008 to 2024 of DIIs, FIIs, and NIFTY50 from the NSE Database. Then we used the Test of Normality to check for the normal distribution. We used the Regression Model to measure the impact of DII & FII on our Outcome Variable i.e., NIFTY. And we followed the five steps in our multiple regression analysis which are model building, model adequacy, model assumptions – residual tests and diagnostic plots, potential modeling problems and solutions, and model validation.

Data Analysis & Results

Initially, we ran the test of Normality i.e., Kolmogorov-Smirnov and Shapiro-Wilk Tests we got a result that our data is not normally distributed. For this reason, we have transformed our data by taking Log10 of each value of DIIs, FIIs & NIFTY. However, it was not possible to compute Log10 simply as few values were negative. So, we made some adjustments by adding *a+1* (where *a* = Min Value of the variable) to all the variables and made all the variables positive. Then again, we Tested for normality and the result is as follows:

Table 1.1: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
NIFTYLog	.106	17	.200*	.976	17	.909
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

We can see Log10 of our Outcome Variable is Normally Distributed. So, we proceeded further to check for the Correlation among the Predictor Variables (LogDIIs & LogFIIs) and our Outcome Variable (NIFTYLog).

Table 1.2: Correlations[c]

		LogFIIs	LogDIIs	NIFTYLog
LogFIIs	Pearson Correlation	1		
	Sig. (2-tailed)			
LogDIIs	Pearson Correlation	-.267	1	
	Sig. (2-tailed)	.299		
NIFTYLog	Pearson Correlation	***-.480***	***.309***	1
	Sig. (2-tailed)	.041**	.027*	
*. Correlation is significant at the 0.05 level (2-tailed).				
**. Correlation is significant at the 0.01 level (2-tailed).				
c. Listwise N=17				

In the above table, we can check that LogFIIs & LogDIIs Correlates above ±0.3 with the Outcome Variables (NIFTYLog). However, LogDIIs Correlates above ±0.3 only with NIFTYLog. Hence, we have built the regression model as follows:

$$\textbf{NIFTYLog} = a + \beta_{LogFIIs}\textbf{LogFIIs} + \beta_{LogDIIs}\textbf{LogDIIs} + \varepsilon$$

Where,
NIFTYLog = Log10 of NIFTY50 as Dependent Variable
a = Constant
LogFIIs = Log10 of FIIs
$\beta_{LogFIIs}$ *= Beta Coefficient of LogFIIs*
LogDIIs = Log10 of DIIs
$\beta_{LogFIIs}$ *= Beta Coefficient of LogDIIs*
ε *= Residual*

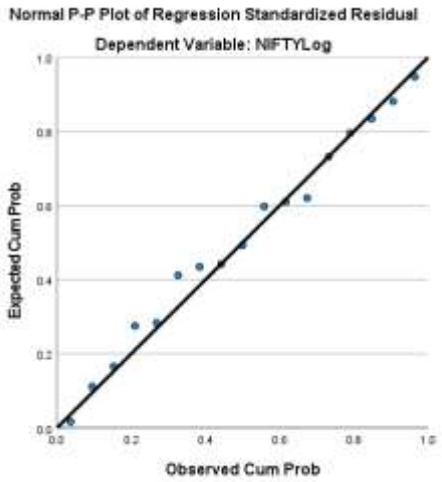
Before running the regression model we checked for the Multicollinearity among the Predictor Variables. LogDIIs and LogFIIs don't correlate with each other above ±0.7, meaning no sign of multi-correlation. However, we have also checked for the Tolerance and Variance Inflation Factor (VIF) for the same (refer table 1.3)

Table 1.3: Coefficients[a]

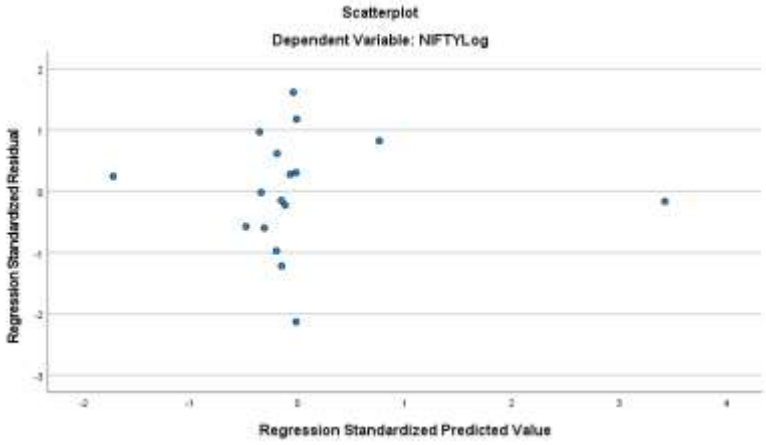
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	4.192	.363		11.551	.000					
	FIILog	-.080	.045	-.428	-1.799	.094	-.480	-.433	-.412	***.928***	***1.077***
	DIILog	.038	.047	.195	.820	.426	.309	.214	.188	***.928***	***1.077***
a. Dependent Variable: NIFTYLog											

Collinearity Tolerance is a key measure that shows how much variation of a predictor variable is not explained by other predictor variables. A tolerance value below 0.10 indicates collinearity, meaning the variable

overlaps too much with others (O'Brien, 2007; Daoud, 2017). Another related measure is the Variance Inflation Factor (VIF), which is the reciprocal of tolerance (1/Tolerance). VIF shows how much a variable's variance is inflated due to multicollinearity. A VIF value below 10 is acceptable, while a VIF below 4 is ideal (O'Brien, 2007). In our data, all predictor variables have a tolerance above 0.1 and a VIF below 4, meaning there is no significant multicollinearity. During the regression procedure in SLR, residual plots against NIFTYLog (ZRESID*ZPRED) to check equal variance assumption and standardized residual plots (histogram and normal probability plot) to check normality assumption are requested.



The Probability-Probability Plot of our regression equation shows that the data fits closely to the normal distribution line, meaning the residuals are mostly normally distributed.



The scatter plot of the standardized residuals shows that the residuals are concentrated within the range of ±3. This indicates that our data fits well within the regression model. Residuals larger than ±3 are often considered outliers (Bollen & Arminger, 1991). In our data we can see that there is one outlier. The outlier has been treated by capping it to the limit for the purpose of analysis.

Table 1.4: Regression Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.822[a]	.675	.589	.231853377219	.674	3.530	2	14	.015
a. Predictors: (Constant), DIILog, FIILog									
b. Dependent Variable: NIFTYLog									

The table above shows the results of our regression model. The R Square value is 0.675, meaning that 67.5% of the changes in the dependent variable (NIFTYLog) is due to the variation in LogFIIs & LogDIIs.

Conclusion

The analysis conducted in this study demonstrates a significant relationship between institutional investments (FIIs and DIIs) and the performance of the

NIFTY50 index. Initially, the data was found to be non-normally distributed; hence, transformations were applied to achieve normality. Logarithmic transformations, coupled with adjustments to handle negative values, enabled us to proceed with further statistical analysis.

Correlation analysis revealed that both predictor variables (LogFIIs and LogDIIs) show moderate correlations with the dependent variable (NIFTYLog). Importantly, the absence of multicollinearity, confirmed through Tolerance and VIF values, ensured the validity of the regression model.

The regression analysis yielded an R Square value of 0.675, indicating that 67.5% of the variation in NIFTYLog is explained by the independent variables LogFIIs and LogDIIs. Diagnostic checks, including the residual plots and Probability-Probability Plot, confirmed that the regression assumptions of normality and equal variance were satisfied. The single identified outlier was treated appropriately to maintain the robustness of the model.

Overall, the findings suggest that foreign institutional investments (FIIs) and domestic institutional investments (DIIs) are influential in predicting NIFTY50 performance. This has important implications for market participants and policymakers, highlighting the role of institutional investments in shaping stock market trends. Future research could explore additional variables or extend the dataset to further validate these findings and enhance predictive capabilities.

References

1. Madhavan, M., Dhandapani, T., & Tamizharasan, M. (2020). Impact of foreign institutional investment on Indian stock market. *Journal of Computing and Corporate Research*, *2*(5), 1-16.
2. Jain, S., & Saha, A. (2023). FII Profitability and Market Uncertainty: An Emerging Economy Context. *Global Business Review*, 09721509231178996.
3. Banerjee, S., Mitra, A., Jena, S. K., & Mohanti, D. (2024). Influence of foreign institutional holding on corporate risk-return profile: a panel quantile regression analysis. *Cogent Economics & Finance*, *12*(1), 2302637.
4. Srivastava, P., & Varshney, S. (2022). The relationship of domestic institutional investors and India stock market returns: An ARDL bound testing approach. *Journal of Transnational Management*, *27*(2), 97-116.
5. Singh, A. K., Shrivastav, R. K., & Jain, S. (2024). Trading Behaviour Exhibited by Institutional Investors During Calm and Volatile Periods in the Indian Scenario. *The Indian Economic Journal*, *72*(1), 181-198.
6. Vimal, A., (2022). Impact of FII on Indian Economy/Stock Market? *International Journal of Innovative Science and Research Technology*, *7*(8), 1361-1365.
7. Parab, N., & Reddy, Y. V. (2020). A cause and effect relationship between FIIs, DIIs and stock market returns in India: pre-and post-demonetization analysis. *Future Business Journal*, *6*(1), 25.