



Timing and Selectivity in Indian Sector Mutual Funds Performance

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Abstract : Sector funds, also called “industry specific” funds are actively managed equity funds which invest entirely or predominately in a single sector like Infrastructure, Banking, Pharma, Information Technology etc. Despite the popularity of sector funds, we come across very few studies in financial literature. Traditional measures of performance consider performance of funds is solely based on managers’ security selection skills by assuming that portfolios’ risk are stationary over time. However, superior performance may be achieved as a result of macro-forecasting (market timing) as well as micro-forecasting (security selection) skills of portfolio managers. The purpose of this paper is to test the selectivity and timing performance of Indian sector funds during 2012-2015 time period. To address this issue, Treynor and Mazuy model is applied. The results show that managers do not have selectivity and timing ability. In addition, there is some evidence of negative market timing.

JEL G10, G11, G23

Key words : Mutual Funds, Sector funds, Performance, Stock selectivity, Market timing.

I. INTRODUCTION

Indian Mutual Funds has attracted every investor’s attention. It has become one of the viable options for retail investor primarily because mutual funds, on the one hand, diversifies the portfolio by investing in various asset classes and minimizes the risk, and on the other hand, maximizes the opportunities and is affordable by all.

Sector funds or ‘sector specific mutual funds’, also called ‘industry specific funds’ or ‘thematic funds’ are certain category of mutual funds which are riskier than the diversified mutual funds and the risk of investing in them is similar to investing in single stocks. These funds are usually launched on the belief that a particular sector will outperform the broader index and will generate higher returns than the broader benchmark.

The sector funds could be either leaders or laggards of the season. This means that at times, they do better than the broader market and at times, they lag way behind. Though sector funds have the potential to generate good returns, on the other hand, they fail to provide the risk protection as available in diversified fund. Thus, sector funds occupy the high end of the risk spectrum due to their fewer diversification opportunities.

Security selection (micro-forecasting) involves the identification of individual securities which are under or overvalued and thus, according to capital asset pricing model (CAPM), lie off the security market line. Market timing (macro-forecasting) refers to general market movements, which means managers may deliberately shift the risk levels of the portfolios in anticipation of general price movements, switching between low and high beta stocks or between risky and riskless assets according to market conditions.

Figure 1: Top Sectoral Funds and Thematic Funds of 2014

Top sectoral and thematic funds of 2014

These funds topped the charts in 2014, but don't expect them to repeat the performance in 2015.

FUND	VALUE RESEARCH RATING	RETURNS (%)		
		2012	2013	2014
UTI Transportation and Logistics Fund	Unrated	37.72	24.69	103.96
Franklin Build India Fund	*****	39.91	6.06	93.8
Religare Invesco Infrastructure Fund	****	22.44	-4.06	83.63
PineBridge Infra and Economic Reform Fund	*****	18.72	-8.73	80.71
HDFC Infrastructure Fund	***	35.42	-14.43	73.9
Sahara R.E.A.L Fund	Unrated	32.34	0.89	72.97
Birla Sun Life MNC Fund	Unrated	42.37	10.15	70.9
Canara Robeco Infrastructure Fund	****	22.87	-9.13	69.86
Goldman Sachs PSU Bank BeES Fund	**	44.2	-28.56	69.47
Kotak PSU Bank ETF	*	42.87	-28.67	69.24

Source: Economic Times

II. LITERATURE REVIEW

Treynor and Mazuy (1966) developed a procedure for detecting timing ability that is based on a regression analysis which includes a quadratic term. They investigated whether fund managers have the ability to anticipate major turns in the stock market. Their study period included 10 years from 1953 to 1962 with a sample of 57 US open ended funds, of which 25 were growth funds and 32 were balanced funds. The empirical results report no statistical evidence that fund managers have successfully outguessed the market.

Kon (1983) conducted a market timing ability of 37 mutual funds for the period 1960 to 1976. The sample of 37 funds include maximum capital gain funds(4), growth funds(10), growth/income funds(11), balanced funds(9) and income funds(3). The results conclude that at the individual fund level, there is some evidence of significant superior timing ability but fund managers as a group have no special information regarding the unanticipated market portfolio returns.

Henriksson (1984) investigated market timing forecasts of fund managers as well as fund performance on a sample of 116 open-ended funds for the period February 1968 to June 1980. He used both parametric and non parametric tests for the evaluation of forecasting ability presented by Henriksson and Merton. The results show little evidence of market-timing ability. Around 62% of the funds exhibit negative estimates of market timing.

Chang and Lewellen (1984) also used parametric and non-parametric statistical procedures presented by Henriksson and Merton to 67 mutual funds of the period 1971 through 1979 to assess the market timing ability of fund managers. The results conclude that neither skillful market timing nor clever security selection abilities are evident in abundance in observed mutual fund return data. Of the 67 mutual funds studied, only four funds were statistically significant at 5% confidence level in exhibiting market timing ability. On the other hand, only five funds were statistically significant in exhibiting stock selection performance.

Lee and Rahman (1990) examined market timing and selectivity performance of 93 sample funds from January 1977 to March 1984 using Treynor and Mazuy model (refined by Bhattacharya and Pfleiderer). The results demonstrate that at the individual level, there is some evidence of superior forecasting ability on the part of fund managers. This result has an important implication. Funds with no forecasting skill might consider a totally passive management strategy and just provide a diversification service to their shareholders.

Dellva et al. (2001) used several benchmarks to assess the selectivity and market timing performance of 35 fidelity sector funds of the period 1989-1998. The benchmarks include S&P 500, the Dow Jones Industry Group Total Return Indexes and the Dow Jones Subgroup Total Return Indexes. They employed 3 models: Jensen model, Treynor and Mazuy model,

Henriksson and Merton model. They demonstrate that results are sensitive to the choice of benchmarks used. When the benchmark is the S&P 500, few of the sector funds exhibit selectivity. However, when the benchmark is more closely matched Dow Jones Industry Group or Subgroup Index, many of the sector funds have positive selectivity but negative market timing ability.

Romacho and Cortez (2006) applied Henriksson and Merton model to Portuguese based mutual funds to evaluate forecasting skills of managers. The sample consists of 21 Portuguese- owned open end mutual funds that were in existence over the 6-year period from January 1996 to December 2001. The funds are categorized as National funds (8), European funds (7) and International funds (6). The results conclude that Portuguese mutual fund managers are neither successful market timers nor security pickers. Furthermore, the results show a strong negative correlation between these two components of performance. The effect of geographical distance on performance is also observed, as fund managers that invest in the Portuguese market show superior stock-picking skills than those that in European and International markets.

Swinkels and Rzezniczak (2009) conducted a study on 38 Polish mutual funds over the period February 2000 to April 2007 to investigate the manager's selectivity and market timing skills. They analysed equity funds, balanced funds and bond funds. Treynor and Mazuy model and Henriksson and Merton model are used. The results conclude that mutual fund managers exhibit some positive but statistically insignificant selectivity skill, but there is no evidence of market timing skills in bonds and equity funds except balanced funds.

Kaushik et al. (2010) analyzed the market timing skills and determinants of performance of sector funds across business cycles to see whether sector fund managers exhibit different market-timing abilities across business cycle. The sample comprised of 1,500 sector funds which spans from January 1990 to December 2005. They used single factor, five factor conditional and unconditional models to estimate the initial results for market timing of sector funds across the business cycle. The results conclude that benchmark specification is important when examining timing. Sector funds exhibit positive timing ability during recessions and negative timing ability during expansions when using the S&P 500 as the benchmark, but this timing ability disappears when sector specific benchmarks are used. As a whole, sector funds exhibit significant negative timing ability across all stages of the business cycles.

III. NEED OF THE STUDY

The academic literature says little about sector funds. Although there are extensive studies on the performance evaluation of fund managers, majority of these studies refer to US and UK managers and a few from emerging markets. To date, there are only two articles to examine sector funds selectivity and timing ability; Dellva et al. (2001) and Kaushik et al. (2010). Unlike the diversified

funds, where lot of studies on performance evaluation is available, we could hardly come across very few articles related to sector funds from Indian perspective. Thus, the study focuses on selectivity (micro forecasting) and timing (macro forecasting) skills of Indian sector fund managers.

IV. OBJECTIVE OF THE STUDY

To test the selectivity and timing performance of Indian sector funds.

V. HYPOTHESIS OF THE STUDY

Sector fund managers have no stock selection and market timing abilities.

VI. DATA

The data is collected from official website of Association of Mutual Funds in India (AMFI), Bombay Stock Exchange (BSE) and from respective websites of Asset Management Companies (AMCs). Three years data from April 1st 2012 to March 31st 2015 for 22 Indian sectorial funds is collected. All the sample schemes/funds are open ended in nature and predominately, equity based with growth as their objective. BSE Sensex is considered as proxy for the market and 91 day Treasury bill rate is taken as risk free rate.

RESEARCH METHODOLOGY

The daily NAVs were used to calculate average daily and annual returns. The return of the mutual fund in period t (R_t) is computed as follows.

$$R_t = \ln(\text{NAV}_t - \text{NAV}_{t-1}) \quad (1)$$

Where,

R_t = returns for the period t

ln =natural Logarithm

NAV_t = the net asset value of a fund in period t,

NAV_{t-1} = the net asset value of a fund in period t-1

A. Selectivity and Timing Models

Jensen (1968) used the Capital asset pricing model to address the problem of evaluating a portfolio manager's predictive ability. By assuming that the asset pricing model is empirically valid, the realized returns on any security or portfolio can be expressed as a linear function of its systematic risk, the realized returns on the

market portfolio, the risk-free rate and a random error. Thus,

$$r_{it} - r_{ft} = \beta_i (r_{mt} - r_{ft}) + e_{it} \quad (2)$$

Where

r_{it} = return on fund i for period t

r_{ft} = risk free rate for period t

β_i = beta for fund i

e_{it} = random error for fund i for period t

In the equation 2, the left-hand side r_{it} - r_{ft} is the risk premium. As long as the asset pricing model is valid, this risk premium is equal to B_i (r_{mt} - r_{ft}) plus the random error e_{it}.

Equation 2 is applied to a managed portfolio to identify whether the fund manager is a superior forecaster or stock picker. If the fund managers are superior forecasters, the portfolio will earn more than the normal risk premium for its level of risk. Such forecasting ability can be incorporated by not constraining the estimating regression to pass through the origin. Thus, equation 3 results in Model I, which is expressed as below.

$$r_{it} - r_{ft} = a_i + \beta_i (r_{mt} - r_{ft}) + \mu_{it} \quad (3)$$

The new error term μ_{it} has an expected value of zero. The intercept a_i in equation 3 will be positive if the portfolio manager can accurately forecast stock prices. On the other hand a_i will be negative, if the manger is not able to forecast stock prices accurately. For naïve random selection buy-and-hold policy, a_i should equal zero.

Treynor and Mazuy added a quadratic term to the Jensen model (equation 3) to capture the effects of a fund manager who adjust for risk based on timing forecast. Fund managers lower the fund beta when they anticipate a market decline and increase the beta when they expect the market to rise. The quadratic regression developed by Treynor and Mazuy is Model II which is expressed below.

$$r_{it} - r_{ft} = a_i + \beta_{1i} (r_{mt} - r_{ft}) + \beta_{2i} (r_{mt} - r_{ft})^2 + e_{it} \quad (4)$$

A significant positive β₂ coefficient signals superior timing and a significant negative β₂ coefficient signals inferior timing ability. If β₂ is equal to zero, then the quadratic term adds no explanatory power.

FINDINGS OF THE STUDY

Table 1: Annual returns of Sector Funds and BSE Sensex

Fund No.	Fund Name	Returns of the funds		
		2012-2013	2013-2014	2014-2015
1	Canara Robeco Infrastructure Fund	-0.0471	0.0942	0.5080
2	SBI Infrastructure fund	-0.0945	0.0335	0.4355
3	UTI Infrastructure fund	-0.0537	0.1145	0.3881
4	LIC Infrastructure fund	-0.0002	0.1357	0.3341
5	L & T Infrastructure fund	-0.0726	0.1724	0.4814
6	Sahara Infrastructure fund	-0.1184	0.1000	0.3301

7	Sundaram Infrastructure fund	-0.2249	0.1242	0.4054
8	Taurus Infrastructure fund	-0.0647	0.1180	0.4242
9	Birla Infrastructure fund	-0.0327	0.1859	0.4412
10	HDFC Infrastructure fund	-0.0965	0.0987	0.4621
11	ICICI Infrastructure fund	-0.0285	0.1425	0.3863
12	UTI Banking fund	0.0768	0.0759	0.3486
13	Reliance Banking fund	0.1055	0.0996	0.4084
14	Sahara Banking fund	0.0623	0.0864	0.3372
15	Sundaram Financial fund	0.0193	0.0759	0.3593
16	ICICI Banking fund	0.1729	0.1462	0.4296
17	ICICI Technology fund	0.1348	0.3521	0.2731
18	DSPBR Technology fund	0.1025	0.2063	0.2572
19	Franklin Infotech fund	0.0875	0.2269	0.2377
20	SBI Pharma fund	0.2065	0.2901	0.5664
21	UTI Pharma fund	0.1163	0.2527	0.5107
22	Reliance Pharma fund	0.1502	0.2766	0.4512
	BSE Sensex	0.0748	0.1712	0.2196

From table 1, it is clearly evident that all the infrastructure funds in financial year 2012-2013 and banking funds in the financial year 2013-2014 underperformed and delivered returns below the benchmark i.e. BSE Sensex. Further, it is observed except L&T Infrastructure fund and Birla Infrastructure

Fund, remaining infrastructure funds delivered unsatisfactory returns.

It is interesting to note that in the financial year 2014-2015, all the funds outperformed BSE Sensex and delivered good returns. Furthermore, it is observed that all the funds from IT and Pharma sector performed well by generating better returns than the benchmark.

Table 2 Model I: Jensen Model $r_{it} - r_{ft} = \alpha_i + \beta_i (r_{mt} - r_{ft}) + e_{it}$

	2012-2013		2013-2014		2014-2015		2012-2015	
Average R-Square	0.5986		0.5957		0.5267		0.6223	
Average Alpha	-0.0662		-0.0089		-0.0005		-0.0038	
	# Positive Alphas	# Negative Alphas	# Positive Alphas	# Negative Alphas	# Positive Alphas	# Negative Alphas	# Positive Alphas	# Negative Alphas
No. of Funds	12	10	10	12	16	6	13	9
Significant at 0.01	7	8	8	10	13	6	10	8
Significant at 0.05	1	0	1	0	0	0	1	0
Significant at 0.10	2	1	0	0	1	0	1	0

Table 2 presents the results for Jensen Model for stock selectivity. The intercept alpha is the measure of investment performance. Average alphas and R Square values for 22 funds are reported in the table. Stock selectivity (micro forecasting) results are reported as number of positive and negative alphas (α) and a count of the number of significant positive and negative alphas. One tailed tests for significant selectivity at 0.01, 0.05 and 0.10 levels are reported.

From the table 2, it is observed that the number of positive alphas and negative alphas is relatively constant during the first two financial years. In the financial year 2014-2015, the performance of sector funds were overwhelming, thus 16 out of 22 funds exhibited

positive alphas (measure of managers' selectivity) with 14 funds statistically significant.

From the table, it is clearly evident that in the entire period of study, out of 22 funds, 12 funds exhibited positive and significant stock selectivity and 8 funds exhibited negative and significant stock selectivity. Overall, it can be concluded that sector fund managers are able to exhibit selectivity skills to certain extent.

Table 3 presents the results for Treynor and Mazuy model for stock selectivity and market timing. Stock selectivity (micro forecasting) as well as Market timing (macro forecasting) results are reported in table 3. Market timing results are reported as number of positive and negative timing coefficient (β_2) and a count of the number of significant positive and negative beta2's.

Table 3 Model II: Treynor and Mazuy model $r_{it} - r_{ft} = \alpha_i + \beta_{1i}(r_{mt} - r_{ft}) + \beta_{2i}(r_{mt} - r_{ft})^2 + e_{it}$

	2012-2013		2013-2014		2014-2015		2012-2015	
Average R-Square	0.603		0.5975		0.5357		0.6248	
Average Alpha	-0.0287		-0.0238		-0.0246		-0.0127	
	# Positive Alphas	# Negative Alphas	# Positive Alphas	# Negative Alphas	# Positive Alphas	# Negative Alphas	# Positive Alphas	# Negative Alphas
No. of Funds	7	15	6	16	13	9	15	7

Significant at 0.01	0	6	0	6	0	6	0	6
Significant at 0.05	0	1	0	1	0	0	2	0
Significant at 0.10	0	0	0	0	3	0	1	0
	# Positive Beta2's	# Negative Beta2's	# Positive Beta2's	# Negative Beta2's	# Positive Beta2's	# Negative Beta2's	# Positive Beta2's	# Negative Beta2's
No. of funds	4	18	0	18	7	15	9	13
Significant at 0.01	0	2	0	0	0	3	0	4
Significant at 0.05	0	1	0	0	0	1	0	1
Significant at 0.10	0	1	0	1	0	0	0	0

In the first two annual periods, majority of the funds exhibited negative stock selectivity. There is no single fund with statistically significant positive alpha in the first two annual periods. Although in the year 2014-2015, 13 out of 22 funds exhibited positive stock selectivity, only three funds are statistically significant. If looked at the performance of funds in the entire period of study, though 15 funds exhibited positive alphas, only 3 funds show statistical significance.

From table 3, it is clearly evident that majority of the funds have negative beta2 coefficient. There is no evidence of statistically significant positive market timing of the fund managers. In addition, to some extent there is evidence of significant negative market timing. In the entire period of study, 13 out of 22 funds exhibited negative beta2 coefficient, of which 4 funds are statistically significant at 1% confidence level and 1 fund is statistically significant at 5% confidence level.

The results conclude that mutual fund managers exhibit some positive but statistically insignificant selectivity skill, but there is no evidence of market timing skills in sector funds. In addition, there is evidence of significant negative market timing to some extent. Hence, the null hypothesis statement, 'Sector fund managers have no stock selection and market timing abilities' is not rejected but accepted.

CONCLUSIONS

In this paper, selectivity and timing performance of a specialized group of mutual funds called sector funds are analysed. The results are consistent with the findings of Treynor and Mazuy (1966), Henriksson (1984), Chang and Lewellen (1984) Romacho and Cortez (2006). Sector fund managers exhibit some positive but statistically insignificant selectivity skill, but there is no evidence of market timing skills in sector funds.

Despite their specialization, many sector fund managers exhibit negative timing ability. In spite of their focus on only one industry and not the entire market, the sector fund managers have difficulty timing the upward and downward movements of their respective industries.

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