Association between Mutual Fund Investments and Stock Returns : A Study of Some Select Mutual Fund Schemes in India

Sebanti Show
Contractual Whole-time Teacher, Department of Commerce
Umeschandra College, Kolkata
e-mail : sebantishow@gmail.com

Abstract : A Mutual fund is a financial intermediary that pools the savings of investors for collective investment in a diversified portfolio of securities. The mutual fund concept was introduced in India with the setting up of unit trust of India (UTI) in 1963, but its relevance is gaining importance today as investors can access Indian stock market via investing in mutual fund which in turn has considerable effect on stock prices of listed securities under NSE & BSE. Domestic mutual funds are found to determine their investment flows on the basis of their own previous investments, Foreign Institutional Investments (FII) as well as stock market returns. In the above context, the paper highlights the association between mutual fund investments and stock returns of some BSE listed companies.

Key-words : Mutual Fund, assets under management, stock return, mutual fund investment sector, mutual fund portfolio companies.

1. Introduction

In financial market the most important component is stock market. On the other hand mutual fund is related with non-banking financial institutions. Mutual Fund is one of the most preferred investment alternatives for small investors as it offers an opportunity to invest in a diversified, professionally managed portfolio at a relatively low cost. Mutual Fund is a trust that pools the savings of a number of investors who share a common financial goal. In recent times, an emerging trend in Indian mutual fund industry is its huge investment in Indian stock market mainly National Stock Exchange (NSE) and Bombay Stock Exchange (BSE). It is generating momentous investment growth in stock market. With emphasis of increase in domestic savings and improvement in market mechanism, the need and scope for mutual fund operations have increased tremendously. However the broad investment sectors of mutual fund industry are as follows:

1. *Equity Pharmaceutical* : Equity mutual fund schemes with an investment objective to invest in pharmaceutical, healthcare and related sector.
2. *Equity FMCG* : Equity mutual fund schemes with an investment objective to invest in fast moving consumer goods sector.
3. *Equity Small and Mid Cap* : Mutual funds which diversify investments in between mid and small cap companies are termed as mid and small cap funds. The proportion of investments between midcap and small cap may vary from fund to fund.
4. *Equity Multi Cap* : It is an excellent approach where scheme's portfolio diversification contains various levels of risk through investing in small, mid and large cap companies.
5. *Equity Large Cap* : Equity mutual fund schemes which primarily invest in stocks of blue chip companies with above average prospects of earning growth.

6. *Equity Banking* : Equity mutual fund schemes with an investment objective to invest in banking sector.
7. *Equity Technology* : Equity mutual fund schemes with an investment objective to invest in technological sector.
8. *Equity Large and Mid Cap* : Equity mutual fund schemes with an investment objective to invest in large and mid cap companies.
9. *Equity Tax Planning* : These schemes offer tax rebates to the investors under specific provisions of the Income Tax Act, 1961 as the Government offers tax incentives for investment in specified avenues.
10. *Equity Infrastructure* : Equity mutual fund schemes with an investment objective to invest in infrastructure sector.

Volatility is fluctuation or change in stock price. Volatility of a stock measures the frequency with which changes in its market price take place over a period of time. If a stock is highly volatile i.e. there are large fluctuations in its market price, there is a risk and investors avoid such shares. Hence, volatility is a factor which is taken into consideration when assessing the risk return tradeoffs. Volatility is caused by a number of factors such as speculation, the trading and settlement system, capital inflow and outflow, inflation, the government budget, rumors, political changes etc. Whereas, return on stock represents combination of dividends and change in stock's price over a time period.

In recent years, the study of causality between mutual funds investment flows and stock market returns has drawn the attention of researchers and academicians world over. Accordingly, a study on the association between mutual fund investments and stock returns has been taken up in this paper.

The study is divided into six sections. Literature review is discussed in Section-II. Section-III deals with the objective of paper. Research methodology is highlighted in Section-IV. Section-V discusses the analysis and findings. Section-VÈ concludes the study.

2. Literature Review

The particular interest of this study is to analysis the association between mutual fund investments and stock returns of selected companies listed under BSE. Direct evidence in this area is scarce. But there is a number of indirect related evidence in this area. *Warther (1995)* used granger causality test to find out association between mutual fund investments and stock returns. He argues that shocks to security returns lead to change in mutual inflows, which in turn leads to a further change in security returns. The existing literature focuses on the effect of mutual fund investment on overall market return, not on individual stock return. Moreover in recent years, considerable numbers of studies have been looked into the impact of institutional trading on stock market return. It is often said that mutual funds flow causes security returns to rise and fall and one reason may be attributed for this is the price pressure hypothesis (*Harris et 1986*; *Shleifer 1986*). This theory suggests that increased flow into equity mutual funds stimulate a greater demand by individuals to hold stock and this cause stock price to rise. *Scharfstein and Stein (1990)* documented that when mutual fund buys a stock in destabilizing manner, price tends to increase followed by a decrease. This change in

price affects the stock returns. Whereas *Hirshleifer et al. (1994)* documented that if mutual fund buys a stock in stabilizing manner, price tends to increase without a subsequent decrease. This change in price affects the stock returns too. *Remelona et al., (1997)* also used a similar methodology as *Warther's* (1995) to examine the effects of market returns on aggregate fund flows. They found that unexpected equity fund flows are not affected by stock returns but bond flows are affected by returns. *Potter and Schneeweis (1998)* in their study had made an attempt to investigate the factors which affect aggregate mutual fund flows. They found competing investment classes to be economically and statistically significant explainers of aggregate mutual fund flows. The results also show that factors impacting flows to riskier groups differ from the factors determining flows to less risky categories among equity sub-categories. They also documented that securities returns are useful for predicting mutual fund flow to growth funds. *Edwards and Zhang (1998)* employed Granger causality test and instrumental variable analysis to examine the relationship between aggregate monthly mutual fund flows and stock and bond monthly returns. The result shows that with one exception, flows into stock and bond funds do not affect either stock or bond returns. *Fortune (1998)* used VAR models with seven variables and monthly data for the period January 1984 through December 1996 to examine the relationship between fund flows and returns. The results provided evidence of positive correlation between fund flows and returns. However, the results show that security returns do affect future fund flows, but some fund flows do affect future security returns. Overall, the evidence on causal relationship between stock returns and mutual fund flows is mixed. *Edelen and Warner (2001)* observed that aggregate unexpected mutual fund flow is positively correlated with concurrent market returns at daily frequency. They also found that causality from flow to returns within a day and one day lagged response of aggregate flow to market returns. *Papadamou and Siriopoulos (2002)* used similar methodology as *Warther's (1995)* to examine the effect of market returns on aggregate fund flows using monthly data from the Greek equity mutual fund investing spanning January 1998 to March 2002. The result shows that there is small positive concurrent relation between unexpected net flows and market returns, which the author attributed to information revelation. The results also suggest some evidence that mutual fund flows cause prices to rise and fall. The author finally concludes that there is low correlation between fund flows and returns. In another related study, *Massa (2003)* has studied the US equity mutual fund market over a period of 20 years and found that the presence of more and relatively less informed funds affects the market; increasing the liquidity and reducing the volatility and prices. He has identified the fund characteristics and has related them to volatility, liquidity, return cross-correlation and prices of stocks that are held by the funds. *Alexakis et al. (2005)* examined the interaction between mutual fund flows and stock returns in Greece. He documented the bi-directional causality between mutual fund flows and stock returns because mutual fund flows cause security returns to rise or fall. *Oh and Parwada (2007)* analysed relations between stock market returns and mutual fund flows in Korea. The results shows that there is significant positive correlation between stock return and both purchase and sales by mutual funds.

Hence the present study distinguishes itself from prior studies in several ways. Firstly, this study in Indian context places emphasis on stock returns of some select individual companies listed in BSE. Secondly, the study considers both the private and public sector mutual fund schemes. Thirdly, the study focuses on Indian capital market namely BSE where association between mutual fund investments and stock returns is intense. Thus the study aims at fulfilling the research gap regarding

association between mutual fund investments and stock returns of individual companies in Indian context.

3. Objective of the Study

The main objective of study is to examine the association between mutual fund investments and stock returns of some BSE listed companies.

4. Research Methodology

a) Sample Selection: The ten investment sectors of mutual fund industry as published by Value Research India Private Ltd. in their official website on 06/08/2012 have been selected. In each sector there are many mutual fund schemes as published by Value Research India Private Ltd. They make ranking of mutual fund schemes based on return of the schemes. Since return of schemes changes each day, the ranking of schemes are also changes each day. In this study, the rank one mutual fund scheme from each of ten sectors has been selected as published by Value Research India private Ltd. on 06/08/2012, thereby resulting into selection of ten schemes. Now, each mutual fund scheme has its own portfolio (i.e. the companies in which the mutual fund company has made its investments). From each scheme two portfolio companies are selected resulting into twenty companies (10 schemes times 2 companies) for the study (after taken into consideration that the scheme retain its investment in the company during the period of fifteen month from 1.4.2011 to 31.06.2012). The twenty sample companies for the empirical study are listed in ***Appendix A***. All the sample companies are listed on the stock exchange, Mumbai (BSE).

Thus the sampling technique becomes multistage sampling method as shown below:

Selection of Mutual Fund Investment Sectors

↓

Selection of Top Mutual Fund Scheme from each Mutual Fund Investment Sectors (Ten Schemes)

↓

Selection of two Mutual Fund Portfolio Companies from Each Scheme (Twenty sample companies)

b) Consideration of time period: In order to examine the association between mutual fund investments and stock returns of sample companies, a period of fifteen months ranging from April 2011 to June 2012 have been considered and relevant data i.e. closing month-end stock price and month-end portfolio investments of mutual fund schemes have been obtained from secondary sources such as BSE website and newspapers like Business Standard, Business Line etc.

c) Collection of data: The empirical part deals with relation between mutual fund investment and stock return. This part of the study is primarily based on secondary data like information published in Association of Mutual Funds in India (AMFI), their quarterly reports, information relating to portfolios of sample mutual fund schemes published in mutual fund company's website, stock market information published in newspaper like the Economic Times and available in websites of stock exchanges (mainly BSE).

d) Application of statistical methods: The analysis & interpretation of data is done statistically. Mutual fund investments into the Sample Companies are collected from factsheets of the respective mutual fund schemes. The change in mutual fund investment and change in stock return over the sample period of sample companies is determined taking into consideration the natural logarithm (ln).

The degree of association i.e. correlation coefficient between the said variables is determined for each of the sample companies. A regression analysis is also done at 5 percent significance level with change in mutual fund investment as the independent variable and change in stock return as the dependent variable first and then vice versa.

5. Analysis and Findings

The analysis and interpretation of available data for the sample companies are presented below through statistical analysis.

Table-1

Correlations of Sample Companies Stock Returns with Change in Mutual Fund Investment

Sample Companies	Correlation Coefficients (r_{xy})
Cipla Ltd.	-0.152738299
Drreddy Laboratories Ltd.	0.454687767
ITC Ltd.	0.273687568
Glaxosmithkline Cons. Healthcare Ltd.	-0.20944
Page Industries Ltd.	0.394719
Hawkins Cookers Ltd.	0.691987
ICICI Bank Ltd.	0.444339
Nestle India Ltd.	0.505393
ICICI Bank Ltd.	0.284837
Reliance Industries Ltd.	0.627928
ICICI Bank Ltd.	0.436476
HDFC Bank Ltd.	0.080107
Infosys Ltd.	-0.55089
Tata Consultancy Services Ltd.	-0.23677
Bajaj Auto Ltd.	0.625585
Housing Development Finance Corporation Ltd.	0.495833
Bajaj Auto Ltd.	0.682075
HDFC Bank Ltd.	0.392674
Reliance Industries Ltd.	0.834657
Larsen & Toubro Ltd.	0.27086

Regression Analysis

Out of twenty companies, 16 companies have shown positive correlation between changes in stock return and change in mutual fund investment. Whereas rest of the 4 companies have shown negative correlation between change in stock return and mutual fund investment. Four regression equations run at 95% confidence intervals which are developed as follows:

1. $y = a + bx$ (considering all 16 companies which show positive correlation between change in stock return and change in mutual fund investment)
   where
   y = Dependent variable i.e. changes in stock return
   x = Independent variable i.e. changes in mutual fund investment
2. $y = a + bx$ (considering all 16 companies which shows positive correlation between change in stock return and change in mutual fund investment)
   where
   y = Dependent variable i.e. change in mutual fund investment
   x = Independent variable i.e. change in change in stock return
3. $y = a + bx$ (considering all 4 companies which shows negative relation between change in mutual fund investment and change in stock return).
   where
   y = Dependent variable i.e. change in stock return
   x = Independent variable i.e. change in mutual fund investment
4. $y = a + bx$ (considering all 4 companies which shows negative correlation between change in stock return and change in mutual fund investment)
   where
   y = Dependent variable i.e. changes in mutual fund investment
   x = Independent variable i.e. change in changes in stock return

The regression results are presented below:

a) 16 companies which showing positive correlation between changes in stock return and changes in mutual fund investment.
   Dependent variable: changes in stock return
   Independent variable: changes in mutual fund investment
   Number of observations = n = 240 (15 months*16 companies)

Table-2

Regression analysis of 16 companies which show positive correlation between change in stock return and change in mutual fund investment considering change in stock return as dependent variable

Model	Coefficients		Significance Level (p-value) at 95% Confidence Interval	95% Confidence Interval for B	
	B	Standard Error		Lower Bound	Upper Bound
Constant Change in mutual fund investment	-.017.255	.011.068	.118.000	-0.039.120	.004.389

Adjusted R^2 = .052

Significant F = .000

- *Model's Explanatory Power*- Here adjusted R^2 is 5.2% which is very low and indicates that change in stock return can be explained by independent variable only up to 5.2% as stock return of a company depends on a number of factors.
- *Statistical Significance*-Here p-value of independent variable is .000 which is less than .005 i.e. for regression run at 5% level of significance. This suggests that change in mutual fund investment is a significant determinant of change in stock return for positive correlation companies.

b) All 16 companies which showing positive correlation between changes in stock return and changes in mutual fund investment.

Dependent variable : changes in mutual fund investment

Independent variable : changes in stock return

Number of observations = n = 240 (15 months*16 companies)

Table-3

Regression analysis of 16 companies which show positive correlation between change in stock return and change in mutual fund investment considering change in mutual fund investment as dependent variable

Model	Coefficients		Significance Level (p-value) at 95% Confidence Interval	95% Confidence Interval for B	
	B	Standard Error		Lower Bound	Upper Bound
Constant Change in stock price (stock return)	.027.218	.010.058	.007.000	.007.103	.047.333

Adjusted R^2 = .052

Significant F = .000

- *Model's Explanatory Power*—Here adjusted R^2 is 5.2% which is low and same as that in previous case thereby indicating that change in mutual fund investment can be explained by change in stock return only up to 5.2% as mutual fund flow depends on a number of factors other than stock return which have not been factored in this study.
- *Statistical Significance*—Here p-value of change in stock return is .000 i.e. less than .005 meaning there by that change in stock return is significant in determining mutual fund flow for positive correlated companies.

c) All 4 companies which showing negative correlation between changes in stock return and changes in mutual fund investment

Dependent variable: changes in stock return

Independent variable: change in mutual fund investment

Number of observations = n = 60 (15 months*4 companies)

Table-4

Regression analysis of 4 companies which show negative correlation between change in stock return and change in mutual fund investment considering change in stock return as dependent variable

Model	Coefficients		Significance Level (p-value) at 95%	95% Confidence Interval for B	
	B	Standard Error	Confidence Interval	Lower Bound	Upper Bound
Constant Change in mutual fund investment	-.001-.042	.008.030	.906.168	-.016-.102	.014.018

Adjusted R^2 = .033

Significant F = .168

- *Model's Explanatory Power*—Here adjusted R^2 is 3.3%. Such a low explanatory power implies that change in stock return is affected by number of factors other than mutual fund investment which have not been factored in this study.
- *Statistical Significance*—Here p-value of independent variable is .168 which is more than .005 i.e. it shows change in mutual fund investment is not significant in determining change in stock return for negative correlations companies.

d) All 4 companies which showing negative correlation between changes in stock return and change in mutual fund investment

Dependent variable: changes in mutual fund investment

Independent variable: change in stock return

Number of observations = n = 60 (15 months*4companies)

Table-5

Regression analysis of 4 companies which show negative correlation between change in stock return and change in mutual fund investment considering change in mutual fund investment as dependent variable

Model	Coefficients		Significance Level (p-value) at 95% Confidence Interval	95% Confidence Interval for B	
	B	Standard Error		Lower Bound	Upper Bound
Constant Change in stock price (stock return)	-.024-.778	.033.557	.474.168	-.090-1.893	.042.337

Adjusted $R^2 = .016$

Significant F = .168

- *Model's Explanatory Power*—Here adjusted R^2 again very low i.e. 1.6% only. This indicates that change in mutual fund investment can be explained by independent variable only up to 1.6% as mutual fund flow depends on a number of other factors which have not been factored in this study.
- *Statistical Significance*—Here p value of independent variable is .168 i.e. more than .005 for regression runs at 5% level of significance. Thus change in stock return is insignificant in determining change in mutual fund investment.

The empirical results suggest that the correlation between changes in mutual fund investments and stock returns is positive for Dr. Reddy Laboratories Ltd, ITC Ltd, Page Industries Ltd., Hawkins Cookers Ltd., ICICI Bank Ltd., Nestle India Ltd., Reliance Industries Ltd., HDFC Bank Ltd., Bajaj Auto Ltd., Housing Development Finance Corporation Ltd., Larsen and Toubro Ltd. and negative for Cipla Ltd., Glaxosmithkline Cons. Healthcare Ltd., Infosys Ltd. and Tata Consultancy Ltd.

An interesting observation can also be made from the regression analysis that booth way significance between mutual fund investments and stock returns has been noticed in positive correlations cases i.e. stock returns have been found to significantly determined mutual fund investment and vice-versa. But there has been statistical insignificance between stock returns and mutual funds in both directions for negative correlations.

6. Conclusion

The concept of mutual fund investment in Indian stock market is gaining importance day by day. Investment of mutual funds in stock market keeps on increasing rapidly. There are lots of empirical literatures on the relationship between mutual fund flow and stock market return. But the literatures related to relationship between total mutual fund flow and stock individual return are not well documented in Indian and International context. In this backdrop, the present study has examined the association between the specific mutual fund investments schemes and stock return of schemes' selected portfolio companies.

It has been established through case study that there are both positive and negative correlations between Mutual Fund flows & stock return. However the study suffers from the following limitations:

1) The mode of sample and size of the sample are important parameters for any empirical study. Only 10 Mutual Fund schemes are selected for study but there are 46 Mutual Fund Companies operating in India and each of them offer a variety of diversified schemes. Again only two portfolio companies of each scheme have been selected from a number of portfolio companies. A better association between the two variables could have been established, if sample size been large.

2) The time period considered for the study is 15 months. A better conclusion could have been drawn if longer time periods have been considered, say 10 years for this study.

There are other aspects of this study which can be focused upon. The areas where future research can be carried out are as follows:

1) The highest correlation between two variables is 0.834657 which is from infrastructure investment sector of mutual fund. So, a further broad study could be carried on taking into consideration only the infrastructural mutual fund schemes & its effect on stock price of those schemes portfolio companies.

2) Here the explanatory power of independent variable is very low, so it is recommended to consider all factors as stated earlier while studying on association between mutual fund investment & stock market returns.

References

Alexakis, C., Nikitas, N., Theopfano, P. and Sunil, P. (2005)."The dynamics between stock returns and mutual fund flows: Empirical evidence from the Greek market", *International Review of Financial Analysis*, 14, pp. 559–569.

Edelen, R. and Warner, J. (2001). "Aggregate price effects of institutional trading: a study of mutual fund flow and market returns", *Journal of Financial Economics*, 59, pp. 195–220.

Edwards, F. and Zhang, X. (1998). "Mutual Funds and Stock and Bond Market Stability", *Journal of financial Servcices Reserach*, 13, pp. 257-282.

Fortune, P. (1998). "Mutual Funds, Part 11: Fund Flows and Security Returns", *New England Economic Review*, pp. 3-22.

Hirshleifer, D., Subrahmanyam, A. and Sheridan, T. (1994). "Security analysis and trading patterns when some investors receive information before others", *Journal of Finance* 49, pp. 1665–1698.

Massa, M., (2003). "Mutual Fund competition and stock market liquidity", *Finance Department Insead.*

Natalie Y. Oh. and Parwada, J.T. (2007)."Relations between mutual fund flows and stock market returns in Korea", *Journal of International Financial Markets, Institutions and Money*, 17(2), pp. 140-151.

Papadamou, S. and Siriopoulos, C. (2003). "Hot Hands of U.S. Equity Fund Managers in European Markets: Performance and Style Analysis", *American Business Review*, XXI(2), pp. 92-100.

Potter, M. (1996), "The dynamic relationship between security returns and mutual fund Flows", *University of Massachusetts–Amherst, PhD dissertation.*

Ramelona, E., Kleiman, P., and Gruenstein, D. (1997), "Market returns and mutual fund flows", *FRBNY Economic Policy Review*, Federal Reserve Bank of New York, pp. 33-52.

Scharfstein, David S. and Stein, Jeremy C. (1990). "Herd behavior and investment", *American Economic Review*, 80, pp. 465-479.

Warther, V. A. (1995). "Aggregate mutual fund flows and security returns", *Journal of Financial Economics*, 39, pp. 209–235.

Websites consulted :

www.bseindia.com, www.amfiindia.com, www.sciencedirect.com, www.sebigov.in
www.valueresearchonline.com

Appendix-A

Investment Sectors of Mutual Fund	Sample Companies	Selected Schemes
Equity Pharmaceuticals	SBI Magnum Pharma Fund	1. CIPLA Ltd 2. Drreddy Laboratories Ltd
Equity FMCG	SBI Magnum Fmcg Fund	1. ITC Ltd 2. Glaxosmithkline Cons. Healthcare Ltd.
Equity Small And Mid Cap	SBI Magnum Emerging Business Fund	1. Page Industries Ltd. 2. Hawkins Cookers Ltd
Equity Multi Cap	SBI Multiplier Plus	1. ICICI Bank Ltd 2. Nestle India Ltd
Equity Large Cap	ICICI Prudential Top 100 Fund	1. ICICI Bank Ltd 2. Reliance Industries Ltd
Equity Banking	ICICI Prudential Banking & Financial Services Fund	1. ICICI Bank Ltd 2. HDFC Bank Ltd
Equity Technology	ICICI Prudential Technology Fund	1. Infosys Ltd 2. Tata Consultancy Services Ltd
Equity Large And Mid Cap	Quantum Long Term Equity	1. Bajaj Auto Ltd 2. Housing Development Finance Corporation Ltd
Equity Tax Planning	Quantum Tax Saving	1. Bajaj Auto Ltd 2. HDFC Bank Ltd
Equity Infrastructure	DSP Blackrock India T.I.G.E.R. Fund	1. Reliance Industries Ltd 2. Larsen & Toubro