



## Dynamics of Relationship of Institutional Investors' Investments and S&P CNX Nifty: An Empirical Study of Demonetization

\*Dr. N.K.Totala

\*\* Dr. Harmender Singh Saluja

\*Reader, Institute of Management Studies

Devi Ahilya Vishwavidyalaya, Indore

\*\*Professor and HOD, MBA Programs

Maharaja Ranjit Singh Group of Institutions

Indore, M.P., India

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### Abstract

*National Stock Exchange (NSE) is the third largest stock market in the world in terms of trading volume as well as the second fastest growing in the world. The Nifty is a leading index for large companies on the National Stock Exchange where institutional investors play a significant role. The demonetization might have affected sentiment of institutional investors. The objective of the study is to analyze the dynamism of relationship changes between Institutional Investors and Nifty Index of NSE due to demonetization. Institutional Investors Investments consists of Foreign Institutional Investors (FIIs) and Domestic Institutional Investors (DIIs) investments in Indian Stock Market. To represents Indian Stock Market S&P CNX Nifty will be considered. Correlation Analysis, Regression Analysis and Johnson Co-integration Test will be applied to analyze the relationship between Institutional Investors Investments and S&P CNX Nifty due to demonetization.*

*Key Words : National Stock Exchange; S&P CNX Nifty; Institutional Investors; Foreign Institutional Investors (FIIs); Domestic Institutional Investors (DIIs); Demonetization.*

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### Introduction

Indian Stock Market showed a remarkable growth and touched the height ever value at 33,686 in the month of November 2017. The domestic as well as foreign investors were in a position to generate good returns on their respective investments. As a result, the investors developed a kind of trust on the Indian Stock Market. The Institutional Investors have emerged as noteworthy players in the Indian Stock Market and their growing contribution works as an important feature. The role and importance of Institutional Investments during last few years has increased multiple due to integration of the stock markets. The Institutional Investors, viz. Foreign Institutional Investors (FIIs) and Domestic Institutional Investors (DIIs) Investments have a great impact on the Indian Stock Market which is one of indicators of the Indian economy.

Demonetization brought enormous changes in various sectors of the Indian economy. Demonetization acted as a liquidity shock that impacted economic activities and performance of the economy. The stock market is a good indicator of how perceptions of investors have been grounded across the different sectors during any period.

The demonetization might have affected sentiment of institutional investors. The major part of investment in Indian Stock Market is attributed by Institutional Investors among whom Foreign Institutional Investors (FIIs) and Domestic Institutional Investors (DIIs) are of prime importance. One eminent concerned matter is whether these Institutional Investors regulate the Indian Stock Market and hold any relationship between them. So, it is imperative to judge the dynamism of relationship of Foreign Institutional Investors (FIIs) and Domestic Institutional Investors (DIIs) with Indian Stock Market due to demonetization. The objective of the study is to analyze the dynamism of relationship changes between Institutional Investors and Nifty Index of NSE due to demonetization.

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## S&P CNX NIFTY Index

The Standard & Poor's CRISIL NSE Index 50 or popularly known, S&P CNX Nifty nicknamed Nifty 50 or simply Nifty, is the leading index for large companies on the National Stock Exchange (NSE) which is the largest stock exchange in India physically located in Mumbai. NSE is the third largest stock market in the world in terms of trading volume as well as the second fastest growing in the world today, started its operations in 1994. The Nifty, leading index for large companies on the NSE, is a diversified 50 stock index accounting for 23 sectors of the Indian economy and offers investment managers exposure to the Indian market in one portfolio ([www.nse.com](http://www.nse.com)).

## Demonetization

Demonetization is the act of stripping a currency unit of its status as legal tender. When any Government withdraws the legal tender rights of any currency, it is known as demonetization. Demonetization in a booming economy is like a huge gamble played by the government to impact on black money (unaccounted money), corruption, terrorist activities, cash hoarders, counterfeit currency, etc.

## Institutional Investors

An Institutional Investor is an investor that is registered in the country in which it is trading. The Foreign Institutional Investors (FIIs) are basically referred to investors who are organized in the form of an institution or entity and indulge in investing funds in the financial market of a foreign country, i.e., different from where the entity was originally registered or incorporated. In India, FIIs can invest their funds in the country only under the norms prescribed by Security and Exchange Board of India. Domestic Institutional Investors (DIIs) refers to the Indian institutional investors who are investing in the financial markets of India especially into Stock Market (<http://www.quantshare.com>).

## Objectives Of The Study

- To study the relationship between FIIs Net Investments, DIIs Net Investments and S&P CNX Nifty.
- To study the impact of FIIs Net Investments and DIIs Net Investments on S&P CNX Nifty individually.
- To check the Co-integration among the FIIs Net Investments, DIIs Net Investments and S&P CNX Nifty.
- To explore role of FIIs Net Investments and DIIs Net Investments for competing in an innovation driven economy.

## Null Hypothesis

To test the above objectives following null hypothesis were made:

- $H_{01}$ : There exists no significant relationship between FIIs Net Investments, DIIs Net Investments and S&P CNX Nifty, individually for Pre Demonetization Period.
- $H_{02}$ : There exists no significant relationship between FIIs Net Investments, DIIs Net Investments and S&P CNX Nifty, individually for Post Demonetization Period.
- $H_{03}$ : FIIs Net Investments and DIIs Net Investments have no significant impact on S&P CNX Nifty, individually, for Pre Demonetization Period.
- $H_{04}$ : FIIs Net Investments and DIIs Net Investments have no significant impact on S&P CNX Nifty, individually, for Post Demonetization Period.
- $H_{05}$ : There exists no Co-integration among DIIs Net Investments, FIIs Net Investments and S&P CNX Nifty Pre Demonetization Period.
- $H_{06}$ : There exists no Co-integration among DIIs Net Investments, FIIs Net Investments and S&P CNX Nifty Post Demonetization Period.

## Research Methodology

### The Study

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The present study empirically tested dynamism of relationship between FIIs Net Investments and DIIs Net Investments in equity cash segment and S&P CNX Nifty Index of National Stock Exchange.

### **Data**

The study is based on secondary data. FIIs Net Investments and DIIs Net Investments in equity cash segment and S&P CNX Nifty Index values have been used. The data were collected from websites <http://www.nseindia.com>, <http://www.bseindia.com>, <http://www.sebi.com>, etc.

### **Sample Design**

Variables used for the study were DIIs Net Investments, FIIs Net Investments and S&P CNX Nifty. Monthly net investments of FIIs Investment and DIIs Investment in equity cash segment and monthly closing values of S&P CNX Nifty index for the Pre Demonetization Period(November 2015to October 2016)and Post Demonetization Period(November 2016 to November 2017)were taken for the study.

### **Tools for Analysis**

Correlation Analysis was carried out to find and study the relationship between FIIs Net Investments, DIIs Net Investments and S&P CNX Nifty each other. Regression Analysis was used to study the impact of FIIs Net Investments and DIIs Net Investments on S&P CNX Nifty individually. Johansen Co-integration Test was carried on to analyze long term relationship between the variables involved in the study.

### **Literature Review**

A study analyzed daily flows of FIIs Investments (net investment, purchasing and sales) on Indian Stock Market for the period of 1999-2002. Study used BSE SENSEX for the market return illustration. On applying Granger Causality Test and Multiple Regression Test, it was found that FIIs purchase decision was not caused by Indian Stock Market return significantly. But according to Granger Causality Test it was found that BSE returns was an important determinant of FIIs Investments (Mukherjee, et. al., 2002). Another study focused on the determinants of Foreign Institutional Investments in India. Study concluded that market capitalization and stock market turnover of India have significant positive influence only in short-run but stock market risk had negative influence on FIIs inflows to India. Among macroeconomic determinants, economic growth of India had positive impact on FIIs Investment in both long run and short run, but all other macroeconomic factors have significant influence only in long run like inflation (Kaur and Dhillon, 2010).

A study was conducted to find out the relationship between FIIs and Indian Capital Market taking daily FIIs Investments, Daily BSE SENSEX and daily CNX Nifty as variables. Study found that Daily BSE SENSEX and daily CNX Nifty had very low degree of positive correlation with daily FII's Investments. This implied that there were many other macro economic factors had indirectly affected the daily BSE SENSEX and daily CNX Nifty but their influence on the stock prices cannot be completely ignored. Hence both indices moved in direction of FII's Investments (Kulshrestha, 2014).A study examined daily observation of FIIs and Indian Stock Market to study the association and causation in these two actors. The objective of the study was to identify is some co-integration exists between the global investment and stock market performance or not. The study concluded that applied econometrics tools were convincingly captivating and may have a conspicuous effect on the strategies of domestic and international investors before investing in Indian Stock Market. Because of more digitized stock market with advance software's for trading of stock market products and entrée of investors across the world stock market may root information spillover from one bourse to another (Mehta and Sharma, 2015).

Another study was conducted to find the impact of foreign investments on Indian Stock Market. For achieving such objective, the monthly data had been collected for BSE SENSEX and



Foreign Equity Investments during year 2011 to 2016. It was concluded that there was causality from BSE SENSEX to Foreign Institutional Investments and there was no reverse causation present on it. It means there was no impact of foreign investments on Indian stock market but there was an impact of Indian Stock Market on foreign investments. There was no direct relationship that foreign investments cause the movement of Indian Stock Market. It means that there can be other factors also which play their roles to affect foreign investments in Indian Stock Market (Meman, 2017).

### Analysis and Interpretation

Table 1.a.: Correlation Analysis (Pre Demonetization Period)

Variables	NIFTY	FIIS_NI	DIIS_NI
NIFTY	1	0.033797405	-0.433873917
FIIS_NI	0.033797405	1	-0.145864119
DIIS_NI	-0.433873917	-0.145864119	1

Karl Pearson Coefficient of Correlation was being applied to study the relationship between FIIs Net Investments, DIIs Net Investments and Nifty at 5% level of significance. As per Table 1.a. and on analysis Pre Demonetization Period, it was conferred that, FIIs Net Investments had very low degree of positive correlation with Nifty. DIIs Net Investments pointed out the very low degree of negative correlation with Nifty. FIIs Net Investment and DIIs Net Investment had showed very low negative correlation with each other for the pre period. Thus, the null hypothesis,  $H_{01}$ : There exists no significant relationship between FIIs Net Investments, DIIs Net Investments and S&P CNX Nifty, individually for Pre Demonetization Period was accepted.

Table 1.b.: Correlation Analysis (Post Demonetization Period)

	NIFTY	FIIS_NI	DIIS_NI
NIFTY	1	-0.021753023	-0.367606637
FIIS_NI	-0.021753023	1	-0.335252374
DIIS_NI	-0.367606637	-0.335252374	1

As per Table 1.b. and on analysis Post Demonetization Period, it was conferred that, FIIs Net Investments had very low degree of negative correlation with Nifty. DIIs Net Investments pointed out the very low degree of negative correlation with Nifty. FIIs Net Investment and DIIs Net Investment had showed low negative correlation with each other. Thus, the null hypothesis,  $H_{02}$ : There exists no significant relationship between FIIs Net Investments, DIIs Net Investments and S&P CNX Nifty, individually for Post Demonetization Period was accepted.

Table 2.a.: Regression Analysis (Pre Demonetization Period)

Regression Model	Dependent Variable	R Square	F	P	T	P	Beta
1	Nifty	0.011	0.11	0.917	.233	0.820	0.359
2	Nifty	0.1882	2.139	0.159	0.576	0.956	0.756

As shown in Table 2.a., the regression model 1 with Nifty as dependent variable has yielded an R Square Value of 0.011, indicating that, 1.1% of the variation in Nifty was caused by changes in FIIs Net Investments being independent variable. The corresponding F statistics (goodness of fit or god fit) was 0.11 and the corresponding P value was 0.917, pointing out that, it was not significant at 95% level of significant, as  $P > 0.05$ . The corresponding T Statistic (level of significance) at 95% level of significance was 0.233, conferring that the regression coefficient was not significant. The corresponding P value was 0.820, as  $P > 0.05$ , pointing out that, there was no significant impact of the variable on Nifty.



As shown in Table 2.a., the regression model 2 with Nifty as dependent variable has yielded an R Square Value of 0.1882, indicating that, 1.82% of the variation in Nifty was caused due to changes in DIIs Net Investments being independent variable. The corresponding F statistics (goodness of fit or god fit) was 2.139 and the corresponding P value was 0.159, pointing out that, it was not significant at 95% level of significant, as  $P > 0.05$ . The corresponding T Statistic (level of significance) at 95% level of significance was 0.576, conferring that the regression coefficient was not significant. The corresponding P value was 0.956, as  $P > 0.05$ , pointing out that, there was no significant impact of the variable on Nifty. Thus, the null hypothesis that,  $H_{03}$ : FIIs Net Investments and DIIs Net Investments have no significant impact on S&P CNX Nifty, individually for Pre Demonetization Period was accepted.

Table 2.b.: Regression Analysis (Post Demonetization Period)

Regression Model	Dependent Variable	R Square	F	P	T	P	Beta
1	Nifty	.0009	0.005	0.947	2.098	0.062	1.856
2	Nifty	0.135	1.562	0.240	1.724	0.115	1.483

As shown in Table 2.b., the regression model 1 with Nifty as dependent variable has yielded an R Square Value of 0.009, indicating that, 0.09% of the variation in Nifty was caused by changes in FIIs Net Investments being independent variable. The corresponding F statistics (goodness of fit or god fit) was 0.005 and the corresponding P value was 0.947, pointing out that, it was not significant at 95% level of significant, as  $P > 0.05$ . The corresponding T Statistic (level of significance) at 95% level of significance was 2.098, conferring that the regression coefficient was not significant. The corresponding P value was 0.062, as  $P > 0.05$ , pointing out that, there was no significant impact of the variable on Nifty.

As shown in Table 2.b., the regression model 2 with Nifty as dependent variable has yielded an R Square Value of 0.135, indicating that, 1.35% of the variation in Nifty was caused due to changes in DIIs Net Investments being independent variable. The corresponding F statistics (goodness of fit or god fit) was 1.562 and the corresponding P value was 0.240, pointing out that, it was not significant at 95% level of significant, as  $P > 0.05$ . The corresponding T Statistic (level of significance) at 95% level of significance was 0.1.724 conferring that the regression coefficient was not significant. The corresponding P value was 0.115, as  $P > 0.05$ , pointing out that, there was no significant impact of the variable on Nifty. Thus, the null hypothesis that,  $H_{04}$ : FIIs Net Investments and DIIs Net Investments have no significant impact on S&P CNX Nifty, individually for Post Demonetization Period was accepted.

Table 3.a. and b.: Johansen Co-integration Test (Pre Demonetization Period)

Table 3.a.: Unrestricted Co-integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigen Value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.999975	134.9798	29.79707	0.0001
At most 1 *	0.925595	28.89455	15.49471	0.0003
At most 2 *	0.252648	2.912192	3.841466	0.0479

Trace test indicates 3 Co-integrating equation(s) at the 0.05 level

\* denotes acceptance of the null hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Table 3.b.: Unrestricted Co-integration Rank Test (Maximum Eigen Value)

Hypothesized No. of CE(s)	Eigen Value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.999975	106.0853	21.13162	0.0001
At most 1 *	0.925595	25.98236	14.2646	0.0005
At most 2 *	0.252648	2.912192	3.841466	0.0479



Max-Eigen Value test indicates 3 co-integrating equations at the 0.05 level

\* denotes acceptance of the null hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

### Johansen Co-integration Test

Table 3.a. and 3.b. as shown present results of Johansen Co-integration. Test for Pre Demonetization Period. Unrestricted Co-integration Rank Test (Trace) for Pre Demonetization Period stated that, the studied variables had p values < 0.05 in all the three cases of Co-integration equations. Unrestricted Co-integration Rank Test (Maximum Eigen Value) also states that the all studied variables had p values < 0.05 in all the three cases of Co-integration equations. Hence, the null hypothesis,  $H_{05}$ : There exists no Co-integration among DII's Net Investments, FII's Net Investments and S&P CNX Nifty Pre Demonetization Period was accepted. It means that the variables were not co-integrated with each other. So, it clarified that DII's Net Investments, FII's Net Investments and SENSEX had no long term relationship and equilibrium with each other and they moved independently in long run for Pre Demonetization Period.

Table 4.a. and b.: Johansen Co-integration Test (Post Demonetization Period)

Table 4.a.: Unrestricted Co-integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigen Value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.764975	22.59639	29.79707	0.2665
At most 1 *	0.455524	8.115763	15.49471	0.4531
At most 2 *	0.184247	2.036442	3.841466	0.1536

Trace test indicates 3 Co-integrating equation(s) at the 0.05 level

\* denotes acceptance of the null hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Table 4.b.: Unrestricted Co-integration Rank Test (Maximum Eigen Value)

Hypothesized No. of CE(s)	Eigen Value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.764975	14.48062	21.13162	0.3269
At most 1 *	0.455524	6.079321	14.2646	0.6031
At most 2 *	0.184247	2.036442	3.841466	0.1536

Max-Eigen Value test indicates 3 co-integrating equations at the 0.05 level

\* denotes acceptance of the null hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Table 4 a. and 4.b. as shown present results of Johansen Co-integration. Test for Post Demonetization Period. Unrestricted Co-integration Rank Test (Trace) for the Post Demonetization Period stated that, the studied variables had p values > 0.05 in all the three cases of Co-integration equations. Unrestricted Co-integration Rank Test (Maximum Eigen Value) also states that the all studied variables had p values > 0.05 in all the three cases of Co-integration equations. Hence, the null hypothesis,  $H_{06}$ : There exists no Co-integration among DII's Net Investments, FII's Net Investments and S&P CNX Nifty Post Demonetization Period was rejected. It means that the variables were co-integrated with each other. So, it clarified that DII's Net Investments, FII's Net Investments and SENSEX had long term relationship and equilibrium with each other and they moved together in long run for Post Demonetization Period.

### Discussion

There exists no significant relationship between FII's Net Investments, DII's Net Investments and S&P CNX Nifty, individually for Pre Demonetization Period and Post Demonetization Periods an



indication that the position of correlation has not changed due to demonetization. It remained as it was in the previous position. It may be inferred that demonetization has put no change in relational status. FIIs Net Investments and DIIs Net Investments have no significant impact on S&P CNX Nifty, individually for Pre Demonetization Period as well as Post Demonetization Period was accepted. It is also an indication that nothing has been impacted otherwise due to demonetization.

DIIs Net Investments, FIIs Net Investments and SENSEX had no long-term relationship and equilibrium with each other and they moved independently in long run for Pre Demonetization Period but they moved together in long run for Post Demonetization Period, it needs further analysis; The moving together is probably a collective market sentiment based movement only; Granger Causality Test may be appropriate tool to find who affected to whom and it what direction.

### Conclusion

It is concluded that there was no correlation between DIIs Net Investments, FIIs Net Investments and SENSEX for both the periods, i.e., Pre Demonetization Period and Post Demonetization Period. There was no impact of Institutional Investors' Investments on S&P CNX Nifty for both the periods, i.e., Pre Demonetization Period and Post Demonetization Period. There was no long term relationship between the DIIs Net Investments, FIIs Net Investments and S&P CNX Nifty for Pre Demonetization Period. Long term relationship was found between the DIIs Net Investments, FIIs Net Investments and S&P CNX Nifty for the Post Demonetization Period.

### Suggestions and Recommendations

The Government of India is trying its best to attract the FIIs to invest in the Indian Stock Market but on the other hand one should be careful of the future risk of the foreign capital outflows. So, it may be suggested to the investors, both existing and potential, and policy makers regarding Foreign Institutional Investors' behaviour that long-term developmental policies for economy should not be based upon inflow of FIIs only. To support Indian Stock Market especially when FIIs are going out, mutual funds should invest more in equity in the stock market. Moreover, the Government and policy makers should focus on strengthening the banking system for long-term results rather than promoting FIIs because FIIs are fair weather friends only. Banks, financial institutions and mutual funds can provide the surest vehicle for promoting long-term growth of the stock Market and the economy.

Government should set a minimum limit as well as maximum limit for FIIs Net Investments in India, in order to avoid volatility in Indian Stock Market. Further, it should be cautioned that too much foreign portfolio investment damages the power of the domestic companies, investors, especially, when foreign investor begins to hold large stakes as non-promoting shareholders. In this regard, the market regulator has an important role in integrating financial markets. It is recommended that individual investors' interests should also be safeguarded and promoted, as normally they are not switching from investments as FIIs do. Similarly the laws should be such that it protects domestic investors. Derivative instruments which facilitate long-term foreign investment with specified lock in period should be introduced and strengthened.

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