

# The Emergence of DIIs as a Strong Counterforce to FIIs in Changing Indian Securities Market - An Empirical Study

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## Abstract

The Indian stock market is one of the most dynamic and promising in emerging markets. Domestic institutional investors (DIIs) and foreign institutional investors (FIIs) are the two major players in the Indian capital market. Foreign institutional investors (FIIs) have always been regarded as the primary drivers of the Indian securities market. The growing presence of domestic institutional investors (DIIs) in the Indian securities market is rarely discussed. Meanwhile, FIIs' stake has consistently declined in recent years, owing to the emergence of domestic institutional investors (DIIs) as a potent counterforce to FIIs with opposing investing and trading strategies in India. The study attempts to investigate the investing behaviour of DIIs and FIIs and their impact on the Indian security market, as well as shed light on the direction of causality between FIIs, DIIs, and BSE Sensex returns. For this purpose, the study employs correlation analysis, the Granger causality test, and the vector autoregression (VAR) model. Our findings show that, at present, FIIs are not the sole drivers anymore; domestic investors can also make the Indian stock market resilient amidst global uncertainties.

**Keywords:** FIIs, DIIs, Indian Securities Market, Emergence, Counterforce, Causality, BSE Sensex

**JEL Code:** C01, C58, G23

## Introduction

The Indian stock market is one of domestic and foreign investors' most prominent investment options. They prefer

to invest here because the Indian securities market and the Indian economy are expected to grow rapidly. The Indian capital market is regarded as one of the best-performing capital markets among all stock markets. These are the reasons behind institutional investors' attraction to various indices and stocks in the Indian stock market (Bansal, 2021; Salar et al., 2019). Because of their large amounts of investment, institutional investors are the pillars of any stock market around the world. These institutional investors can be categorized into two types: domestic institutional investors (DIIs) and foreign institutional investors (FIIs). DIIs are institutions like mutual funds, insurance companies, banks, pension funds, or provident funds that pool money from the public or small investors of the country and then invest a large amount in different stocks and assets of the country. After the 1991 financial liberalization, Indian markets received a huge amount of foreign funds from various Foreign Institutional Investors (FIIs). The Indian stock market was heavily reliant on the inflow of foreign funds (Dhingra et al., 2016). Foreign Institutional Investors (FIIs) activities are used to determine any rally or dip in the market; if they were the net sellers, then we used to see a big fall, and if they were the net buyers, then we observed a rally in the Indian stock market (Shamim et al., 2019). But now, as time passes, domestic institutional investors (DIIs) are becoming more mature, and they are making the Indian securities market a more stable avenue for investments (Salar et al., 2019; Bose, 2014). Our study mainly focuses on the role of DIIs in providing support to the Indian stock market, while the FIIs are the net sellers. The Indian stock market is on the cusp of change, and the current resilience in the market is just because of the domestic institutional investors (DIIs) and the retail investors. Our study sheds light on how the

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DIIIs are emerging as a strong counterforce to the FIIIs in stabilizing market volatility and becoming a new driver of the Indian stock market.

## Review of Literature

Domestic institutional investor inflows have no positive impact on the BSE Sensex as these investments have little impact on the index's movement. However, the Sensex movement and the market return have a significant impact on the trading and investment patterns of DIIIs (Shamim et al., 2019). FII investment flows have a negative impact on the stock market, and the flow of FIIIs has a negative impact on stock market volatility. In contrast, the flow of domestic institutional investors has a positive impact (Anshuman et al., 2010). FIIIs influence stock prices positively when they buy stock and negatively when they sell the stock, and data shows that FIIIs increase market volatility with their selling (Dhingra et al., 2016). FII and DII trading patterns are diametrically opposed (Arora, 2016; Sathish, 2018). While FIIIs trade positive feedback, DIIIs trade negative feedback. They have increased FII investment results from high-lagged stock returns. DIIIs, on the other hand, appear to sell when the market rises and buy when it falls.

In contrast to previous studies that found that MF investment had no effect on future stock returns, the study discovered that DII investment has a significant positive relationship with future stock returns. The study also discovers only a weak link between FII investment and future stock returns (Arora, 2016). FIIIs' buying and selling activities influence DIIIs' behaviour. It has also been observed that FIIIs have a greater influence on Indian stock returns than DIIIs. FIIIs' buying and selling activities influence DIIIs' behaviour. It has also been observed that FIIIs have a greater influence on Indian stock returns than DIIIs (Bansal, 2020; Sathish, 2018; Gahlot, 2019; Salar, 2016). The presence of FIIIs aided the growth of the Indian stock market while also increasing volatility (Sripriya et al., 2014). A correlation exists between the investment activity of FIIIs and mutual funds, and it significantly impacts the volatility of the Indian securities market with at least one lag. There is a causality between market volatility and FIIIs, whereas there is none for mutual funds (Naik & Padhi, 2015; Chhimwal, 2020). The trading strategies of FIIIs and DIIIs are significantly different. The FIIIs trade using a positive feedback strategy, whereas the DIIIs trade using a negative feedback strategy. During

the crisis, this negative feedback strategy was more prominent. There is also a negative relationship between FPI and DII flows (Kadanda & Raj, 2017). The Indian stock market return largely affects the investing behaviour of institutional investors in India; unidirectional causality from the stock market return to DIIIs and FIIIs flows was found in the study (Chakrabarti, 2001; Mukherjee et al., 2002; Thiripalraju & Acharya, 2011; Dua & Garg, 2013). The Indian stock market attracts three major players: FIIIs, Mutual Funds (MF), and Domestic Institutional Investors (DIIIs). FIIIs are not the only active players with a say in the Indian stock market; DIIIs and mutual funds also have a say. FIIIs are essentially opportunistic agents who cause no fundamental change in the market but profit from it in a speculative manner (Murthy et al., 2013).

## Objective of the Study

- To find out the correlation between DIIIs, FIIIs, and BSE Sensex return.
- To examine the causal relationship between DIIIs and BSE Sensex return.
- To examine the causal relationship between FIIIs and BSE Sensex return.
- To analyze the impact of DIIIs in stabilizing the Indian stock market volatility.

## Hypotheses of the Study

H<sub>0</sub>1: DIIIs do not Granger Cause FIIIs.

H<sub>0</sub>2: FIIIs do not Granger Cause DIIIs.

H<sub>0</sub>3: DIIIs do not Granger cause BSE Sensex return.

H<sub>0</sub>4: BSE Sensex return does not Granger cause DIIIs.

H<sub>0</sub>5: FIIIs do not Granger cause BSE Sensex return.

H<sub>0</sub>6: BSE Sensex return does not Granger cause FIIIs.

H<sub>0</sub>7: There is no significant correlation between DIIIs, FIIIs, and BSE Sensex return.

## Research Methodology

The study uses secondary data from different websites, journals, news reports, and magazines. In this study, monthly data on the BSE Sensex return (both percentage and absolute) has been taken for analysis from January

2015 to May 2022. The Sensex return is calculated using the formula  $r = \frac{C_c - C_p}{C_p}$ , where  $C_p$  = previous closing and  $C_c$  = current closing of Sensex. The net flows of DIIs and FIIs and the closing of the Sensex have also been taken every month for the same period. The data has been compiled from the official websites of BSE and NSE, moneycontrol.com, SEBI, Yahoo Finance, etc. Since the data was a time series, we had to check whether the data was stationary or not, and for this, we applied the Augmented Dicky-Fuller Unit root test. For the causality, we have applied the vector auto-regressive (VAR) model, the block exogeneity Wald test, and the Granger causality test. The software used for the analysis is MS Excel, EViews 12 SV (x64), and other relevant software. The equation for the stationarity test (Augmented Dicky-Fuller):

$$\Delta Y_t = \gamma Y_{t-1} + \epsilon \quad \text{Where } \gamma = \beta - 1 \text{ (Dicky-Fuller)}$$

$$\Delta Y_t = \alpha + \gamma Y_{t-1} + \epsilon \text{ (intercept added)}$$

$$\Delta Y_t = \alpha + \phi t + \gamma Y_{t-1} + \epsilon \text{ (Intercept and time trend added)}$$

$$\Delta Y_t = \alpha + \phi t + \gamma Y_{t-1} + \sum_{i=1}^m \phi_i \Delta Y_{t-i} + \epsilon \text{ (Augmented Dicky-fuller)}$$

Where  $\alpha$  = Intercept,  $\phi t$  = Time trend,  $\sum_{i=1}^m \phi \Delta Y_{t-i}$  = lag of dependent variable  $\Delta Y_t$ .

If  $\beta = 1$  then  $\gamma = 0$  it means there is a unit root exists and the series is non-stationary. On the other hand, if  $\beta > 1$  then the series will become explosive, and if  $\beta < 1$  then  $\gamma < 1$  which means the unit root does not exist and the series is stationary.

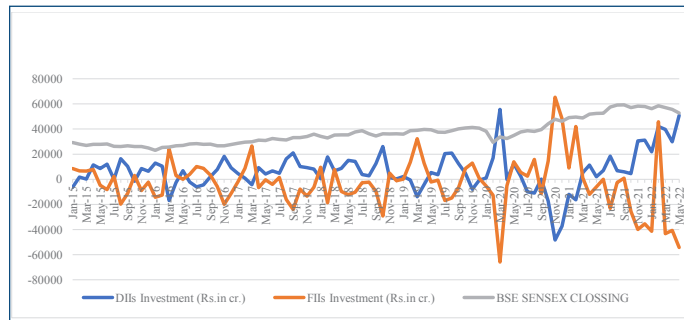
### Data Analysis, Results, and Interpretation

Our data shows the investment trend of FIIs and DIIs differ from each other as one buys the other to sell and vice-versa. The correlation result also shows there is a strong negative correlation between them.

**Table 1: Correlation**

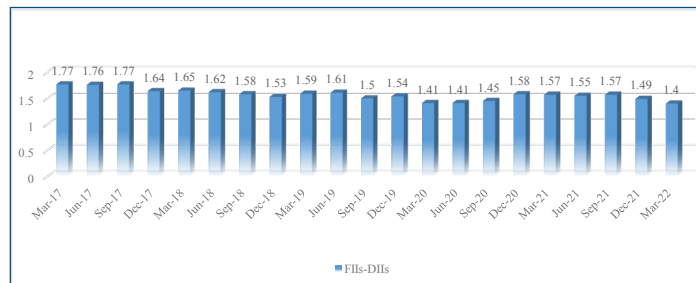
	DIIs	FIIs	BSE Sensex (Closing)
DIIs	1	-0.806	0.176
Sig. (2-tailed)		0.000**	0.098
FIIs	-0.806	1	-0.118
Sig. (2-tailed)	0.000**		0.270
BSE Sensex (closing)	0.176	-0.118	1
Sig. (2-tailed)	0.098	0.270	

Correlation is significant at the 0.01 level (2-tailed).



Source: Moneycontrol.com (Compiled and made by author) \*\*

**Fig. 1: Trend of Net Investment by FIIs, DIIs and the BSE Sensex Movement (Jan 2015 - May 2022)\*\***



Source: Motilal Oswal India Strategy May 2022.

**Fig. 2: Trend in Nifty-500 FII-DII Ownership Ratio**

The correlation result (Table 1) and investment trend (Fig. 1) show that FIIs and DIIs go in opposite directions. There is a very strong negative correlation found between DIIs and FIIs' investments, which is -0.806, indicating that when FIIs sell, the DIIs buy, and vice versa (case 1); thus, the Sensex is protected from a huge fall and restricted from being explosive. DIIs and the BSE Sensex index correlate at 0.176, while FIIs and the BSE Sensex index have a correlation of -0.118 (case 2), which is not significant. Hence, it can be inferred that the DII's investments are

countering the FII's investments and preventing them from being a primary driver of the Indian securities market. The impact of FIIs' investments on the movement of the BSE Sensex index is not significant. The counter-investment strategy of domestic institutional investors restricts foreign institutional investors from being a significant influencer of the Indian stock market. The FIIs-DIIs ownership ratio has been gradually decreasing in the last few years; it was 1.77 in 2017 and now it is 1.4 in 2022 (Fig. 2), which shows the DII's increasingly prominent position in the Indian stock market.

### Variable Analysis: DIIs, FIIs, and BSE SENSEX Return

**Table 2**

Null hypothesis: DIIs, FIIs, and SENSEX Return has a Unit root

Exogenous: Constant

Lag length: 0 (Automatic- based on SIC, maxlag = 11)

	DIIs		FIIs		Sensex Return	
	T-Statistics	Prob.*	T-Statistics	Prob.*	T-Statistics	Prob.*
ADF test statistic	-4.093675	0.0016	-6.096002	0.0000	-9.860762	0.0000
Test critical values:						
1% level	-3.506484		-3.506484		-3.506484	
5% level	-2.894716		-2.894716		-2.894716	
10% level	-2.584529		-2.584529		-2.584529	

\*Mackinnon (1996) one-sided p-values.

**Table 3**

Augmented Dicky-Fuller Test Equation

Dependent Variable: D(DIIS), D(FIIs), D (SENSEX Return)

Method: Least Squares

Sample (adjusted): 2015M02 2022M05

Included observations: 88 after adjustments

Variable	Coefficient	Std. Error	T-statistics	Prob.
DIIS (-1)	-0.369257	0.090202	-4.093657	0.0001
C	2910.874	1418.619	2.051906	0.0432
FIIS (-1)	-0.639046	0.104830	-6.096002	0.0000
C	-2270.499	2060.709	-1.101805	0.2736
SENSEX Return (-1)	-1.069501	0.108460	-9.860782	0.0000
C	0.820181	0.544123	1.507343	0.1354

Source: Author's work using EViews 12 SV (x64).

The Augmented Dicky-Fuller Test for Stationarity shows that the DIIs (Net Domestic Institutional Investments), FIIs (Net Foreign Institutional Investments), and BSE

SENSEX Return (Percentage) are all three stationary at level and intercept (Table 2), because of their prob. Value<0.05. After confirming the stationary nature of

the data series, the VAR model is used to investigate the relationship between DIIs, FIIs, and BSE Sensex returns.

**Table 4**

Vector auto-regressive (VAR) Estimates

Included observations: 88

Standard error in ( ) and t-statistics in [ ]

	<i>DIIs Net Flow</i>	<i>FIIs Net Flow</i>	<i>Sensex Return</i>
DIIs Net (-1)	0.788411 (0.09368) [8.41599]	-1.048367 (0.16285) [-6.43748]	-1.25E-05 (6.1E-05) [-0.20456]
FIIs Net (-1)	0.120953 (0.06953) [1.73965]	-0.264456 (0.12087) [-2.18801]	-7.05E-06 (4.5E-05) [-0.15508]
Sensex Return (-1)	-1912.908 (168.538) [-11.3500]	2192.122 (292.986) [7.48199]	-0.067314 0.11027 [-0.61045]
C	3825.373 (948.742) [4.03205]	804.0117 (1649.29) [0.48749]	0.877890 (0.62073) [1.41429]
R-square	0.748994	0.572866	0.005249
Adj. R-square	0.740030	0.557612	-0.030278
Sum sq. resids	5.09E+09	1.54E+10	2178.493
S. E. equation	7783.662	13531.13	5.092587
F-statistics	83.55132	37.55327	0.147744
Log-likelihood	-911.2805	959.9415	-266.0649
Akaike AIC	20.80183	22.02037	6.137838
Schwarz SC	20.91444	22.02037	6.250444
Mean dependent	6769.522	-3149.655	0.762614
S. D. dependent	15265.90	20343.81	5.017198
Determinant resid covariance (dof adj.)			2.21E+17
Determinant resid covariance			1.92E+17
Log-likelihood			-2125.722
Akaike information criterion			48.58459
Schwarz criterion			48.922241
Number of coefficients			12

Source: Author's Compilation using EViews 12 SV (x64).

**Table 5: VAR Lag Order Selection Criteria**

Endogenous Variables: DIIs Net, FIIs Net, SENSEX Return

Lag	LogL	R	FPE	AIC	SC	HQ
0	-2116.856	NA	9.22e+17	49.87897	49.96518	49.91364
1	-2053.018	121.6686	2.54e+17*	48.58865**	48.93350*	48.72736*
2	-2049.050	7.281314	2.86e+17	48.70707	49.31054	48.94980
3	-2043.043	10.60153	3.07e+17	48.77748	49.63959	49.12424
4	-2029.541	22.87378*	2.78e+17	48.67155	49.79230	49.12235

Source: Author's work using EViews 12 SV (x64).

Note: \*indicates lag order criteria and \*\*indicates optimum lag selected for further analysis.

We used the vector auto-regression (VAR) approach to investigate the lead-lag causality among the three selected time series. The VAR method treats all the time series as endogenous variables. Each endogenous variable in the model is explained using its own lagged values and the lagged values of other endogenous variables in the model. Normally, the VAR model does not take exogenous variables into account. The study has three endogenous variables DIIs net flow, FIIs net flow, and SENSEX return, with no exogenous variables.

We assumed that if a time series variable, Granger, causes other time series variables, the coefficients of the former

time series must be significant. However, we needed to determine the appropriate number of lags to investigate multivariate causality using a VAR approach to investigate the optimal lag of the three selected time series using the indicators listed in Table 5. For the analysis in the study, we used the lag length suggested by the Akaike information criterion (AIC) and the final prediction error (FPE) criterion (lag length = 1).

The VAR approach Table 6 displays the results of the VAR approach and the Block exogeneity Wald test.

**Table 6: VAR Granger Causality/Block Exogeneity Wald Test**

<i>CR-1: Dependent Variable: DIIs Net Flow</i>			
<i>Excluded</i>	<i>Chi-Square</i>	<i>DF</i>	<i>Prob.</i>
FIIs Net flow	3.026388	1	0.0819
SENSEX Return	128.8230	1	0.0000
All	129.3510	2	0.0000
<i>CR-2: Dependent Variable: FIIs Net flow</i>			
<i>Excluded</i>	<i>Chi-square</i>	<i>DF</i>	<i>Prob.</i>
DIIs Net flow	41.44110	1	0.0000
SENSEX Return	55.98021	1	0.0000
All	88.83331	2	0.0000
<i>CR-3: Dependent Variable: SENSEX Return</i>			
<i>Excluded</i>	<i>Chi-square</i>	<i>DF</i>	<i>Prob.</i>
DIIs Net flow	0.041846	1	0.8379
FIIs Net flow	0.024049	1	0.8768
All	0.041966	2	0.9792

Source: Author's Compilation using EViews 12 SV (x64). Note: CR= Causal Relationship.

The results of the block exogeneity Wald test approach show the causal relationship among the selected time series data (DIIs, FIIs, and BSE Sensex return). The result shows a unidirectional causal relationship between the Sensex return and the net flows of DIIs and FIIs (CR-3). The result also shows a unidirectional causal relationship between DII's net flow and FII's net flow. It means DIIs' net flow impacts FIIs' net flow (CR-2), but FIIs' net flow does not impact DIIs' net flow (CR-1).

BSE Sensex Return → DIIs Net flow

BSE Sensex Return → FIIs Net flow

DIIs Net flow → FIIs Net flow

The unidirectional relationship between Sensex Return and FIIs Net Flow indicates that the BSE Sensex Return influences the investment behaviour of foreign investors, but FIIs do not influence market return. Similarly, the causal relationship between Sensex Return and DIIs Net Flow indicates the same thing, as the BSE Sensex Return influences DIIs' investing behaviour. Hence, the direction of the market is not controlled by any of the players. On the contrary, the investment behaviour of FIIs follows the market return, due to which the volatility in the market increases, and the investing behaviour of DIIs is just the opposite of that of FIIs, which gives stability to the Indian stock market. Hence, it might be concluded that slowly but gradually, the DIIs are emerging as the equal driver of the Indian stock market.

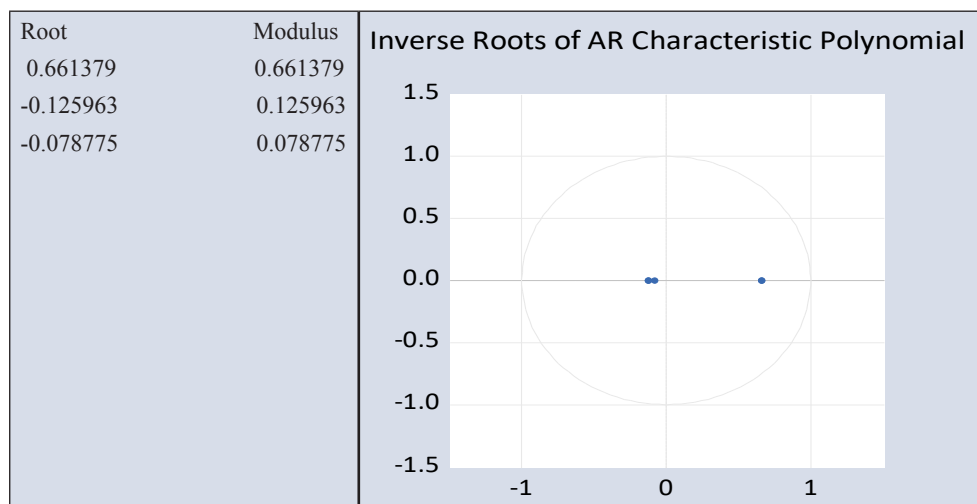
**Table 7: VAR Stability Condition Check**

Roots of characteristics Polynomial

Endogenous Variables: DIIs Net, FIIs Net, SENSEX Return

Exogenous Variables: C

Lag Specification: 1 1



Source: Author’s Compilation using EViews 12 SV (x64).

\*\* No root lies outside the unit circle; Hence VAR satisfies the stability condition.

Since all the roots are within the circle, the model is fit for the granger causality test.

**Table 8: Pair-Wise Granger Causality Tests**

Sample: 2015M01 2022M05

Lags: 1

Null Hypothesis	Obs.	F-statistic	Prob.	Inference
H <sub>05</sub> : FIIs do not Granger Cause Sensex return	88	0.00012	0.9912	Accepted
H <sub>06</sub> : Sensex return does not Granger cause FIIs		32.1134	2.E-07	Rejected
H <sub>03</sub> : DIIs do not Granger Cause Sensex return	88	0.01812	0.8932	Accepted
H <sub>04</sub> : Sensex return does not Granger Cause DIIs		123.383	3.E-18	Rejected
H <sub>01</sub> : DIIs do not Granger Cause FIIs	88	19.9493	2.E-05	Rejected
H <sub>02</sub> : FIIs do not Granger Cause DIIs		0.21089	0.6472	Accepted

Source: Author’s work using EViews 12 SV (x64).

**Table 9: Pair-Wise Granger Causality Tests**

Sample: 2015M01 2022M05

Lags: 2

Null Hypothesis	Obs.	f-statistic	Prob.	Inference
H <sub>05</sub> : FIIs do not Granger Cause Sensex return	87	0.02670	0.9737	Accepted
H <sub>06</sub> : Sensex return does not Granger cause FIIs		17.5023	5.E-07	Rejected
H <sub>03</sub> : DIIs do not Granger Cause Sensex return	87	0.14567	0.8647	Accepted
H <sub>04</sub> : Sensex return does not Granger Cause DIIs		61.8662	4.E-17	Rejected
H <sub>01</sub> : DIIs do not Granger Cause FIIs	87	9.78484	0.0002	Rejected
H <sub>02</sub> : FIIs do not Granger Cause DIIs		0.15860	0.8536	Accepted

Source: Author’s work using EViews 12 SV (x64).

After testing the stationarity of all three variables (DIIs, FIIs, and Sensex returns), the Block exogeneity Wald test has been applied. Again, after checking the VAR stability condition, the Granger causality test was applied.

The Granger Causality test validates the vector autoregressive (VAR) results, showing that FIIs net flow does not Granger cause the Sensex return ( $H_{05}$  accepted). However, Sensex return does Granger cause FIIs net flow ( $H_{06}$  rejected) at Lag 1 and Lag 2. Here, unidirectional causality runs from BSE Sensex returns to FII investments. Similarly, the Granger Causality test shows that DIIs net flow does not Granger cause BSE Sensex return ( $H_{03}$  accepted), but BSE Sensex return does Granger cause DIIs net flow ( $H_{04}$  rejected) at both Lag 1 and Lag 2. Here also, unidirectional causality runs from the BSE Sensex return to DII's investments. It means the BSE Sensex return is affecting the investing behaviour of both DIIs and FIIs, but the Granger causality test result fails to establish the opposite causal relationship.

BSE Sensex Return  $\rightarrow$  DIIs Net flow

BSE Sensex Return  $\rightarrow$  FIIs Net flow

DIIs Net flow  $\rightarrow$  FIIs Net flow

The causality test between DIIs and FIIs shows that DIIs' net flow does Granger cause FIIs' net flow ( $H_{01}$  rejected), but FIIs' net flow does not Granger cause DIIs' net flow ( $H_{02}$  accepted) at both Lag 1 and Lag 2. Here, unidirectional causality runs from DIIs' investments to FIIs' investments. All these findings show that the Indian securities market is not controlled or directed by any of the players. Neither the FIIs nor the DIIs are having a significant influence on market movement. This is due to the emergence of domestic institutional investors (DIIs) as a formidable counterforce to FIIs with opposing investing and trading strategies in India. Domestic institutional investors' counter-investment strategy prevents foreign institutional investors from being significant influencers in the Indian stock market.

## Conclusion

This study investigated the behaviour of domestic institutional investors (DIIs) and foreign institutional investors' (FIIs) investments in the BSE Sensex and discovered a correlation between their investment patterns and the Sensex return. The study attempted to shed light on

how DIIs are emerging as a strong counterforce to foreign institutional investors in terms of stabilising market volatility and becoming an equal driver of the Indian stock market with FIIs. The study finds that domestic institutional investors provide more strength to the Indian stock market and protect it from being explosive. Our data shows (Fig. 1) that despite the continuous offloading of shares by FIIs, the Indian securities market remained resilient because the DIIs were countering them with their opposite investment strategies (Table 1, strong negative correlation). After analysing our results, it is clear that the continued resilience in the Indian securities market is due to the emergence of DIIs as a strong counterforce to FIIs. The causality test reveals that the market return affects both players significantly, but neither FIIs nor DIIs significantly influence market movement. The growing presence of domestic institutional investors (DIIs) has reduced the impact of foreign institutional investors (FIIs). Therefore, we suggest that since FII and DII activity can be used to gauge market activity, investors should not base their investment decisions on whether or not FIIs or DIIs are buying. Investors should only bet on companies with strong fundamentals and at reasonable valuations.

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