FPI & Auto Industry Returns: Lead Lag Relationship

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ABSTRACT

The automobile industry is one such major industry of Indian economy that continuously contributes more than seven percent to India's GDP every year. This industry experienced downturn in sales and growth and big companies in this industry does enormous job cuts during the year 2019. Regardless of downfall in this sector, foreign portfolio investors in the month of June in 2019 augmented their stakes in few Auto sector stocks. Recently in the year 2021, the Production Linked Incentive (PLI) scheme introduced by Indian Government boosts the economy's productivity of innovative goods in auto sector and fascinated a lot of investments in this sector. In the current study an attempt has been made to analyse the lead lag relationship of Foreign Portfolio investment (FPI) in Auto sector with returns in this sector by applying Granger's causality test on fortnightly time series data for the historical period of ten years starting from first month of 2011 till last month of the year 2020. This research discovered that FPI flows in Indian Auto sector is triggered by and are fairly elucidated by Auto sector performance and returns which further indicates that strengthening of Auto sector will attract furthermore FPI flows in Auto industry in India.

KEYWORDS : FPI, AUTOMOBILE, NIFTY-AUTO, RETURNS, RELATIONSHIP, STOCK, AUTO

INTRODUCTION

The Automobile sector in India is one of the fastest growing and successful sectors for the growth of the economy. Including Automobile and automotive component segment this sector take part with other economy industrial sectors and continuously helping in growth of GDP, exports and employment in the country. Passenger vehicles, commercial vehicles, three-wheelers and two-wheelers are the four main subsectors of Indian Automobile industry. Auto sector exports matured 14.50 per cent during fiscal year 2019. It is projected to develop at a CAGR of 3.05 per cent during 2016-2026. India being the hottest destination for multinational automobile companies for expanding their business in Asia. From April 2000 to December 2019 because of its cost

advantage, Automobile sector in India attracted total foreign direct investment equivalent to US$ 23.89 billion. In 2019, India was among one of the major worldwide automotive markets and in the same year in April this sector started fronting downturn in sales and mounting inventory levels which leads to breaks in production and enormous job cuts off around 350 thousand workers from April 2019.

Nifty Auto index is one such sectoral index of NSE that represents the whole automobile sector in India. Nifty-Auto Index comprising of total 15 stocks listed on NSE reveals the activities, performance and movement of Automobile sector. Index represents four auto related companies: Automobiles four wheelers, Automobiles two & three wheelers, Auto Ancillaries, and Tyres manufacturing companies.

The following graph shows the movement of Nifty Auto over a period of 16 years. The Nifty Auto index has earned a total return of 16% Compound annual growth rate from the year 2004 till 2020.

Figure 1: Fluctuations in Nifty Auto from 2004 to 2020

Source: NSE India

Year 2019 said to be the worst hit year for Automobile sector because of several government policy changing decisions for the sector, structural changes in the industry, continuously falling demand, hike in fuel prices, switching to Bharat stage VI from Bharat stage IV for vehicle registration and others. As reported by Society of Indian Automobile Manufacturers (SIAM) in September 2019, production of the entire automobile industry during the April to August 2019 dropped by 12.25% from 13.6 million in April-August 2018.

A Spartan slowdown for long duration was also seen in 2013-2014. Challenges also continued recently in the sector. The undesirable falling growth trend and challenges continued in the year

2019 in this industry. In the year 2018, Indian auto stocks underachieved the Sensex by 5% and this wound deepens by 16% in between January 2019 to March 2019. Not only bad times but the auto industry has also seen tremendous growth in the last decade also. In 2008 the auto sector return excelled over Sensex returns with the average gap of 36%.

Auto Industry shares, because of downfall in revenues, piled up inventories, liquescency crisis, and new registration policy of government for charging increased fees for new vehicles realised maximum wealth corrosion. Regardless of downfall in this sector, foreign institutional investors in the month of June in 2019 augmented their stakes in few auto sector stocks. In the last few years Foreign Institutional investors had raised their stakes in the auto sector as one of the best consumption substitutions, and compared with their ten year averages auto companies' valuation premium rose between 40 to 120 per cent. As per Auto Industry experts low vehicle penetration levels in the industry mean that there are long-term good prospects in the Indian market. Therefore, investments have unrelenting rising in this sector.

Indian Government is continuously taking major initiatives to augment the growth of auto sector. In the country's union budget 2018-19 to lift sales of the tractors Government announced to provide 850,000 crores credit to farmers. Indian Government plans to make automobile manufacturing as the foremost motorist of 'Make in India' initiative as the government is expecting the increase in manufacturing of passenger vehicles to 9.4 million almost triple by 2026 as specified in the Auto Mission Plan (AMP) 2016-26.

Developing economies of the world comprising India observing incursion of foreign capital (Sidiqui and Roy, 2020) in large sums. FIIs impulsive by nature have both constructive and destructive effects on the economy as well as financial markets. Overseas investment in Indian financial markets upsurges the liquidity of the market and pull down the cost of capital in the industry. Henceforth there is requirement for determining the influences that causes inflows and outflows of FIIs in and from the economy which will further be considered for framing the policies for attracting more flows of FIIs in the country (Chitradevi 2019).

Various researchers and academicians worked on identifying the different reasons behind the increase and decrease of FII inflows in India and FII outflows from India. Chaudhuri & Mukhopadhyay & Maskara (2014) explored the variables and determinants that affect FII movements in India. Phase wise analysis in their study explained that during bullish phase in case of increasing foreign returns FII outflows from India also increases and in scenario of depreciation of exchange rate FII inflows in country increases.

Analysing the causative connexion among Foreign Investment flows and stock returns is a continuous process that helps researchers and policy makers in forecasting and making accurate inferences. Chakrabarti(2001) found that the FI flows are greatly interconnected with Indian equity market returns but they are probably the effect rather than the cause of equity returns. Babu and Prabheesh (2008) look at the causal relationship between FII flows in Indian economy and Indian

stock returns, taking the day-to-day records of FII net equity purchases and S& P Nifty from the year 2003 to 2007. Granger causality and VAR Model applied on the data series proved bidirectional relationship in FII movements and Stock returns.

DATA & METHODOLOGY

The present study utilises the fortnightly time series data of FPI in Auto Sector and Sectoral index of Auto Sector from NSE i.e. Nifty Auto for ten years from January 2011- December 2020. Fortnightly time series data of FII in Auto Sector have been collected from official NSDL website and Nifty-Auto data is retrieved from the National Stock Exchange's website.

For achieving postulated objective of the study, this paper applies Granger causality test. The Augmented Dickey- Fuller (ADF) test is used to initially test the order of assimilation for FII-Auto and Nifty Auto series.

Granger causality test is also employed in the study to evaluate whether there is any prospective expectedness influence of one variable for the other. A Granger causality test is usually applied for checking the Lead lag association between two time series of variables. One time series of one variable is said to lead another if the previous prices or returns of the first variable in the time series improve the forecast of the second time series variable.

ANALYSIS & RESULTS

TABLE 1: DESCRIPTIVE STATISTICS

STATISTIC	FPI- Auto	Nifty-Auto
MEAN	55.58333	7741.307
ST. DEV.	694.1101	2377.608
SKEWNESS	-0.102461	-0.200976
KURTOSIS	5.555039	1.881235
JARQUE-BERA	52.56175	11.30561
SUM	10672	1486331
SUM SQ. DEV	92021659	1.08E+09

Table 1 shows statistical instants of fortnightly time series data of FPI in Auto Sector and Sectoral index of Auto Sector i.e. Nifty Auto Index. For the entire study period (January 2011- December 2020), the study found that Nifty Auto has higher mean values than FPIs in Auto sector. Skewness and kurtosis values gave comprehensions about the fundamental distribution of both the series. Results specify negative skewness and positive kurtosis for the variables for the period of the study. Skewness and kurtosis displays an analogous shape and outline of the distribution. The Jarque-Bera value seems to be high for both the variables, suggesting that both the variable series differ significantly from the normal distribution.

TABLE 2: AUGMENTED DICKEY FULLER TEST(ADF)		
	t-statistics	Probability
FII-Auto at Level	-9.85127	0.000
Nifty-Auto at Level	-1.67493	0.4422
FII-Auto at First Difference	-10.0142	0.000
Nifty-Auto at First Difference	2.488016	0.0138

Results of Augmented Dickey Fuller Test reported in table 2 confirms that Nifty Auto price series is non stationary at level but FPI in Auto sector series is stationary a t level. Stationarity test is repeated on first difference. Sample return series that means their first difference of log prices confirms that they are stationary and are integrated to their first order. ADF test checks the null hypothesis of presence of unit in the return series of the variables and results of this test rejects the null hypothesis and confirmed the stationarity of the data at first difference for both series.

TABLE 3: CORRELATION BETWEEN FPI- AUTO AND NIFTY-AUTO	
Correlation	0.457499

Table 3 represents the correlation value between FPI in Auto sector and Nifty- Auto is 0.457499 that proves that there is moderate correlation between both the variables under study.

TABLE 4: GRANGER CAUSALITY TEST		
Null Hypothesis	F-statistics	Probability
Nifty-Auto does not granger cause FPI-Auto	5.22509	0.0062
FPI-Auto does not granger cause Nifty-Auto	0.45880	0.6328

For checking the lead lag association among FPI in Auto sector and Nifty- Auto returns, Granger causality test is further applied. The assumption that Nifty-Auto does not granger cause FII-Auto is clearly overruled in the study. While examining the causality from Nifty-Auto to FPI movement in Auto sector, it has been observed that Nifty Auto granger causes FPI flows in Auto sector. This confirms that in short run Nifty Auto values helps in forecasting the FPI movement in the sector.

CONCLUSION

Indian Automobile Industry is working on open market dynamics across world by entering into various joint ventures and strategic alliances with the foreign partners. This industry considered to be very lucrative to foreign investors as this industry is said to be the industry of industries. The present study observed the influence of foreign portfolio investment in Auto sector on Indian

Automobile sector returns. Lead lag relationship between FPI flows in the auto sector and Nifty Auto returns were studied by examining the fortnightly time series data from 2011 to 2020. Correlation results proposes that Auto sector returns are moderately correlated with the FII movements in the Auto sector. Jarque-Bera statistic and Kurtosis values of both the variables implies that the FII and Auto sector returns follow unsystematic movements over the entire study period. Augmented Dickey Fuller Test approves that the FPI flows in the Automobile sector and Nifty Auto returns are stationary. Applied Granger Causality test on the data designate a unidirectional Granger Causality from Nifty- Auto to FII-Auto movements. This test reassures that the short term association of FPI movements in Auto sector with the returns in the Auto sector.

This research discovered that FPI flows in Indian Auto sector is triggered by and are fairly elucidated by Auto sector performance and returns which further indicates that strengthening of Auto sector will attract furthermore FPI flows in Auto industry in India and prevent departure or parting of FPI from Indian Auto sector. This will further move Automobile industry towards prolonged growth which will supplementary benefit the Indian economy as a whole

The outcomes of this research are imperative for policy formulation, financial and reserve management. Policy formulators, financiers and fund administrators should carefully observe any high-pitched fluctuation in the international marketplaces which are persuasive for Indian Automobile sector.

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