Investment Management of Mutual Funds: Evidence of Timing and Selectivity from India during 1997-2003*

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Abstract

Mutual funds work on the basis of two maxims - maximization of returns and diversification of risk, the attainment of which requires healthy operational practices and efficient investment management. Now, systematic investment management involves a wide variety of activities among which selectivity and market timing abilities of fund managers play the pivotal role in the return generation process. This study is an attempt to evaluate the investment management of Indian mutual funds in terms of selectivity and timing abilities of fund managers for a sample of twelve schemes during April 1997- March 2003. The study has also examined other related issues such as: (a) selectivity and fund characteristics, (b) persistence of stock selection performance, (c) market timing and fund characteristics, (d) consistency of market timing and finally (e) market timing and selectivity. The results reveal that majority of the fund managers have superior selectivity skills based on Fama criterion. While fund managers of open-end schemes are better performers than closed-end schemes, if we go by investment objectives, fund managers of income and balanced schemes has outperformed growth and tax-planning schemes. Further, the study has found that public sponsored schemes are superior performers in terms of selectivity. However, fund managers of sample schemes failed to show consistent stock picking abilities. So far as timing abilities are concerned, the results reported in the study confirm the superior timing abilities of fund managers based on both TM and HM formulations. While timing seems to be easier for closed-end schemes, the study unveils that fund managers of income and balanced schemes have shown superior timing abilities. Further, public sponsored schemes are better performers than their private counterparts. But it is evinced that Indian fund managers are not consistent market timers. Finally, selectivity and timing seems to be positively correlated for Indian fund managers during the period under consideration.

Introduction

Mutual funds play a dynamic role in mobilizing savings by issuing units and channeling the funds in the capital market into productive investment. In this way they further the process of financial disintermediation and also provide depth to the market.

Actually, mutual funds work on the basis of two maxims - maximization of returns and diversification of risk, the attainment of which requires healthy operational practices and efficient investment management. Systematic investment management involves a variety of activities such as stock selection, asset allocation, management style and market timing. However, the performance of a portfolio manager can be measured in terms of stock selection ability (selectivity) and market timing ability, alternatively, known as micro and macro forecasting abilities respectively.

In a country like India, as elsewhere, mutual funds may provide safer avenue for investment by household sectors in general and small investors in particular. Common investors generally do not possess the financial strength required to bear the risks of investing in capital market, that is, in corporate stocks directly. Owing to their low-risk bearing capacity they always search for sources where they can put their savings with little risk and return at least moderately higher than the (lowest) risk-free return (offered by banks on demand and time deposits).

Notwithstanding the above significance, mutual funds industry sometimes becomes a cause of concern to the SEBI and more so to the common investors. Particularly, the crash of the US-64 of UTI in July 2001 has shown that even the government's mutual fund scheme could slip into troubled water. This US-64 fiasco highlighted the gravity of prevailing situation in the industry. Investors confidence greatly dampened, their expectations shattered owing to poor investor services, unkept promises, fall in NAV and market prices of mutual funds units. It was in this backdrop that present study made an attempt to analyse the investment management of mutual funds in India while evaluating their performance. In this study performance of an investment manager is measured in terms of both timing and selectivity skills.

 Stock selection is the nucleus in the investment management process. Investment performance of stock selection owes to the successful micro forecasting of the company specific events. This refers to the managers' predictive ability, to wit, their ability to

identify under or overvalued securities. Now, it may be possible that fund managers, besides, applying stock selection techniques might achieve superior returns by timing the market correctly. Market timing refers to the timely rebalancing of the portfolio, switching of funds among various asset classes and taking advantage of market movements. Therefore, if the fund manager is efficient, he/she would be able to identify the signals of change in the market (bull/bear phases) as well as business cycle phases and then would take timely decisions to buy, sell or switch assets in the portfolio. Put it succinctly, fund managers must have the capability to forecast the market and act accordingly. Hence, the superior performances of the portfolio are due to either timing or selection ability or some combination of the two.

History

The mutual fund industry in India started its journey in 1963 with the formation of the Unit Trust of India(UTI).The primary objective at that time was to attract the small investors so as to channelise their savings into productive uses, which in turn, would speed up the process of industrial growth. The history of mutual funds in India can be broadly divided into four phases.

Phase I (1964-87):

Since its inception UTI enjoyed complete monopoly till June 1987. UTI was actually set up by RBI and functioned as a small saving division under the control of RBI till 1978. In 1978, UTI was delinked from RBI and the entire control of UTI was transferred to Industrial Development Bank of India (IDBI). The first and the most popular product launched by UTI was Unit Scheme 64(1964).By the end of June 1987 investible funds of UTI totaled over Rs. 4,563 Crores.

Phase II (1987-93):

This phase was marked by the entry of non-UTI public sector mutual funds. SBI mutual fund was the first non-UTI mutual fund established in June 1987 followed by Canbank Mutual Fund (1987) and Punjab National Bank Mutual Fund (1989). At the end of 1993, the Indian mutual funds industry had its assets of Rs. 47,004 crores with 80% market share held by UTI.

Phase III (1993-03):

The approval given to private and foreign funds to enter the Indian mutual fund industry in 1993 provided a wide range of choice to investors and posed stiff competition in the industry. Kothari Pioneer was registered as the first private sector mutual fund in 1993.This phase is also marked by stricter fund regulations introduced by SEBI in 1996. At the end of January 2003, there were 33 mutual funds with total assets of 1, 21,805 crores with UTI's share declined to 33%.

Phase IV (2003 onwards): In February 2003, the UTI Act was repealed and UTI was bifurcated into two separate entities: 1. the specified undertaking and 2. UTI mutual fund. At present, UTI operates under the name of UTI Mutual Fund and still is the largest player in the industry. Besides, this phase is also marked by several mergers and acquisitions as well as the entry of international players (Fidelity, Franklin Templeton etc.) in the Indian mutual fund industry.

Related Literature

The performance evaluation of mutual funds is of paramount importance to both investors as well as fund managers. In finance, several performance measures have been suggested to measure the performance of managed portfolios. However, a good number of studies have used risk-adjusted[1] measure of performance while operating in a CAPM[2] framework. The available literature on the performance of mutual funds basically deals with two important issues, viz. selectivity and market timing. The earliest literature on market timing owes to Treynor and Mazuy(1966).They argued that if the fund manager successfully forecasts the market upturn and changes the fund beta[3] accordingly then fund beta would be higher(high equity-debt ratio)than normal values and the fund is performing better than otherwise. Similarly, when the market declines, the fund has a lower beta value and it declines less than it would otherwise. In these situations, plots of fund returns against market returns would lie above the straight line and give a curvature to the scatter of points. So, their suggestion was adding a quadratic term to the excess return version of the linear market model. By taking 57 funds for the period 1953 to 1962 they found the evidence of market timing for only one fund. Their conclusion was that investment managers on the whole, do not have the market timing ability to outguess the market.

Jensen (1968) developed an absolute[4] measure of performance to evaluate the investment manager's predictive ability- that is his ability to earn higher returns through successful prediction of security prices. In this model, excess fund returns are regressed upon the excess market returns and the intercept of this regression, known as alpha, shows the differential return earned by the scheme because of investment managers' predictive abilities. By evaluating the performance of 115 open-end mutual funds over the period 1945-1964 Jensen found that on average investment managers were not able to predict security prices efficiently to outperform the market.

Fama(1972) suggested that overall performance of a managed portfolio could be broken down into several components. He argued that while observed return of a fund could be due to the ability of fund managers to pick up best securities at a given level of risk (selectivity), it could also arise due to prediction of general market price movements i.e. their timing ability. Selectivity can be further decomposed into net selectivity and diversification.

Henriksson(1984) examined the performance of the investment managers by using both the parametric and non-parametric tests in terms of Henriksson and Merton(1981) formulation.The study evaluated the market timing ability of 115 open-ended US mutual funds and found that only three funds had significantly positive estimates of market timing in terms of parametric tests and all three had negative overall estimates of performance in terms of non-parametric tests.

Jagannathan and Korajczyk(1986) showed the possibility of creating an artificial market timing by investing in option-like securities. Using Henriksson and Merton technique they concluded that if the funds being analyzed tend to hold assets that are less option-like (high-quality) than the average asset in the market proxy, then one would expect to see negative timing and positive selectivity measures. Conversely, funds holding assts that are more option-like than the assets in the market proxy would show positive timing and negative selectivity.

Grinblatt and Titman (1989) examined whether there were fund managers who had superior stock selection abilities to generate abnormal returns. Applying Jensen's measure they concluded that superior performance might exist among growth funds and also among funds with the smallest net asset values.

Brinson (1995) articulated that fund managers should develop models delineating responsibility and their contributions to fund performance would be measured by investment policy, market timing and security selection. The study also developed a framework to decompose portfolio returns that had since been successfully used in practice by investment managers to measure portfolio performance.

In a study, Thiripalraju and Patil(1997) evaluated 21 tax saving schemes of Indian mutual funds in terms of Fama's investment performance measures. Their study concluded that Indian fund managers lack both the micro and macro forecasting abilities.

Rao and Venkateswaralu(1998) examined market timing abilities of fund managers of nine closed-ended schemes of UTI. Using Treynor-Mazuy and Henriksson-Merton techniques they found that fund managers of UTI were unable to time the market.

Sethu (2001) attempted to evaluate the performance of 18 open-ended growth schemes in India for the period April 1995 to July 1999. Using three alternative indices for equity markets, viz., NSE Nifty, Sensex and S&P CNX 500, the study concluded that fund portfolios are not sufficiently diversified and portfolios do not show any market timing.

Gupta and Sehgal (2001) analysed the market timing abilities of Indian mutual fund managers using 80 mutual fund schemes for a period of four years. Their results showed that on the whole Indian fund managers are superior market timers.

In an illuminating paper Chander(2005) made an attempt to evaluate the stock selection abilities of Indian fund managers across the fund characteristics as well as the persistence of such performance. On the whole, the results showed significant statistical evidence for positive selectivity skills of fund managers. The study also reported consistency of performance across the measurement criteria.

Methodology

The objective of the study is to assess the investment management of mutual funds in evaluating their performance during the period April 1, 1997 to March 31, 2003. This period is chosen since during this period Indian capital market has witnessed major upheavals as a result of (i) changes in economic policies by the government at the centre in order to expedite the reforms programme (e.g., buy back of shares, clearance of IRA bill, Finance bill 99, introduction of rolling settlement, etc.) as well as (ii) occurrence of important events on the domestic and international front (e.g., East Asian crisis, Kargil

war, bifurcation of UTI etc.) It is often argued that funds management performance is determined by stock selection, portfolio construction, asset allocation and market timing. In this study attempts are made to evaluate the investment management of mutual funds in terms stock selection (selectivity) and market timing abilities of fund managers. Now, as the superior performance of a managed portfolio is due to either selectivity or timing ability or some combination of the two, the empirical part of the study proceeds as follows:

(1) At the outset, this study tries to evaluate the selectivity skills of fund managers in India during April 1997 to March 2003. Besides, it examines other related issues such as relation between (a) selectivity and fund characteristics, and (b) persistence of stock selection performance.

(2) Secondly, it examines the market timing abilities of fund managers during the period under consideration. The study also examines relation between (a) market timing and fund characteristics and (b) consistency of market timing.

(3) Thirdly, the study examines whether there is any correlation between market timing and selectivity skills of Indian fund managers.

The present study uses a sample of twelve mutual fund schemes both from the public as well as from private sector for performance evaluation. Out of twelve schemes nine belong to private sector while three belong to the public sector, so far as ownership pattern of the schemes are considered. According to the investment objective[5], the sample comprises of two growth schemes, four income schemes, five balanced schemes and there is only one tax-planning scheme. From the standpoint of function[6] or operation the sample contains eleven open-ended schemes and only one closed-ended scheme. So, the sample is highly biased in favour of open-ended schemes.

The details of the sample schemes are given in Table I.

Table I

Sample Mutual Fund Schemes

Sl. No.	Name of the Scheme	Mutual Fund Company	Closed/Open	Aim	No. of Observations	Period
1.	Birla	Birla	Open	B	50	30/11/99 to

	Balanced					31/03/03
2.	Cancigo Income Plan	Canbank	Open	I	35	29/05/97 to 31/03/03
3.	Escorts Income Bond	Escorts MF	Closed	I	63	30/04/97 to 31/03/03
4.	JM Balanced	JM	Open	B	57	30/04/97 to 31/03/03
5.	JM Equity	JM	Open	G	71	26/02/99 to 31/03/03
6.	Kotak MNC	Kotak	Open	G	69	31/05/00 to 31/03/03
7.	Reliance Income Fund	Reliance	Open	I	70	29/01/98 to 31/03/03
8.	Tata Balanced Fund	Tata	Open	B	72	30/04/97 to 31/03/03
9.	Tata Tax Saving Fund	Tata	Open	TP	72	30/04/97 to 31/03/03
10.	Templeton India Income Fund	Franklin Templeton	Open	I	72	30/04/97 to 31/03/03
11.	UTI Balanced Fund	UTI	Open	B	41	30/04/97 to 31/03/03
12.	UTI Bond Fund	UTI	Open	I	72	31/0798 to 31/03/03

G-Growth, I- Income, B- Balanced, TP- Tax planning

The sample schemes are chosen keeping in mind the fact reasonable information is available for the schemes. Further, the study period under consideration (1997-2003) is splitted into two sub periods: sub period I (April 1997 – March 2000), the slump phase, since during this phase the share of capital market instruments in household savings fell

remarkably, and subperiod II (April 2000- March 2003) during which market recovered substantially. This subdivision is made in order to check the consistency of fund manager's selectivity and timing skills. Nevertheless, the period considered here is long enough to capture micro and macro forecasting skills of fund managers if any, according to the vicissitudes of the market.

Data

This study is mainly based on secondary data. The secondary data have been collected for a sample of twelve mutual funds schemes. The data used in the study comprise daily Net asset Values (NAV) both for closed-ended and open-ended schemes for the period April 1, 1997 to March 31, 2003. These NAV data are mainly collected from AMFI website, ICRA supported website and Delhi edition of the Economic Times preserved in National Library, Kolkata.

In order to evaluate the investment performance of sample schemes, they must be compared with the selected benchmark portfolio. As the majority (67%) of the sample schemes has greater equity exposure, this study uses BSE Sensex as a benchmark portfolio and also as an appropriate market proxy for investment performance comparison and evaluation. These Sensex data has been collected from the leading financial dailies preserved in National Library, Kolkata.

Generally, treasury bills of different durations have been used as a surrogate for risk-free asset in studies of developed as well as emerging economies. In this study the monthly yield on 91-day treasury bills of GOI is used as a market proxy for risk-free return. These data are collected from RBI Annual Reports and Reports on Currency and Finance of RBI.

Estimation

At the outset, from the daily NAV data average monthly NAV values is determined, and then the returns for each of the sample schemes have been computed by using the following equation:

$$R_t = (NAV_t - NAV_{t-1}) / NAV_{t-1} \ \text{.......} \ (1)$$

Similarly, the returns for the market index (Sensex) have been computed. The return on the risk-free asset, i.e., the yields on 91-day T-bills is already in the requisite form.

The total risk of investing in a portfolio is measured by the standard deviation of the monthly returns of the portfolio and the systematic risk (Beta) of the portfolio is measured by the following CAPM version of the market model:

$$R_{pt} = \alpha + \beta R_{mt} + \varepsilon_{pt}$$

where,

R_{pt} = return on fund 'p' for period t

R_{mt} = return on the market index for period t

ε_{pt} = random error term

β = measure of systematic risk

α = a constant term

Higher value of β indicates high sensitivity of fund returns against market returns, the lower value indicates a low sensitivity. The investment management of mutual fund schemes has been assessed by using the following measures of selectivity and market timing.

Selectivity

In this study selectivity skill of the fund managers are assessed in terms of Jensen (1968) and Fama (1972) criteria. Jensen's model helps to evaluate the selectivity skills of fund managers, i.e. their ability to identify under-valued or over-valued securities. The superior returns earned out of the ability of stock selection can be known from Jensen's alpha. Jensen's measure may be given as follows:

$$R_{pt}-R_{ft} = \alpha + \beta (R_{mt}-R_{ft}) + \varepsilon_{pt} \ldots\ldots\ldots (2)$$

where,

R_{pt} = return of the fund 'p' for period 't'

R_{ft} = risk-free return for period 't'

R_{mt} = return on the benchmark (market) portfolio for period 't'

ε_{pt} = random error term

α,β are the parameters of the model and are estimated by OLS technique. A positive and significant value of α will indicate superior selectivity skills of the fund managers.

Fama(1972) suggested somewhat finer breakdown of investment performance. Portfolio returns as Fama said, constitutes four components:

(i)   Risk free return – R_f

(ii)   Compensation for systematic risk - $\beta (R_m - R_f)$

(iii) Compensation for inadequate diversification - $(R_m - R_f)(\sigma_p / \sigma_m - \beta)$

(iv)   Net selectivity - $(R_p - R_f) - (\sigma_p / \sigma_m)(R_m - R_f)$

A positive net selectivity will indicate superior performance. However, if it is negative then it would mean that fund managers have taken diversifiable risk that has not been compensated by extra return.

Market timing

The methods used for measuring market timing ability actually depends on the beta coefficient as the expected return on a managed portfolio is a linear function of its beta. Now, beta actually measures sensitivity of a security's returns to changes in the return on the market. Given this importance of beta, two popular and time-tested methods to know the market timing abilities have emerged: one from Treynor-Mazuy(1966) and another from Henriksson-Merton (1981).

Treynor and Mazuy(1966) have suggested that to examine the market timing abilities of fund managers a quadratic or squared term should be added to the excess return version of the market model. Thus the model is specified as the following:

$$R_{pt} - R_{ft} = \alpha + \beta (R_{mt} - R_{ft}) + \gamma (R_{mt} - R_{ft})^2 + \varepsilon_{pt} \ldots\ldots\ldots\ldots (3)$$

where,

R_{pt} = return on the fund for period t

R_{mt} = return on the market index for period t

R_{ft} = risk-free return

ε_{pt} = random error term

α, β, γ are the parameters of the model and can be estimated by the standard OLS technique while all other symbols have their usual meanings. According to Treynor and Mazuy γ is the measure of market timing. A significantly positive value of γ denotes the presence of market timing ability.

Henriksson and Merton(1981) have suggested that the fund beta would take only two values, large value if the market is expected to do well and a small value otherwise. This means that the fund managers will want to have a high-beta fund when they expect the market to have a higher return than the risk-free rate because such a fund will have a

higher expected return than a low-beta fund. On the contrary, the fund managers will want to have a low-beta fund when they expect the market to have a lower return than a high-beta fund.

Thus, the market timer will want to:

(a) hold a high- beta fund when $R_m > R_f$, i.e., in the up-market. ….. (4)

(b) hold a low- beta fund when $R_m < R_f$, i.e., in the down-market…..(5)

This conjecture can be estimated by the following equation using a dummy variable:

$$R_{pt} - R_{ft} = \alpha + \beta (R_{mt} - R_{ft}) + \gamma [D (R_{mt} - R_{ft})^2 + \varepsilon_{pt} \ldots\ldots (6)$$

$$\text{where, } D = 0 \text{ if } R_m > R_f$$

$$= -1 \text{ othrwise}$$

According to the model specified in (6) the regression results will give us two β values. If the fund managers estimate the market boom correctly and adjust the securities accordingly then profit would rise. Conversely, if the fund managers estimate the market decline correctly and adjust the securities accordingly the losses would be reduced. The beta of the portfolio in a bear or down-market is $(\beta - \gamma)$ and for the bull or up market, it is β. Therefore, γ, the beta differentials in the above method is used as a measure of market timing. A significantly positive γ implies superior market timing.

Market timing and Selectivity

The study checks whether there exists any relation between timing abilities and selectivity skills of a fund manager. Further correlation coefficient between measure of selectivity and measure of timing has been estimated for the sample schemes. Correlation coefficient shows the strength of relationship between the two measures.

Empirical Results

1. Evidence of Selectivity

The present study examines the selectivity skills of fund managers in terms of models developed by Jensen (1968) and Fama (1972).The results of overall stock selection abilities of fund managers measured according to Jensen and Fama criteria are given in Table I. The sample mutual fund schemes are assigned performance ranks according to both the criteria.

Table I – Selectivity Performance of Fund Managers

Sl. No.	Name of the Scheme	Fama Net Selectivity	Rank	Jensen Alpha	Rank
1	JM Equity	-0.008982457	12	-0.006773	8
2	Kotak MNC	-0.001103723	10	-0.038713	12
3	Reliance Income Fund	0.013073346	3	-0.005597	7
4	UTI Bond Fund	0.01323483	2	-0.004125	5
5	Templeton India Income Fund	0.01749236	1	-0.003354	4
6	Escorts Income Bond	0.001411109	9	-0.020702	11
7	Cancigo Income Plan	0.006263668	7	-0.014418	10
8	JM Balanced	0.010025767	5	-0.002096	3
9	Tata Balanced Fund	0.007382768	6	-0.001838	2
10	UTI Balanced Fund	0.011790523	4	-0.004841	6
11	Birla Balanced	0.002737301	8	-0.001400	1
12	Tata Tax Saving Fund	-0.007462929	11	-0.013714	9

It is evinced from Table I that majority (75%) of investment managers possess superior selectivity skills according to Fama criterion. Among the twelve schemes under consideration, top three performers are Templeton India Income Fund, UTI Bond Fund and Reliance Income Fund. However, fund managers of JM Equity Fund, Tata Tax Saving Fund and Kotak MNC Fund are at the bottom in respect of securities selection. But on the whole, the results reported in Table I revealed positive selectivity skills of fund managers.

In terms of Jensen criterion, the results given in Table I show just opposite results obtained applying Fama criterion. The results show that none of the alpha values are positive. This means fund managers of the sample mutual fund schemes failed to show superior stock selection abilities during the period covered by the study. However, for statistical exposition it can be inferred that fund managers of Birla Balanced Fund, Tata Balanced Fund and JM Balanced Growth have performed better than their counterparts. It is argued that stock selection performance of fund managers are expected to give almost identical results irrespective of the measurement criterion. Now, since each measurement criterion is distinct, at least theoretically from the other, performance variability across the measurement criteria is not a trivial one. The present study has made an attempt to check the performance variability in terms of Spearman's rank correlation coefficients based on the performance rankings obtained for each measurement criterion.

It is found that rank correlation coefficient between Fama and Jensen measure is 0.496. This means the association between two measures is not strong. As a matter of fact, the moot point in portfolio management is to achieve an appropriate balance between selectivity and diversification. For a well diversified portfolio these two measures

(Jensen and Fama) would yield the almost same inferences. In the present study, however, the difference between these two measures indicates a decline in performance resulting from the lack of diversification of the portfolio (Jayadev, 1998).

1.1 Selectivity and Fund Characteristics

Table II – Selectivity Performance according to Fund nature

Nature	Total Funds	Positive Alpha	Positive Net Selectivity
Open –end	11	0	09
Closed-end	01	0	01

It can be seen from Table II that 75% of sample mutual fund schemes have shown positive net selectivity out of a sample of twelve schemes. This in turn, helps us to conclude that majority of the fund managers were able to show superior stock selection ability. However, if we consider individual category, then the results show that out of eleven open-ended schemes while nine (81%) show positive net selectivity, there is only one closed –ended scheme which has shown positive net selectivity.

Nevertheless, the results given in Table II show that none of the sample schemes, open-ended or closed-ended, have achieved positive alpha values. This is no doubt, a robust outcome.

Table III- Basic Descriptive Statistics of Net Selectivity

(based on Fama Criterion)

	Open-end	Closed-end
Mean	0.005859	0.001411
Median	0.007383	0.001411
S.D.	0.008676	0

Table III shows the mean, median and standard deviation of the net selectivity values of open-ended and closed-ended mutual fund schemes during the study period. The data given in Table III reveals that mean and median values for the open-ended schemes are greater than their closed-end counterpart which in turn, leads to the conclusion that average selectivity performance of the managers of open-end schemes are better than the managers of the closed-end mutual fund schemes. But the positive value of standard deviation for the open-ended schemes indicates that open-ended schemes are more vulnerable to posit positive net selectivity.

1.2 Objective-wise Performance Analysis

Table IV – Selectivity Performance according to Investment Objective

(based on Fama Criterion)

Investment Objective	Total Funds	Positive Net Selectivity
Growth	2	0
Income	5	5
Balanced	4	4
Tax-planning	1	0

In this section, selectivity performance of the fund managers are analysed according to the four investment objectives, viz. growth, income, balanced and tax-planning or tax-saving. From table IV it can be inferred that managers of income and balanced schemes have shown superior stock picking ability, while their counterparts in growth schemes as well as tax-planning schemes have recorded negative stock selection performance.

Table V – Basic Descriptive Statistics of Net Selectivity

(based on Fama Criterion)

	Growth	Income	Balanced	Tax-planning
Mean	-0.00504	0.010295	0.007984	-0.00746
Median	-0.00504	0.013073	0.008704	-0.00746
S.D.	0.005571	0.00639	0.003939	0

Basic descriptive statistics of selectivity performance given in Table V unveils that mean and median values of net selectivity are positive for the income and balanced schemes. This actually confirms our earlier findings that fund managers of income and balanced schemes were able to pick up stocks having potential to generate better returns during 1997-03.On the contrary, negative mean and median values of the growth and tax-planning schemes point out the fact that fund managers of these schemes failed to select stocks with greater return potentiality. However, standard deviation values show that income schemes are more volatile than the balanced schemes in achieving positive net selectivity.

1.3 Sponsorship-wise Performance Analysis

It is contended that sponsorship is an important parameter of selectivity performance of fund managers. Accordingly, the existing study has analysed the selectivity performance of fund managers according to the ownership pattern or sponsorship. It is evident from Table VI that majority (67%) of private mutual fund schemes have recorded positive net selectivity.

Table VI – Selectivity Performance according to Sponsorship

(based on Fama Criterion)

Sponsorship	Total Funds	Positive Net Selectivity
Public	03	03
Private	09	06

But more notable finding is that all the public sponsored schemes have shown positive selectivity skills, to wit, they have exhibited superior stock selection ability.

Table VII – Basic Descriptive Statistics of Net Selectivity

(based on Fama Criterion)

	Public	Private
Mean	0.01043	0.003842
Median	0.011791	0.002737
S.D.	0.003679	0.008987

Table VII depicts mean, median and standard deviation values of the sample mutual fund schemes according to their ownership pattern. The public sponsored schemes have recorded higher mean and median values than private schemes which in turn lead to the conclusion that fund managers of public sponsored schemes on average have performed better than their private counterparts. So far as, values of standard deviation are concerned, here also public schemes have shown less vulnerability.

Moreover, it is gratifying to note that, albeit, majority of the public funded schemes of the sample belong to UTI, they have performed well during the study period despite UTI fiasco of 2001.

1.4 Persistence of Selectivity

In portfolio performance evaluation, performance persistence or consistency in performance of the fund managers is an important aspect to be considered. An investment manager who comes out successful today whether he/she will be able to repeat the same performance in future is a matter of concern to different stakeholders. Hence, it is imperative to analyse the consistency of stock selection performance of fund managers. The results of stock selection performance of fund managers are given in Table VIII.

Table VIII - Stock Selection Performance Persistence of Fund Managers

Sl. No.	Name of the Scheme	Sub period I (1997-2000)	Sub period II (2000-2003)
1	JM Equity	0.00082073	0.018073936
2	Kotak MNC	-------	-0.001103723
3	Reliance Income Fund	0.177236758	-0.052078159
4	UTI Bond Fund	-0.009960835	-0.053828388
5	Templeton India Income Fund	0.236852165	-0.051545402
6	Escorts Income Bond	0.041425623	-0.0758723221
7	Cancigo Income Plan	0.06512583	-0.040123491
8	JM Balanced	0.009444756	0.020097316
9	Tata Balanced Fund	0.012160591	-0.00045102
10	UTI Balanced Fund	0.00967564	-0.02565033
11	Birla Balanced	0.038138617	-0.018130804
12	Tata Tax Saving Fund	0.298948224	0.258197631

The results reported in table VIII show that fund managers have failed to show consistent stock picking abilities. Of the twelve schemes under consideration, only three schemes have shown positive net selectivity in both the periods. These conclusions are in tune with the analysis of Chander (2005) whose study also confirms the same result.

2. Evidence of Market timing

This part of the empirical section deals with market timing abilities of fund managers in terms of both Treynor -Mazuy (TM) and Henriksson-Merton models (HM).

The results of market timing abilities of fund managers in terms of TM and HM formulations are given in Table IX.

Table IX- Results of Treynor-Mazuy and Henriksson-Merton Models

Sl. No.	Name of the Scheme	γ_{TM}	t γ_{TM}	γ_{HM}	t γ_{HM}
1	JM Equity	-0.067091	-0.475476	-0.107627	-0.924673
2	Kotak MNC	0.445005	4.241001*	0.330044	2.679538*
3	Reliance Income Fund	0.905576	27.81800*	0.725660	9.132958*
4	UTI Bond Fund	0.907380	26.04724*	0.657437	7.008069*
5	Templeton India Income Fund	0.901661	28.91507*	0.686118	8.507062*
6	Escorts Income Bond	1.050192	5.966264*	0.749501	3.786219*
7	Cancigo Income Plan	0.936703	16.81321*	0.706205	7.510443*
8	JM Balanced	0.525596	4.577447*	0.554542	4.784356*
9	Tata Balanced Fund	0.398959	3.933010*	0.408654	4.023639*
10	UTI Balanced Fund	0.734701	8.975364*	0.613637	6.303908*
11	Birla Balanced	0.301574	2.838694*	0.295845	2.804213*
12	Tata Tax Saving Fund	0.010643	0.024112	0.441163	1.491997

* Significant at 5% level

A closer look at table IX suggests that of the twelve schemes portfolio managers of ten schemes (83%) are successful market timers in terms of TM formulation. This is because for these ten schemes γ coefficients are positive and their corresponding t-ratios are

significant. Among these ten schemes the top three performers are Escorts Income Bond, Cancigo Income Plan and UTI Bond Fund. However, there is a tax-planning scheme for which γ coefficient is positive but t-ratio is insignificant at 5% level. Moreover, there is one growth scheme (JM Equity) for which there is neither positive nor significant γ values are available. Nevertheless, on the whole, the results of market timing based on TM formulation indicate that majority of the fund managers were able to time the market correctly during the period under consideration.

The regression results based on HM formulation also supports the findings based on TM formulation. In terms of HM model it is found that majority of the sample schemes (83%) have shown successful market timing abilities. Among these ten schemes, the top three performers are Reliance Income Fund, Templeton India Income Fund and Cancigo Income Plan. Now, just as in case of TM formulation, here also fund managers of JM Equity and Tata Tax Saving Fund are found as poor market timers.

2.1 Market timing and Fund Characteristics

It is evident from table X that 75% of sample schemes have shown superior market timing abilities according to both the formulations. Taking cue from this it can be inferred that majority of the fund managers of the sample mutual fund schemes are good market timers. However, if we consider individual category then, it can be seen that while

Table X – Market timing and Nature of the Fund

Nature	Total Funds	Successful market timing (TM formulation)	Successful market timing (HM formulation)
Open-end funds	11	09	09
Closed-end funds	01	01	01

top performer according to TM formulation is a closed-end fund , the top performer according to HM formulation is an open-ended one.

Table XI – Basic Descriptive Statistics of Market timing

	Open-end	Closed-end
Mean	0.545519	1.050192
Median	0.525596	1.050192
S.D.	0.364569	0

Table XI shows that mean and median values of closed-end schemes are greater than their open-end counterparts. Hence, it can be inferred that market timing ability of fund managers of closed-end scheme is better than the fund managers of open-end schemes. Further, a positive S.D. value indicates greater volatility among open-end schemes to successfully time the market.

2.2 Objective-wise Performance Analysis

This section of the study mainly focuses on the objective wise performance analysis of fund managers considering timing as the parameter. It is found from table XII that managers of income and balanced schemes possess superior market timing abilities for both TM and HM formulations. While 50% of the growth schemes under consideration

Table XII – Market timing and Investment Objectives

Investment Objective	Total Funds	Successful market timing (TM formulation)	Successful market timing (HM formulation)
Growth	02	01	01
Income	05	05	05
Balanced	04	04	04
Tax-Planning	01	0	0

Have shown superior market timing ability, the performance of tax- planning scheme is the worst.

Table XIII – Basic Descriptive Statistics of Market timing

	Growth	Income	Balanced	Tax-Planning
Mean	0.188957	0.940302	0.490208	0.010643
Median	0.188957	0.90738	0.462278	0.010643
S.D.	0.362107	0.062991	0.187028	0

The data given in table XIII depicts that mean and median values of income and balanced schemes are greater than growth schemes as well as tax-planning schemes. This actually

corroborates with our earlier findings that fund mangers of income and balanced schemes have shown superior market timing skills during 1997-03. But S.D. values show that growth schemes are most volatile in achieving superior market timing, followed by balanced and income schemes.

2.3 Sponsorship -wise Performance Analysis

This study has tried to examine whether sponsorship has an important bearing on market timing abilities of fund managers. It is evinced from table XIV that all the fund managers of public sponsored mutual fund schemes are good market timers but the corresponding

Table XIV – Market timing and Sponsorship of the Fund

Sponsorship	Total Funds	Successful market timing (TM formulation)	Successful market timing (HM formulation)
Public	03	03	03
Private	09	07	07

performance of their private counterparts (77%) does not portray very rosy picture. This is true for both the formulations applied in the present study.

Table XV – Basic Descriptive Statistics of Market timing

	Public	Private
Mean	0.859596	0.496902
Median	0.90738	0.445005
S.D.	0.10915	0.39414

From table XV it can be concluded that on average public sponsored schemes have exhibited superior market timing skills than private sponsored schemes. Moreover, it is also found that Cancigo Income Plan, a public sector scheme is one of the top three performers based on TM formulation. Besides, the higher values of standard deviation for private schemes have shown more volatility in timing the market than public sector schemes.

Consistency in Market timing

It is often said that fund managers' performance consistency is an important component of portfolio performance evaluation. This is because, a fund manager who comes out successful once, whether will be able to maintain the same standard is of prime concern to the different stakeholders. Accordingly, here an attempt has been made to examine whether fund managers are consistent market timers.

Table XVI – Consistency in Market timing

Sl. No.	Name of the Scheme	Sub period I	Sub period II
1	JM Equity	-0.144055	-0.144055
2	Kotak MNC	-----	0.445005
3	Reliance Income Fund	0.958352	-0.325288
4	UTI Bond Fund	0.955652	-0.303649
5	Templeton India Income Fund	0.960312	-0.477277
6	Escorts Income Bond	1.009795	1.202662
7	Cancigo Income Plan	1.079505	-0.400065
8	JM Balanced	0.572349	0.379138
9	Tata Balanced Fund	0.490434	-0.216695
10	UTI Balanced Fund	0.868073	-1.212037
11	Birla Balanced	-0.035877	-0.331104
12	Tata Tax Saving Fund	0.283131	3.179849

The results based on TM formulation given in table XVI unveil the fact that on the whole, Indian fund managers are not consistent market timers during the study period. Of the twelve schemes under consideration only fund managers of three schemes are able to generate positive γ values in both the sub periods. However, among them none of the sample scheme is able to get significant γ values in both the sub periods. Although, the fund managers of Escorts Income Bond and JM Balanced schemes were able to get positive and significant γ values in sub period I they yet failed to continue the same in sub period II.

Market timing and Selectivity

It is well known that superior performance of a managed portfolio may be due to either superior timing or selectivity skills or some combination of the two. So, the present study has tried to examine whether there is any close association between these two attributes of superior performance. The study has found that Karl Pearson's product moment correlation coefficient between μ (measure of net selectivity) and γ (measure of market timing based on TM model) is 0.74. Thus, the relation between μ and γ, albeit, not so strong, but positive correlation coefficient asserts that fund managers with superior stock picking abilities are also good market timers and vice-versa. This actually, contradicts the findings of the earlier study (Sehgal and Gupta, 2001) which has found a negative correlation between α (measure of Jensen's selectivity) and γ (measure of timing based on TM model).

Conclusion

The present study has examined the selectivity and market timing abilities of fund managers for a sample of twelve mutual fund schemes during March 1997 to April 2003. The results pertaining to the selectivity skills of fund managers, as found in the study, has revealed that majority of the fund managers possess superior selectivity skills based on Fama criterion. However, in terms of Jensen criterion, they failed to show superior stock selection ability. This difference in performance between these two criteria may be due to lack of diversification of the sample portfolio. The study has also noted that while fund managers of open-end schemes are superior performers than their closed-end counterpart, if we go by investment objectives, fund managers of income and balanced schemes outperformed growth and tax-planning schemes. Moreover, so far as sponsorship factor is concerned, performances of public sponsored schemes are good. In this context it is to be noted that despite the UTI fiasco of 2001, fund managers of UTI schemes have performed well. But, the results reported in the study have shown that fund managers have failed to show consistent stock picking abilities.

So far as market timing abilities of fund managers are concerned, the study based on Treynor-Mazuy and Henriksson-Merton formulations has shown that majority of the fund managers are good market timers. However, market timing seems to be easier for closed-end schemes than the open-end schemes. Besides, the study has found that fund managers

of income and balanced schemes are successful market timers as per both Treynor-Mazuy and Henriksson-Merton formulations. Likewise, selectivity skills, for timing skills also public sector mutual fund schemes performed better than private sponsored schemes. However, the absence of consistency in market timing indicates that past performance does not guarantee the future returns on the same line.

Finally, fund managers with superior selectivity skills were also found as good market timers during the period under consideration.

End notes

1. In finance, a common practice in performance evaluation of managed portfolios is comparing ex-post average returns to some benchmark returns. But, as this approach is based on gross return, it suffers from one serious limitation in that it does not consider the risk of the concerned portfolio. Higher return earned by a fund manager could be due to a difference in the risk exposure. Hence, ex-post returns must be adjusted for risk or risk-adjusted measure of performance is needed.

2. The capital asset pricing model (CAPM) is a model for the pricing of risky assts. CAPM asserts that the expected return of a security or a portfolio is equal to the rate on a risk-free security plus a risk premium. The risk premium in the CAPM is the product of the market price of risk times the quantity of risk Now, if F stands for risk-free asset, M for market portfolio, P for individual portfolio and σ stands for measure of standard deviation then symbolically, we have,

$$E(R_P) = R_F + [\{E(R_M) - R_F\} / \sigma_M] * \sigma_P \quad \text{(capital market line)}$$

    for individual security, 'i', we have,

$$E(R_i) = R_F + [\{E(R_M) - R_F\} / \sigma_M] * \sigma_i \quad \text{(security market line)}$$
$$= RF + [E(R_M) - R_F] * \beta_i$$
$$\text{Where, } \beta i = \sigma_i / \sigma_M$$

3. Beta of a fund shows how the return of a fund changes as a result of changes in the market. Now, as the market risk of a fund reflects its sensitivity to market movements, beta is referred to as a measure of market risk or systematic risk or non-diversifiable risk.

4. If there are two portfolios A and B, then in absolute measure of performance, one not only would like to know whether A is better than B, but also whether A and B are good or bad relative to some absolute standard. Also see Jensen (1968).

5. According to investment objective, the mutual fund schemes can be broadly classified into the following:

(a) Growth Funds

The objective of a growth fund is to obtain long-term capital appreciation by

investing mostly in growth oriented equity shares of companies. The risk profile

of growth funds is generally medium to high.

(b) Income Funds

The main objective of income funds is to provide regular and periodical returns to the

investors. These funds invest most of their assets in fixed income securities, money

market instruments, cash and cash equivalents. The risk profile of such funds is generally

low to medium.

(c) Balanced Funds

The objective of a balanced fund is to provide periodic returns and capital appreciation

over a long period of time from a judicious mix of equity and debt instruments. The idea

here is to balance the portfolio by shifting from equity to fixed income securities and vice

versa. The risk profile of a balanced fund is medium to high.

(d) Tax Planning Funds

Tax planning schemes in India are popularly known as equity-linked savings schemes

(ELSS), because they are formulated under ELSS 92, a notification of the Ministry of

Finance. Under these schemes, investors can claim deduction from income tax.

6. On the basis of functional classification mutual funds are normally classified into two

categories: open-ended and closed-ended. An open-end fund is one that has units

available for sale and repurchase at all times. An investor can buy or redeem units from the fund itself at a price based on the net asset value (NAV) per unit.

Conversely, the unit capital of a closed-end fund is fixed, as it makes a one-time sale of a fixed number of units. Unlike open-end funds, closed-end funds do not allow investors to buy or redeem units directly from the funds, alternatively, closed-end funds get themselves listed on stock exchanges. In a stock exchange, investors can buy or sell units of a closed-end mutual fund from each other through a stock broker in the same fashion as buying or selling shares of a company.

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