Impact of Mutual Fund Investment on Nifty Return in India: An Econometric Analysis

Sushil Kumar[1] and Dipesh Dhanda[2]

[1]*Department of Commerce Kurukshetra University, Kurukshetra*
[2]*M.Com, Pursuing MBA Kurukshetra University, Kurukshetra*
E-mail: [1]kumarsushil587@gmail.com

Abstract—*Resource mobilisation has always remained a problem for our economy. It has caused lacunae to our economic growth. But thanks to the mutual fund which has emerged as an important resource mobiliser or a financial intermediary in our economy. The mutual funds collect money from public by issuing units to them and thus have created huge resources in their hand in the form of Asset under Management (AUM). These resources are further moved in and out of the stock market on the basis of return at different times thus create volatility in the stock market. There is an ambiguity over the relationship between the mutual fund investment and market return whether return cause the mutual fund investment or vice-versa. Sometime mutual fund investment found to be a cause to market return but at other times found to be caused by market return. So the present study has been undertaken to check the impact of mutual fund investment in equities on stock market return. Various econometric tests i.e. Granger Causality Test, GARCH test have been applied on the monthly data of mutual fund flows in equity segment namely MFP(Mutual Fund Purchase), MFS (Mutual Fund Sale), NMF(Net Mutual Fund) and Nifty return during the study period from Jan 2011 to Dec 2015. The study found no causation between the MFS and Nifty return from either way. While both the MFP and NMF are found to have uni-directional relationship with Nifty return during the study period i.e. from the Nifty return to MFP and NMF. The study provides the evidences that past volatility for all cases of mutual fund investment in equities have an impact on Nifty return during the study period. While the recent past information related to only MFP and MFS is found to create volatility in Nifty return not the NMF.*

Keywords*: Mutual Fund Investment, Asset under Management, GARCH Test, Granger Causality Test, Market Return.*

1. INTRODUCTION

In a country like India, with low financial literacy, the most of people are still not much aware about the stock market system. Even they know about the stock market system still they are not comfortable with investing by their own. So, mutual funds proved to be a boon for these investors, which used to channelize their savings into our stock market system. With the large accumulated funds at hand these domestic mutual funds stands out to be the one which has impacted our stock market and through our stock market it has impacted our financial system as a whole. In the role of resource mobiliser it not only provides the platform for small individual investors to invest in the stock market but also boosted the liquidity in our stock market. As these mutual funds are managed by the experts, they invest only on the fundamental basis which further led to the efficient pricing of the securities and reduction of information asymmetries (Kumar, 2007). These efficiently managed funds augment the investment made by the foreign institutional investors (FIIs). These mutual funds also act as a saviour in the times when FIIs create instability in our economic system by withdrawing in large amounts form our stock market. Thus provides the stability to our stock market system (Bose, 2012).

Mutual fund flows have created the ambiguity in our stock market environment by affecting it in both positive and negative manner. The investment made by mutual funds have increased the liquidity in our capital market which further led to reduction in cost of capital, stimulated the investment environment in economy (Hemanthan, 2011). Apart from all these, mutual funds also brought the transparency in our stock market system (Kumar, 2007). These all things compositely have contributed positively to our stock market development. But opposite to it, mutual fund flows are also found to cause volatility in stock market return. Huge investment and sudden withdrawal by these funds causes the ups and downs in the stocks return thus cause the volatility in stock market. Previous studies also pointed towards a fact that there is ambiguity over whether mutual fund flows causes the stock market return or stock market return causes the mutual fund flows. Seeking this dubious character of mutual fund flows, it become essential to study and analyse the mutual fund flows, its trend and examining the causal relationship between the mutual fund flows and stock market return and analysing the reason of volatility in stock market return. So, present study is undertaken to fulfil the same purpose.

In next part existing literature has been reviewed with the aim of establishing theoretical foundation followed by discussion of research methodology and in the last results are discussed and study has finally been concluded.

2. OBJECTIVE OF THE STUDY

The efficiently regulated and restructured market has increased the exposure of mutual funds in our stock market. Seeing, the increased participation of mutual funds having vast resources under management in our stock market, it become essential to have a look at impact of mutual fund investment on the stock market return. But the relationship between the mutual fund flows and stock market return is of dubious nature. Sometimes the mutual flows found to be a causing factor to the volatility in the stock market return; at the other time it is found to be the effect of the stock market return. In order to clear this position of dubiety, the study is undertaken to examine the causal relationship between the mutual fund flows and stock market return using Granger Causality Test and to fix the responsibility for volatility in stock market return.

3. LITERATURE REVIEW

As a lamp-light helps in showing the way in darkness similarly existing literature on a topic helps in establishing the theoretical base or designing the research methodology for the conducting a research study. So, the existing literature has been reviewed keeping same thing in mind.

Sehgal and Tripathi (2009) examined the effect of home advantage in trading of both domestic mutual funds and foreign institutional investment in equity and debt segments of Indian capital market. Both mutual funds and FIIs were found to be affected by the retruns in equity segment meaning thereby both follow the positive feedback trading. But at the same time FIIs have responded faster than domestic mutual funds and thus eliminating the home advantage effect to the domestic mutual funds. While in the debt market the results are just opposite to it meaning thereby mutual funds have home advantage. **Naik and Padhi (2014)** analysed the relationship of domestic institutional investors with stock market return and between the volatility of market return with domestic fund flows. The study found two way causation between the domestic institutional investors and stock market return while the mutual fund investment does not have any impact on market volatility and vice versa. **Thenmozhi and Kumar (2009)** examined the causal relation between the mutual fund flows and stock market return and also checked that whether information of mutual fund flows can be used to predict the changes in market return and volatility. The results revealed that return have an impact on mutual fund outflows meaning thereby mutual fund follow negative feedback trading. The study also established that changes in flows have an positive impact on market volatility.

Bose (2012) evaluated the impact of mutual fund flows on stock market return. The study provides the evidence for causality running from stock return to mutual fund flows. The results from the study supported the positive feedback trading as the positive correlation found between the concurrent mutual fund flows and stock market return while the negative correlation between the two confirmed the negative feedback trading by these institutional investors. **Hemanathan (2011)** examined the relationship between the mutual fund flow and benchmark stock market indices of India i.e. Nifty and Sensex. The study found low positive relation of the mutual fund flow with both Nifty and Sensex i.e. 11.9% and 12% respectively. The study also established that a little change in mutual fund investment pattern cause a huge change in overall stock market. **Luhar and Bhide (2012)** analysed the role of mutual funds in boosting the liquidity in Indian capital market. The study revealed that mutual fund investment is the potent force behind the market capitalization of our stock market meaning thereby mutual funds have contributed positively in increasing the stock market liquidity. **Kumar (2007)** captured the impact of mutual fund investment on the market direction or movement. The market movement has been measured using the advances to declines ratio. The study indicated that mutual fund investment is the significant cause behind the market movement. Besides it, the study also found that aggregate institutional investment means mutual fund plus the foreign institutional investment can also be used to predict the market movement.

4. DATA AND METHODOLOGY

Monthly time series data ranging from Jan, 2011 to December, 2015 has been used in the study. The standard period of last 5 years has been selected. The data on mutual fund equity flows i.e. MF Inflow (MFP), MF outflow (MFS) and Net MF equity flow (NMF) have been collected from SEBI website (www.sebi.gov.in). The data on CNX NIFTY has been collected from the website (www.nseindia.com).

First of all data related to MF equity flows have been sorted out from the aggregate mutual fund flows. The selection of CNX NIFTY is based on the fact that flow of MF flows was more in NSE as compared to BSE. The return of CNX NIFTY has been calculated using the following formulae:

$R_t = (P_t - P_{t-1})/ P_{t-1}$

Here, R_t = Return from market at t period

$P_t - P_{t-1}$ = represents CNX NIFTY at end of day t and t-1 respectively.

Then to check the causal relationship between the MF flows and Nifty return i.e. whether the MF flows causes the Nifty return or the Nifty return causes the FII flows Granger Causality test has been used. Before applying the Granger Causality Test, first it has been checked whether the variables under study (i.e. MFP, MFS, NMF and Nifty return) are stationary or not. For checking whether the variables are stationary or not, one of the unit root test, the Augmented Dickey Fuller (ADF) test has been used. The following hypotheses have been established to check that

H_0: The variables have unit root (not stationary).

The test has been applied to all the variables one by one.

After checking the stationary (criterion) of variables the Granger causality test has been performed with MF flows and Nifty return**.** One important thing to take care of that in time series the lag order in the analysis is quite sensitive to the results. In order to select the lag length for applying Granger Causality Test, lag order selection criteria was used and the lag length was identified to be 2. Granger Causality Test was applied using the following null hypotheses:

H_{01}:The Return does not Granger causes MFP.

H_{02}: The MFP does not Granger Cause Return.

H_{03}: The Return does not Granger causes MFS.

H_{04}: The MFS does not Granger Cause Return.

H_{05}:The Return does not Granger causes NMF.

H_{06}: The NMF does not Granger Cause Return.

After checking the causation between the MF flows and Nifty return then causes or reasons of volatility in Nifty return for the selected time period has been evaluated using the GARCH test. Before applying the GARCH test first of all it has to be checked that whether the residual in return of the selected companies has clustering volatility or not. If the residual is found to have the clustering volatility then we can apply the GARCH test. GARCH test has been applied using the following null hypotheses:

H_{07}: There is no volatility for Nifty return and MF flows of cement sector companies.

5. RESULTS AND DISCUSSION

The results of the Augmented Dickey Fuller test are presented in the table 1**.**

Table 1: The Results of the Augmented Dickey Fuller Test at Level

Variables	t-Statistic	Sig. Level (0.05)	p–value	Result
MFP	-2.969366	-3.4878	0.1495	Accept H_0
MFS	-5.757859	-3.4878	0.0001	Reject H_0
NMF	-2.278570	-3.4892	0.4385	Accept H_0
Return	-7.985926	-3.4878	0.0000	Reject H_0

The table shows the results of Augmented Dickey Fuller Test. ADF test was applied in Trend and Intercept method using lag structure indicated by Schwarz Information Criterion (SIC). When the p-value is greater than 5% or the t-statistic value is less than critical value at 5%, the null hypothesis is accepted or the alternate hypothesis is rejected. The table provides the evidence for rejecting the null hypothesis for the MFS and Nifty return; meaning thereby they are stationary at level. On the other hand, the MFP and NMF are found to be non-

stationary at level. So, first differencing is needed to be done for both.

Table 2: The Results of the Augmented Dickey Fuller Test at First Difference

Variables	t-Statistic	Sig. Level (0.05)	p–value	Result
MFP	-10.93797	-3.4892	0.0000	Reject H_0
NMF	-15.05618	-3.4892	0.0000	Reject H_0

In order to convert PMF and NMF into a stationary series first differencing has been done for both of these. ADF test results for first differencing of variables are found to be stationary as the p-values of it is less than 5% as indicated in Table 2. Thus alternate hypothesis has been accepted indicating stationarity of the series.

The table 3 shows the results of Granger Causality test with the lag period of 2. The null hypothesis has been tested on the basis of the p-value. If the p-value is less than 5% then the null hypothesis is rejected meaning thereby there is significant relation between the variables.

Table 3: The Results of the Granger Causality Test

Null Hypothesis	F-Statistic	P value	Result	Relationship
R does not cause MFP	3.4642	0.0387	Reject H_0	Uni-directional
MFP does not cause R	1.4755	0.2381	Accept H_0	
R does not cause MFS	0.82328	0.4445	Accept H_0	No Relationship
MFS does not cause R	0.46662	0.6297	Accept H_0	
R does not cause NMF	9.46871	0.0003	Reject H_0	Uni-directional
NMF does not cause R	0.13639	0.8728	Accept H_0	

Note: R indicating Return

Based on the results it can be concluded that the MFS has no relationship with Nifty return for the selected period as p-value is greater than 5% and both the null hypotheses depicting the relationship between these two are accepted. While both the MFP and NMF are found to have uni-directional relationship with Nifty return during the study period as the p-value is less than 5% rejecting null hypothesis that Return does not Granger causes both MFP and NMF meaning thereby Nifty return causes the MFP and NMF during the study period.

Further, the GARCH test has been used. To apply the GARCH (1, 1) model one thing must be checked that residual must have clustering volatility, meaning thereby, period of low (high) volatility is followed by the period of low (high) volatility. Chart 1 shows the clustering volatility in the residuals.
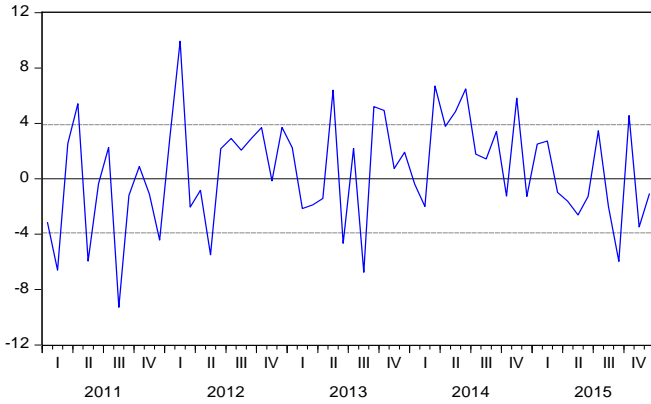
Chart 1: Residual of Return

The chart depicts the residuals of Nifty return for the selected period. It can be observed from the chart that the height of return varies over a period of time indicating volatility. So, now the GARCH (1, 1) test could be applied as the essential condition for the application of GARCH (1, 1) test has been met.

Table 4: Parameter Estimates of GARCH (1, 1) Model

Dependent Variable	NIFTY RETURN		
Model	Coefficient	Value of Coefficient	P- value
GARCH (1,1)	Intercept	0.906315	0.4209
	ARCH	-0.171268	0.2192
	GARCH	1.121627	0.0000*
GARCH (1,1) with MFP	Intercept	2.748263	0.0397
	ARCH	-0.160513	0.0003*
	GARCH	1.057036	0.0000*
	MFP	-0.008959	0.3667
GARCH (1,1) with MFS	Intercept	5.136944	0.0736
	ARCH	-0.186779	0.0237*
	GARCH	1.055461	0.0000*
	MFS	-0.025160	0.1890
GARCH (1,1) with NMF	Intercept	4.477149	0.1937
	ARCH	-0.156713	0.0571
	GARCH	0.862481	0.0000*
	NMF	-0.023408	0.3068
* indicates significance at 0.05 level			

The parameter estimates of GARCH (1, 1) model are presented in table 4 for all the MF equity activities. The sizes of ARCH and GARCH coefficients determine the dynamic of the resulting volatility time series. Table reveals that GARCH term is significant for Nifty return at 5% level in all the cases of MF activity which indicates that past volatility in MFP,MFS and NMF has an impact on the volatility in Nifty return. But the coefficient of ARCH term is significant for the MFP and MFS only not for the NMF indicating that the recent past information does not have any significant impact on the volatility of the Nifty return companies in cases of NMF

activity as p-value is more than 5%. Hence the null hypothesis is accepted. The negative coefficients in the net turnover, purchase turnover and sales turnover in the variance equation of GARCH model indicates that any decrease in their value accelerate volatility in Nifty return during the selected period.

6. CONCLUSION

The study has been carried out to examine the causation between the stock market return and MF flows in equities and to locate the reason of volatility in their Nifty return for the period ranging from Jan, 2011 to Dec, 2015 for the 60 observations. The study revealed that there is no causation between the Nifty return and MFS from either way during the study period. While MFP and NMF found to have uni-directional relationships with Nifty return. The Nifty return is found to cause both the MFP and NMF. The study also concluded that the recent past information does not have any significant impact on the volatility of the Nifty return in case of NMF only but for MFP and MFS the impact is just opposite of NMF and Nifty return. On the other side, the past volatility of all MF flows proved to be responsible for volatility in Nifty return during this period.

The study has checked the causation between the MF flows and Nifty return. Similarly this causation can also be checked for the other indices also. Moreover, five year of period has been selected as study period, so the study could be undertaken with enhanced period. Beside this, performance of two or more mutual fund schemes (equity schemes, debt fund schemes or balanced fund schemes) can be evaluated and compared, which may also become the scope for further study.

REFERENCES

[1] Bose, S. (2012). Mutual Fund Investments, FII Investments and Stock Market Return in India. *Money & Finance ICRA Bulletin*, 89-110.

[2] Hemanathan, M. (2011). Role of Mutual Fund in Indian Stock Market. *Singaporean Journal Scientific Research (SJSR), 4*(2), 268-273.

[3] Kumar, S. (2007). Role of Institutional Investors in Indian Stock Market. *International Journal of Management Practices & Contemporary Thoughts*, 76-80.

[4] Luhar, A., & Bhide, K. (2012). Evaluating Role of Foreign Institutional Investors andMutual Funds in Changing Market Scenario. *Abhinav-National Monthly Refereed Journal Of Research in Commerce & Management, 1*(4), 1-13.

[5] Naik, Pramod Kumar; Padhi, Puja. (2014). *The Dynamics of Institutional Investments and Stock Market Volatility: Evidence from FIIs and Domestic Mutual Funds Equity Investment in India*. Retrieved from http://ssrn.com/abstract=2388182

[6] *NSE India*. (n.d.). Retrieved January 25, 2016, from NSE India Web site: www.nseindia.com

[7] *SEBI*. (n.d.). Retrieved January 25, 2016, from SEBI Web site: www.sebi.gov.in

[8]   Sehgal, S., & Tripathi, N. (2009). An Examination of Home
      Advantage (Bias) Argument in the Indian Financial Markets:
      Domestic Financial Institutional Investors (DFIIs) Vis-a-Vis
      Foreign Institutional Investors (FIIs). *Asian Journal of
      Finance & Accounting, 1*(2), 163-174.

[9]   Thenmozhi, M., & Kumar, M. (2009). Dynamic Interaction
      among Mutual Fund Flows, Stock Market Return and
      Volatility. *NSE Research Papers*.