

FII Flows and Indian Capital Market: A Periodically Comparative Study on NSE Nifty Sectoral Indices

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Abstract: Stock market plays a vital role in growth and development of a country and also acts as a most important pillar of an economy. This research attempts to investigate the relationship and influence of FII on the National Stock Exchange's sectoral market indexes. To check the stationarity of the series ADF is used while regression is used to find out the impact of FIIs on the sectors of NSE. To measure the causality between the two, Granger causality test is applied. A comparative analysis of monthly and quarterly data has been done from 2006 to 2020. The paper concluded that FIIs is having significant relationship with sectoral indices. The Granger causality test found that FIIs have unidirectional causality relationship with energy, financial services, Infrastructure and MNC and no causal relationship with Bank, India consumption, Metal, PSE, and service sector using quarterly data.

1. Introduction

After 1991 economic reforms, across the global India becomes the target destination for the foreign investments. Since 1992, the investment has been growing steadily in the Indian market by FIIs. The investors have created their interest in the emerging markets (Nguyen and Bellalah, 2008) and Foreign Institutional Investors (FIIs) participation has grown in Indian stock market leads to wealth creation, risk and portfolio diversification, higher returns at lower risk, Global savings etc. (Rastogi and Husain, 2015; Saxena and Bhadauriya, 2011; Goudarzi and Ramanarayanan, 2011; Chakrabarti, 2001). A large number of FII is being attracted by the developing country India. The FIIs as noteworthy players in the Indian stock market and it provides financial services which have added contribution in the stock markets growth and development. A substantial part of the foreign portfolio investments is formed by foreign flows in the Indian markets since 1996-1997. Foreign Portfolio Investors/Foreign Institutional

Investors have been a major driver, in the calendar year 2021 investing Rs 50,089 crores (US\$ 7.06 billion) of India's financial markets, and the country has attracted FIIs/FPIs. The Nifty ended FY22 with 19% year-on-year (YoY) gain, marking another year of strong returns despite the multitude of challenges. Meanwhile, FIIs and DIIs posted flows of -\$13.5 billion and +\$11.5 billion, respectively, in Q4 FY22. FIIs typically invest in overseas financial markets and have stock stakes. As a result of the healthy inflow of cash, the companies invested in by FIIs often have enhanced capital structures. As a result, FIIs aid financial innovation and capital market expansion. In this study, the relationship between FIIs and returns of several NSE Indian stock market indices has been investigated.

2. Review of Literature

Parab and Reddy (2020) examined the cause and effect relationship between FIIs, DIIs and stock market returns of various sectoral indices. The study is based on using Nifty 50 index and other sectoral indices like pre and post demonetization concept. They used regression analysis and concluded that there is no evidence of demonetization significant impact on DIIs and FIIs while the most severely affected sector is Nifty realty. Bansal (2020) examined the impact of FIIs on various NSE sectors includes auto, bank, financial services, FMCG, IT, Media, Pharma, Private bank, PSU bank and Realty based on twelve years from 2007-2019. Using VECM and Granger causality test, he found that FIIs have positive and significant relationship with the NSE indices. The study concluded that there is unidirectional relationship of FIIS with Bank, Financial services, IT, and realty while bidirectional causality with Media.

Dan (2019) using daily data for 15 years from 2003-2018, analyzed the volatility impact on sectoral indices in respect to BSE-IT and NSE-IT. Using ARCH and Garch model, he concluded that volatility direction for both indexes is same. Ikizlerli (2019) examined institutional investor's impact in Korea stock market on return volatility by using actual trading data from 4 January 2000 to 15 September 2017. He found that the market level of in Korea's equity market is increased by the net purchase of institutions over sample period for 2000-2017 using Garch Model. Shabbir and Muhammad (2019) evaluated the dynamic impact of FPI on KSE-100 stock index using ARDL method for the period of 1984-2016. The study also includes other variables as gross domestic product, exchange rate, money market interest rate, and consumer price index and they concluded that increase in GDP and FPI has impact on DSP (domestic stock price).Tule *et al.* (2018) studied the mechanism of stock market returns volatility and used Varma-Garch model between the foreign exchange market and Nigerian stock market. The evidence suggested that Portfolio capital inflows and outflows are linked to the ups and downs of the Nigerian exchange, with far-reaching implications for the naira dollar exchange rate. FPI determines the exchange rate of a market economy.

Das and Mahapatra (2017) analyzed the stock market behavior by taking different BSE indices such as capital Goods, Consumer Durable, FMCG and IT Index and their relation with FIIs for the period of 2000-01 to 2013-14 using yearly data. After applying regression techniques he found that FIIs have positive impact on BSE Sensex and BSE indices also. Lakshmy (2014) attempted to know about the relationship and the impact of FIIs with different sectoral indices of BSE and used correlation and Granger causality test. The indices selected for the study are Sensex, Auto Index, Capital Goods

Index, Consumer Durables Index, Healthcare Index, IT Index, Metal Index, Oil and Gas Index, FMCG Index and Bankex. The study period taken was 2001-2014 and the study found that FIIs have significant impact on some sectoral indices including Capital Goods Index, Consumer Durables Index, Healthcare Index, FMCG Index and Oil and Gas Index. FII being attracted in to Indian stock market and influencing the returns generated from it. Wang (2014) observed the interaction of FIIs trading in Chinese A-share market using quarterly data from 2005-2011. The VAR model is used to analyze the variables and concluded that in the Chinese A-share market. FII causes the local equity returns but not the reverse. Garg and Dua (2014) analyzed the various determinants that affect foreign portfolio flows in India. Using ARDL and Granger causality test, lower exchange rate volatility is found by them and greater risk diversification are major factor that attract foreign portfolios whereas higher equity returns discourage the portfolio flows of other emerging countries.

Ahmed (2014) examined the trading behavior of investors in Qatar stock exchange using daily data. The trading patterns are investigated by using VAR model for the period January 2008 up to March 2012. He concluded that positive feedback trader is institutional investors and individual investors are negative feedback traders. Individual and institutional investor types' respective contemporaneous NIF are influenced by all previous Net Investment flows. Bhatia and Kishor (2013) observed the impact of FIIs on stock market movements and foreign exchange reserves in context of BSE Sensex. To check the causal relationship between variables Granger causality is used for the period from April 1992 to March 2012 using monthly data. There is bidirectional relationship is found by them between BSE Sensex and FII flows; FERS and FII flows while there is unidirectional relationship between Sensex and FERs. Chandra (2012) examined the causality relationship between FII trading volume and S&P CNX returns using daily data for January 2003 to February 2011. The causality test of granger results observed that it has bidirectional causality between NFII and stock market return.

Hong and Lee (2011) investigated the dynamic relation between returns and investment flows for the period 1992-2010 using Korean daily data. They found that Korean equity market is tend to be driven by foreigners and institutional investors, and their trades seem to be information-driven, whereas if the Korean equity market do not driven by individual investors and it seems that no information is driven by their trades. Net Government flows, individual flows, Institutional flows and Foreign Flows causes market returns. Net Individual Investors flow does not cause market returns as opposed to foreigners, institutional and government flows.

G and Kumar (2011) observed the feedback strategy of FIIs on fifteen indices of NSE using daily data for 2000-2009. They used VAR and regression for the analysis and found that there is bi directional causality of NFII with CNX Midcap, CNX Nifty Junior, S&P CNX 500 and S&P CNX Nifty also found that in Bank Nifty, CNX Midcap, CNX Nifty Junior, and S&P CNX 500, there is positive feedback trading. NFIIP is strongly dependent on previous day return and current day return in the case of Bank Nifty and S&P CNX Nifty, but solely on previous day return in the case of CNX Midcap out of fifteen indices,. Bae *et al.* (2008) examined the investor interaction and market volatility using weekly data. Different trading patterns of individual investors, institutional investors and foreign investors with respect to Tokyo Stock Price Index (TOPIX) are studied. He found that fluctuations in the market volatility significantly depend on the participation by the types of investors in trade.

On the basis of extensive literature review, it has been observed that a lot of work has already been done to find out the impact outcome of FIIs on the stock market of India. But no work so far has been done to assess the impact of FIIs in the growth and development of the Indian capital market using NSE indices on the basis of monthly and quarterly data set. The present work is an endeavor by the researcher to bridge this gap. This work would also lead to better understanding of the Indian capital market and the role of FIIs in its development. This current study will perform sector-wise analysis by taking references from National Stock Exchange.

3. Objectives and Hypotheses of the Study

3.1. Objectives of the Study

The main objectives of the study are:

- To analyze the relationship between NFII and NSE sectoral indices.
- To examine the impact of NFII on the sectoral indices of NSE.
- To measure the causality exists between NFII and sectoral indices of NSE.

3.2. Hypotheses of the Study

The hypotheses are:

H_{01} : There is significant correlation between NFII and sectoral indices of NSE.

H_{02} : There is significant impact of NFII on sectoral indices of NSE.

4. Research Methodology

The present study makes an attempt to find the relationship and impact of FII on sectoral indices of NSE using different statistical features. The aggregate monthly and quarterly Net FIIs have been taken from 1 April 2006 to 31 March 2020 from SEBI website. The closing prices of indices are taken from renowned software known as CMIE Prowess. The NSE indices taken for the study includes Nifty Bank, Energy, Financial Services, India Consumption, Infrastructure, Metal, MNC, PSE, PSU Bank and Nifty Services Sector. For the purpose of this study 10 sectors have been selected. This selection is based on trading volume of all sectors of NSE as on December 2019. The FIIs are taken as independent variable while all NSE indices are considered as dependent variable. To carry out the analysis of the given data on monthly and quarterly basis, Descriptive statistics, ADF unit root test, Correlation, regression and Granger causality test are used. The data was initially evaluated for normalcy using descriptive analysis, and then the link between the various variables was checked using correlation. The stationarity of data is checked by unit root ADF test.

5. Results and Discussions

5.1. Descriptive Statistics

The descriptive statistics of monthly and quarterly data of NSE nifty sectors and NFII (Net Foreign Institutional Investments) are given in Table 1 and Table 2 respectively

Table 1: Descriptive Statistics (Monthly)

Variables	NFII	Bank	Energy	Financial Services	India Consumption	Infra-structure	Metal	MNC	PSE	PSU Bank	Services Sector
Mean	3987.6	18725.2	10500.9	7843.5	3525.6	2880.0	2724.9	9551.2	3292.3	3063.1	10806.6
Median	3841.3	18251.3	9097.9	7429.4	3502.7	2959.5	2710.8	9659.6	3229.7	3120.0	10623.9
Maximum	33781.9	32161.6	16560.3	14557.4	5379.3	3637.5	4065.8	15066.9	4414.6	4274.8	17452.8
Minimum	-62433.5	7968.6	6968.1	3367.6	1709.5	1957.3	1585.9	4517.4	2214.1	1324.8	5600.9
Std. Dev.	13163.8	6971.7	3047.0	3083.2	1101.9	411.9	572.7	3356.8	502.7	519.3	3439.2
Skewness	-1.101	0.259	0.674	0.439	-0.051	-0.245	0.099	0.020	0.147	-0.386	0.238
Kurtosis	8.03	1.83	1.91	2.08	1.7	1.95	2.55	1.61	2.26	3.47	1.90

Source: Authors' Own Compilation

The average net FIIs were Rs. 3987.656 million during 2006-2020 while median is Rs. 3841.365 millions. The range highest and lowest value of Net FIIs lies from Rs. 33781.93 millions to negative Rs. 62433.51 millions. The negative value represents the selling by Net FIIs. The value of standard deviation is 13163.84 which states that there is huge variability by Net FIIs during the study period. Kurtosis represents the peakedness of the series and the kurtosis value of Net FIIs is 8.03 which mean that series is relatively peaked distribution series. Negative skewness values of Net FIIs shows that series having more negative values.

Nifty Metal has lowest average closing price and Nifty Bank has highest average closing price that is Rs. 2724.9 and Rs. 18752.2 respectively. The maximum and minimum range is highest for the Banking sector that is Rs. 24193 followed by service sector that is Rs. 11851.9. On other side, the maximum and minimum range is lowest for the infrastructure sector that is Rs. 1680.2 followed by PSE sector that is Rs. 2200.5. The sectors like India consumption, Infrastructure and PSU bank have negative skewness while remaining sectors have positive skewness. The kurtosis of PSU Bank is 3.47, it means series is Mesokurtic; while other sectors having value less than three, which means the series are leptokurtic.

The average net FIIs were Rs. 12060.78 million during 2006-2020 while median is Rs. 14264.8 millions. The range highest and lowest value of Net FIIs lies from Rs. 55456.8 millions to negative Rs. 54235.3 millions. The negative value represents the selling by Net FIIs. The value of standard deviation is 27063.18 which states that there is huge variability by Net FIIs during the study period. Kurtosis represents the peakedness of the series and the kurtosis value of Net FIIs is 2.42 which mean that series is platykurtic series. Negative skewness values of Net FIIs shows that series having more negative values.

Nifty Metal has lowest average closing price and Nifty Bank has highest average closing price that is Rs. 2699.414 and Rs. 18551.25 respectively. The maximum and minimum range is highest for the Banking sector that is Rs. 24193 followed by service sector that is Rs. 11851.9. On other side, the maximum and minimum range is lowest for the infrastructure sector that is Rs. 1512.6 followed by PSE sector that is Rs. 2089.1.

Table 2: Descriptive Statistics (Quarterly)

Variables	NFIH	Nifty Bank	Nifty Energy	Nifty Financial Services	Nifty India Consumption	Nifty Infra-structure	Nifty Metal	Nifty MNC	Nifty PSE	Nifty PSU Bank	Nifty Services Sector
Mean	12060.78	18551.25	10442.83	7788.897	3517.509	2858.676	2699.414	9541.421	3267.593	3024.126	10738.18
Median	14264.80	18177.20	8892.950	7407.050	3517.200	2845.700	2768.400	9580.150	3243.700	3088.000	10646.25
Maximum	55456.80	32161.65	16484.00	14557.40	5104.400	3637.500	3940.150	14801.90	4303.250	4269.300	17452.85
Minimum	-54235.33	7968.650	6968.100	3367.670	1709.580	2124.900	1585.900	4517.450	2214.150	1324.850	5600.950
Std. Dev.	27063.18	6927.155	3057.423	3057.486	1094.006	407.1823	570.5169	3333.101	486.9688	540.3369	3405.344
Skewness	-0.367748	0.345444	0.749882	0.488520	-0.087418	-0.181922	-0.034796	-0.008821	-0.019604	-0.582493	0.277599
Kurtosis	2.428868	2.043926	2.085027	2.269122	1.738006	1.937566	2.448931	1.643592	2.369373	4.619177	2.072652

Source: Authors' Own Compilation

5.2. Augmented Dickey Fuller Test

Table 3 states the result of stationarity using ADF test. Using monthly data, the test shows that existence of unit root in all sectors of nifty. The NFII series is stationary at level and rest variables are stationary at first difference.

Table 3: Unit Root test: ADF (Monthly)

Variables	Level		At first difference	
	t-statistics	p value	t-statistics	p value
NFII	-7.927708	0.0000*	-	-
Nifty Bank	-1.348555	0.6062	-8.550421	0.0000*
Nifty Energy	-1.95935	0.6744	-8.671242	0.0000*
Nifty Financial Services	-1.348321	0.6046	-5.379946	0.0000*
Nifty India Consumption	-0.791293	0.8186	-10.05883	0.0000*
Nifty Infrastructure	-2.652385	0.0847	-1194973	0.0000*
Nifty Metal	-2.244600	0.1915	-12.33857	0.0000*
Nifty MNC	-7.11354	0.8399	-10.62879	0.0000*
Nifty PSE	-2.657042	0.0838	-13.35212	0.0000*
Nifty PSU Bank	-2.403777	0.1422	-11.49357	0.0000*
Nifty Services Sector	-1.198279	0.6748	-9.065969	0.0000*

Source: Authors' Own Compilation

Note: *indicates significance at 0.05 level

Table 4 shows the result of ADF unit root test using quarterly data; NFII, Nifty Infrastructure and Nifty PSE are stationary at the level and other variables includes Nifty Bank, Nifty Energy, Nifty Financial Services, Nifty India Consumption, Nifty Metal, Nifty MNC, Nifty PSU Bank and Nifty Services Sector are stationary at first level.

Table 4: Unit Root test: ADF (Quarterly)

Variables	Level		At first difference	
	t-statistics	p value	t-statistics	p value
NFII	-6.808383	0.0000*	-	-
Nifty Bank	-1.402170	0.5753	-6.849253	0.0000*
Nifty Energy	-1.223691	0.6535	-5.842297	0.0000*
Nifty Financial Services	-0.774497	0.68132	-5.953343	0.0000*

contd. table 4

Variables	Level		At first difference	
	t-statistics	p value	t-statistics	p value
Nifty India Consumption	-0.759095	0.8226	-7.839221	0.0000*
Nifty Infrastructure	-3.332980	0.0177*	-	-
Nifty Metal	-2.726085	0.0757	-6.338454	0.0000*
Nifty MNC	-0.940895	0.7682	-6.36779	0.0000*
Nifty PSE	-3.000142	0.0407*	-	-
Nifty PSU Bank	-2.683551	0.0829	-8.205987	0.0000*
Nifty Services Sector	-1.1337769	0.6063	-6.039056	0.0000*

Source: Authors' Own Compilation

Note: *indicates significance at 0.05 level

5.3. Correlation Analysis

Table 5 indicates the result of correlation. Correlation analysis, using monthly and quarterly data, concluded that there is positive relation between NFII with Nifty Infrastructure, Nifty Metal, Nifty PSE and Nifty PSU Bank.

Table 5: Correlation

Sectors	Monthly		Quarterly	
Nifty Bank	-0.07	Negative	-0.13	Negative
Nifty Energy	-0.05	Negative	-0.12	Negative
Nifty Financial Services	-0.1	Negative	-0.16	Negative
Nifty India Consumption	-0.15	Negative	-0.25	Negative
Nifty Infrastructure	0.03	Positive	0.04	Positive
Nifty Metal	0.12	Positive	0.2	Positive
Nifty MNC	-0.16	Negative	-0.27	Negative
Nifty PSE	0.06	Positive	0.08	Positive
Nifty PSU Bank	-0.37	Negative	0.51	Positive
Nifty Services Sector	-0.11	Negative	-0.17	Negative

Source: Authors' Own Compilation

5.4. Regression Analysis

Table 6 shows the results of regression analysis using monthly data conclude that NFII is found to have negative relation with Nifty bank, energy, financial services, India consumption, MNC, and service

sector. This states that arrival of foreign institutional investors has reduced the prices of these sectors significantly. On the other hand NFII is found to have positive relation with Nifty infrastructure, Metal, PSE and PSU bank. It means arrival of foreign institutional investors has increased the prices of these sectors significantly.

Using p value, it can be concluded that NFII has no impact on Nifty bank, energy, financial services, India consumption, Infrastructure, MNC and service sector Whereas NFII has impact on metal, PSE and PSU bank.

Table 6: Regression Analysis (Monthly)

Sectors		Coefficient	Std. Error	t-Statistic	Prob.
Bank	Intercept	14537.42	641.1675	22.67336	0.0000
	NFII	-0.008	0.051529	-0.15526	0.8768
Energy	Intercept	10435.56	296.1091	35.24227	0.0000
	NFII	-0.010611	0.022201	-0.47797	0.6336
Financial Services	Intercept	7941.045	315.8406	25.14257	0.0000
	NFII	-0.024449	0.023064	-1.06004	0.2916
India Consumption	Intercept	2771.713	108.8503	25.46353	0.0000
	NFII	-0.007486	0.008748	-0.85578	0.3934
Infrastructure	Intercept	3056.897	52.551	58.1701	0.0000
	NFII	0.0052	0.004223	1.231163	0.22
Metal	Intercept	2884.749	71.71892	40.22298	0.0000
	NFII	0.013326	0.005764	2.311983	0.022*
MNC	Intercept	7473.888	315.3301	23.70179	0.0000
	NFII	-0.024655	0.025342	-0.9729	0.332
PSE	Intercept	3209.544	45.99409	69.78166	0.0000
	NFII	0.009156	0.003696	2.477027	0.0142*
PSU Bank	Intercept	2850.476	59.19413	48.15471	0.0000
	NFII	0.021355	0.004757	4.488937	0.0000*
Service Sector	Intercept	8831.19	310.9988	28.39622	0.0000
	NFII	-0.011039	0.024994	-0.44168	0.6593

Source: Authors' Own Compilation

Note: *indicates significance at 0.05 levels

The regression equation that is $Y(\text{Sector}) = \hat{\alpha}(\text{Constant}) + \hat{\beta}(\text{beta}) * \text{NFII}$; of all sectors is as given in Table 7.

Table 7: Regression equation of Nifty Sectors (Monthly)

<i>Sector</i>	<i>Regression Equation</i>
Nifty Bank	$Y=14537.42-0.0080 x$
Nifty Energy	$Y=10435.56- 0.010611 x$
Nifty Financial Services	$Y=7941.045- 0.024449 x$
Nifty India Consumption	$Y=2771.713- 0.007486 x$
Nifty Infrastructure	$Y=3056.897+ 0.005200 x$
Nifty Metal	$Y=2884.749 + 0.013326 x$
Nifty MNC	$Y=7473.888 - 0.024655 x$
Nifty PSE	$Y=3209.544 + 0.009156 x$
Nifty PSU Bank	$Y=2850.476 + 0.021355x$
Nifty Services Sector	$Y=8831.190- 0.011039 x$

Source: Authors' Own Compilation

Table 8 shows the results of regression analysis using quarterly data conclude that NFII is found to have negative relation with Nifty bank, energy, financial services, India consumption, MNC, and service sector. This states that arrival of foreign institutional investors has reduced the prices of these sectors significantly. On the other hand NFII is found to have positive relation with Nifty infrastructure, Metal, PSE and PSU bank. It means arrival of foreign institutional investors has increased the prices of these sectors significantly. Using p value, it can be concluded that NFII have no impact on Nifty bank, energy, financial services, India consumption, Infrastructure, MNC and service sector Whereas NFII have impact on metal, PSE and PSU bank.

Table 8: Regression Analysis (Quarterly)

<i>Sectors</i>		<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
Bank	Intercept	13892.35	1157.383	12.00324	0.0000
	NFII	-0.005536	0.043767	-0.12648	0.8998
Energy	Intercept	10515.25	541.012	19.43626	0.0000
	NFII	-0.012898	0.018991	-0.67919	0.5015
Financial Services	Intercept	8013.908	567.81	14.11371	0.0000
	NFII	-0.018656	0.019397	-0.96184	0.3431
India Consumption	Intercept	2802.804	197.3834	14.1998	0.0000
	NFII	-0.005962	0.007312	-0.81542	0.4183
Infrastructure	Intercept	2947.673	101.1395	29.14464	0.0000
	NFII	0.00443	0.003825	1.158332	0.2515

contd. table 8

Sectors		Coefficient	Std. Error	t-Statistic	Prob.
Metal	Intercept	2692.048	139.0336	19.36258	0.0000
	NFIIs	0.011106	0.005258	2.112301	0.039*
MNC	Intercept	7310.726	569.1695	12.84455	0.0000
	NFIIs	-0.017783	0.021523	-0.82622	0.4121
PSE	Intercept	3088.497	89.28292	34.59225	0.0000
	NFIIs	0.006699	0.003376	1.984145	0.052*
PSU Bank	Intercept	2644.828	107.7957	24.53556	0.0000
	NFIIs	0.015977	0.004076	3.91942	0.0002*
Service Sector	Intercept	8523.951	565.8389	15.06427	0.0000
	NFIIs	-0.00648	0.021397	-0.30286	0.7631

Source: Authors' Own Compilation

Note: *indicates significance at 0.05 levels

The regression equation that is $Y (\text{Sector}) = \hat{\alpha} (\text{Constant}) + \hat{\alpha} (\text{beta}) * \text{NFII}$; of all sectors is as given in Table 9.

Table 9: Regression equation of Nifty Sectors (Quarterly)

Sector	Regression Equation
Nifty Bank	$Y=13892.35-0.005536 x$
Nifty Energy	$Y=10515.25- 0.501485 x$
Nifty Financial Services	$Y=8013.908- 0.18656 x$
Nifty India Consumption	$Y=2802.80- 0.005962 x$
Nifty Infrastructure	$Y=2974.673+ 0.004430 x$
Nifty Metal	$Y=2692.048 + 0.011106 x$
Nifty MNC	$Y=7310.726 - 0.017783 x$
Nifty PSE	$Y=3088.497 + 0.0067 x$
Nifty PSU Bank	$Y=2644.828 + 0.0159x$
Nifty Services Sector	$Y=8523.951- 0.0064 x$

Source: Authors' Own Compilation

5.5. Granger Causality Test

The Table 10 depicted the result of granger causality test using monthly data. the test confirms that there is bi-directional causality between energy and NFII; while there is unidirectional causality exist between bank and NFII, financial services and NFII , India consumption and NFII, MNC and NFII, service sector and NFII; there is no causal relationship exist between NFII and Metal, NFII and infrastructure, NFII and PSE, NFII and PSU bank.

Table 10: Granger Causality Test (Monthly)

<i>Null Hypotheses</i>	<i>F-Statistic</i>	<i>Prob.</i>
NIFTY_BANK does not Granger Cause NFII	5.99957	0.0031*
NFII does not Granger Cause NIFTY_BANK	0.27780	0.7578
NFII does not Granger Cause NIFTY_ENERGY	3.29408	0.0410*
NIFTY_ENERGY does not Granger Cause NFII	3.77576	0.0261*
NFII does not Granger Cause NIFTY_FINANCIAL_SERVICES	0.46936	0.6268
NIFTY_FINANCIAL_SERVICES does not Granger Cause NFII	6.55615	0.0021*
NFII does not Granger Cause NIFTY_INDIA_CONSUMPTION	0.55122	0.5773
NIFTY_INDIA_CONSUMPTION does not Granger Cause NFII	3.72855	0.0261*
NFII does not Granger Cause NIFTY_INFRASTRUCTURE	0.01313	0.9870
NIFTY_INFRASTRUCTURE does not Granger Cause NFII	2.33326	0.1003
NFII does not Granger Cause NIFTY_METAL	0.37655	0.6868
NIFTY_METAL does not Granger Cause NFII	0.24129	0.7859
NFII does not Granger Cause NIFTY_MNC	0.48958	0.6138
NIFTY_MNC does not Granger Cause NFII	4.17678	0.017*
NFII does not Granger Cause NIFTY_PSE	0.33232	0.7177
NIFTY_PSE does not Granger Cause NFII	0.76254	0.4682
NFII does not Granger Cause NIFTY_PSU_BANK	0.16062	0.8518
NIFTY_PSU_BANK does not Granger Cause NFII	2.85814	0.0603
NFII does not Granger Cause NIFTY_SERVICES_SECTOR	0.02358	0.9767
NIFTY_SERVICES_SECTOR does not Granger Cause NFII	3.38316	0.0364*

Source: Authors' Own Compilation

Note: *indicates significance at 0.05 level

The Table 11 shows the result of granger causality test using quarterly data. The test confirms that FIIs have unidirectional causality relationship with energy, financial services, Infrastructure and MNC. NFII's have no causal relationship with bank, India consumption, Metal, PSE, PSU bank and service sector.

Table 11: Granger Causality Test (Quarterly)

<i>Null Hypotheses</i>	<i>F-Statistic</i>	<i>Prob.</i>
NIFTY_BANK does not Granger Cause NFII	1.91335	0.1576
NFII does not Granger Cause NIFTY_BANK	1.24838	0.2953
NFII does not Granger Cause NIFTY_ENERGY	3.34961	0.0486*
NIFTY_ENERGY does not Granger Cause NFII	1.61747	0.2152

contd. table 11

<i>Null Hypotheses</i>	<i>F-Statistic</i>	<i>Prob.</i>
NFII does not Granger Cause NIFTY_FINANCIAL_SERVICES	0.89805	0.4188
NIFTY_FINANCIAL_SERVICES does not Granger Cause NFII	4.43303	0.0213*
NFII does not Granger Cause NIFTY_INDIA_CONSUMPTION	1.03189	0.3638
NIFTY_INDIA_CONSUMPTION does not Granger Cause NFII	2.54857	0.0883
NFII does not Granger Cause NIFTY_INFRASTRUCTURE	0.48827	0.6164
NIFTY_INFRASTRUCTURE does not Granger Cause NFII	2.75562	0.0727*
NFII does not Granger Cause NIFTY_METAL	0.58807	0.5590
NIFTY_METAL does not Granger Cause NFII	0.26908	0.7651
NFII does not Granger Cause NIFTY_MNC	2.99538	0.0586*
NIFTY_MNC does not Granger Cause NFII	1.54991	0.2217
NFII does not Granger Cause NIFTY_PSE	0.46944	0.6279
NIFTY_PSE does not Granger Cause NFII	1.26515	0.2906
NFII does not Granger Cause NIFTY_PSU_BANK	0.54912	0.5807
NIFTY_PSU_BANK does not Granger Cause NFII	1.80227	0.1749
NFII does not Granger Cause NIFTY_SERVICES_SECTOR	2.54235	0.0882
NIFTY_SERVICES_SECTOR does not Granger Cause NFII	2.38005	0.1024

Source: Authors' Own Compilation

Note: *indicates significance at 0.05 levels

Table 12: Comparative Analysis

<i>Sectors</i>	<i>Relationship</i>		<i>Impact</i>		<i>Causality with FII</i>	
	<i>Monthly</i>	<i>Quarterly</i>	<i>Monthly</i>	<i>Quarterly</i>	<i>Monthly</i>	<i>Quarterly</i>
Nifty Bank	Negative	Negative	No	No	Uni	No
Nifty Energy	Negative	Negative	No	No	Bi	Uni
Nifty Financial Services	Negative	Negative	No	No	Uni	Uni
Nifty India Consumption	Negative	Negative	No	No	Uni	No
Nifty Infrastructure	Positive	Positive	No	No	No	Uni
Nifty Metal	Positive	Positive	Yes	Yes	No	No
Nifty MNC	Negative	Negative	No	No	Uni	Uni
Nifty PSE	Positive	Positive	Yes	Yes	No	No
Nifty PSU Bank	Positive	Positive	Yes	Yes	No	No
Nifty Services Sector	Negative	Negative	No	No	Uni	No

Source: Authors' Own Compilation

6. Findings and Conclusion

In the nutshell after reviewing the literature and analysis being done, it has been concluded that FIIs play a very crucial role in Indian stock market. The scope of the study is limited to the behavior and integration of FIIs towards NSE indices of Indian stock market. The major objective of the paper is to find out the relationship between Nifty indices stock prices and the flow of foreign institutional investment in the Indian context. More specifically, the focus of this paper is to examine the extent to which FII flow influences the Nifty indices. In addition, the paper also makes an attempt to verify whether there is any causality relationship hold between the foreign flows and Nifty indices. Analyzing the Quarterly and Monthly data from April 2006 to March 2020, the paper arrives at the following findings:

- Using monthly data, it can be concluded that NFII is found to have a negative relation with Nifty Bank, energy, financial services, India consumption, MNC, and service sector. This states that arrival of foreign institutional investors has reduced the prices of these sectors significantly. On the other hand NFII is found to have a positive relation with Nifty infrastructure, Metal, PSE and PSU bank. It means arrival of foreign institutional investors has increased the prices of these sectors significantly.
- It can be concluded that NFII has no impact on Nifty bank, energy, financial services, India consumption, Infrastructure, MNC and service sector. Whereas NFII has impact on metal, PSE and PSU bank.
- Using quarterly data, it is concluded that NFII is found to have a negative relation with Nifty bank, energy, financial services, India consumption, MNC, and service sector. This states that arrival of foreign institutional investors has reduced the prices of these sectors significantly. On the other hand NFII is found to have a positive relation with Nifty infrastructure, Metal, PSE and PSU bank. It means arrival of foreign institutional investors has increased the prices of these sectors significantly.
- NFII has no impact on Nifty bank, energy, financial services, India consumption, Infrastructure, MNC and service sector. Whereas NFII has impact on metal, PSE and PSU bank is found.
- The granger causality test using monthly data confirms that bi-directional causality is found between energy and NFII; while there is unidirectional causality exist between bank and NFII, financial services and NFII, India consumption and NFII, MNC and NFII, service sector and NFII; there is no causal relationship exist between NFII and Metal, NFII and infrastructure, NFII and PSE, NFII and PSU bank.
- FIIs have unidirectional causality relationship with energy, financial services, Infrastructure and MNC. NFII has no causal relationship with bank, India consumption, Metal, PSE, PSU bank and service sector is found using quarterly data.

The findings of the current study do not support Lakshmy (2014) who concluded that there is unidirectional causality of FII towards specific BSE indices like Capital goods, Metal, Oil and Gas index and Bankex. The study concluded that there is a positive relationship between FII flows and Bankex. In this present study, the static relationship was analyzed between net FII flows and returns of

various indices in context to India. The present research concluded that FIIs are having significant relationship with few sectoral indices. The positive linkage is shown by correlation between FIIs investment pattern and the value. For investors these outcomes are more important due to FII inflows quantum have been changed substantially due to liberalization in the last decade and the stock market was also influenced. The present research aims to understand the impact of FII on the sectoral stock market indices. It was found out that the markets are influenced by FIIs. Most of the sectoral indices move according to the practice of FII pattern received in the country has a strong bearing on the returns of companies concerned. This analysis will be helpful to investors in creating s portfolio and also to policy makers in the light of policy implementations.

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