Investigating Performance of Equity-based Mutual Fund Schemes in Indian Scenario

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Abstract

In the backdrop of liberalization and private participation in the Indian mutual fund industry, the challenge to survive and retain investor confidence has been a prime are of concern for fund managers. For small investors who do not have the time or the expertise to take direct investment decision in equities successfully, the alternative is to invest in mutual funds. The performance of the mutual fund products become more complex in context of accommodating both return and risk measurements while giving due importance to investment objectives. In this paper, an attempt has been made to study the performance of selected schemes of mutual funds based on risk-return relationship models and measures. A total of 23 schemes offered by six private sector mutual funds and three public sector mutual funds have been studied over the time period April 1996 to March 2009 (13 years). The analysis has been made on the basis of mean return, beta risk, coefficient of determination, Sharpe ratio, Treynor ratio and Jensen Alpha. The overall analysis finds Franklin Templeton and UTI being the best performers and Birla SunLife, HDFC and LIC mutual funds showing poor below-average performance when measured against the risk-return relationship models.

Key Words: Mutual Fund, Sharpe Ratio, Beta, Treynor Ratio, India, Risk, Investor

INTRODUCTION

Mutual Fund is one of the most preferred investment alternatives for the small investors as it offers an opportunity to invest in a diversified, professionally managed portfolio at a relatively low cost. A Mutual Fund is a trust that pools the savings of a number of investors who share a common financial goal. Over the past decade, mutual funds have increasingly become the investor's vehicle of choice for long-term investing. The Indian mutual fund industry has a total corpus of over Rs 700 billion collected from more than 20 million investors. The largest category of mutual funds are those of Unit Trust of India (UTI), followed by ones floated by nationalized banks (like State Bank of India) and the third largest category of mutual funds are the ones floated by the private sector and by foreign asset management companies (like Prudential ICICI and Birla SunLife). In recent times, the emerging trend in the mutual fund industry is the aggressive expansion of the foreign owned mutual fund companies and the decline of the companies floated by nationalized banks and smaller private sector players. Growth and developments of various mutual funds products in the Indian capital market has proved to be one of the most catalytic instruments in generating momentous investment growth in the capital market. In this context, close monitoring and evaluation of mutual funds has become essential. With emphasis on increase in domestic savings and improvement in deployment of investment through markets, the need and scope for mutual fund operation has increased tremendously. Thus the involvement of mutual funds in the transformation of Indian economy has made it urgent to

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view their services not only as a financial intermediary but also as a pacesetter as they are playing a significant role in spreading equity culture.

In this context, it becomes pertinent to study the performance of the Indian mutual fund industry. The relation between risk-return determines the performance of a mutual fund scheme. As risk is commensurate with return, therefore, providing maximum return on the investment made within the acceptable associated risk level helps in demarcating the better performers from the laggards.

OBJECTIVES OF THE STUDY

Indian mutual fund industry is featured by a plethora of mutual fund schemes consisting of varying portfolio mix, investment objectives and expertise of professional fund management. For the small investor, choosing a suitable one is therefore a complex decision. This present study has the objective of finding out the necessary facts regarding performance of selected growth-oriented and open-ended schemes, which can benefit the investors and fund managers.

The specific objectives of the study are:

i)   To measure the return earned by the sample mutual funds schemes and compare against the market portfolio returns to distinguish the performers from the laggards.
ii)   To find out those mutual fund schemes offering the advantages of diversification, along with adequate systematic risk compared to market beta risk.
iii)   To analyze the excess return per unit of risk evidenced by mutual fund schemes belonging to public sector and private sector, and to draw comparisons.

REVIEW OF LITERATURE

In this paper, an attempt has been made to study the performance of selected schemes of mutual funds based on risk-return relationship. For this purpose, apart from standard measure like mean return, *beta* and coefficient of determination, the time-tested models of mutual funds performance evaluation given by Sharpe, Treynor and Jensen have also been applied.

Early studies on mutual funds included the several works of Jensen (1968), Sharpe (1966) and Treynor (1965) who used the capital asset pricing model to compare risk-adjusted returns of funds with that of a benchmark market portfolio. The findings of Sharpe and Jensen demonstrated that mutual funds under perform market indexes and suggest that the returns were not sufficient to compensate investors for the diverse mutual fund charges. Friend, Brown, Herman and Vickers (1962) did a systematic study on mutual funds considering 152 funds with data period of 1953 to1958 and created an index of Standard and Poor's indexes of five securities, with the elements by their representation in the mutual fund sample. Friends and Vickers (1965) concluded that mutual funds on the whole have not performed superior to random portfolio. Friend, Marshal and Crocket (1970) in their study on mutual funds found that there is a negative correlation between fund performance and management expense measure**.**

John and Donald (1974) examined the relationship between the stated fund objectives and their risks-return attributes and concluded that on an average, the fund managers appeared to keep their portfolios within the stated risk. Ippolito (1989) concludes that mutual funds on

aggregate offer superior returns but they are offset by expenses and load charges. Barua, Raghunathan and Varma (1991) evaluated the performance of Master Share during the period 1987 to 1991 using Sharpe, Jensen and Treynor measures and concluded that the fund performed better that the market, but not so well as compared to the Capital Market Line. Sethu (1999) conducted a study examining 18 open-ended growth schemes during 1985-1999 and found that majority of the funds showed negative returns and no fund exhibited any ability to time the market. Gupta (2000) has examined the investment performance of Indian mutual funds using weekly NAV data and found that the schemes showed mixed performance during 1994-1999.

Mishra and Mahmud (2002) measured mutual fund performance using lower partial moment. In this paper, measures of evaluating portfolio performance based on lower partial moment are developed. Risk from the lower partial moment is measured by taking into account only those states in which return is below a pre-specified "target rate" like risk-free rate. Fernandes (2003) evaluated index fund implementation in India. In this paper, tracking error of index funds in India is measured. The consistency and level of tracking errors obtained by some well-run index fund suggests that it is possible to attain low levels of tracking error under Indian conditions. At the same time, there seems to be periods where certain index funds appear to depart from the discipline of indexation. Pendaraki, Zopounidis and Doumpous (2005) studied construction of mutual fund portfolios, developed a multi-criteria methodology and applied it to the Greek market of equity mutual funds. The methodology is based on the combination of discrete and continuous multi-criteria decision aid methods for mutual fund selection and composition. UTADIS multi-criteria decision aid method is employed in order to develop mutual fund's performance models. Goal programming model is employed to determine proportion of selected mutual funds in the final portfolios. Zakri (2005) matched a sample of socially responsible stock mutual funds to randomly selected conventional funds of similar net assets to investigate differences in characteristics of assets held, degree of portfolio diversification and variable effects of diversification on investment performance. The study found that socially responsible funds do not differ significantly from conventional funds in terms of any of these attributes. Moreover, the effect of diversification on investment performance is not different between the two groups. Both groups underperformed the Domini 400 Social Index and S & P 500 during the study period.

Although emerging markets such as India have attracted the attention of investors all over the world, they have remained devoid of much systematic research, especially in the area of mutual funds. In an effort to plug this gap, a study by Gupta and Aggarwal (2007) sought to check the performance of mutual funds operation in India. In this regard, quarterly returns performance of all the equity-diversified mutual funds during the period from January 2002 to December 2006 was tested. Analysis was carried out with the help of Capital Asset Pricing Model (CAPM) and Fama-French Model. Amidst contrasting findings from the application of the two models, the study calls for further research and insights into the interplay between the performance determinant factor portfolios and their effect on mutual fund returns.

Since the development of the Indian Capital Market and deregulations of the economy in 1992 it has came a long way with lots of ups and downs. There have been structural changes in both primary and secondary markets since a 1992 stock market scandal. Mutual funds are key contributors to the globalization of financial markets and one of the main sources of capital flows

to emerging economies. Despite their importance in emerging markets, little is known about their investment allocation and strategies. A study by Agarwal (2007) provides an overview of mutual fund activity in emerging markets. It describes their size and asset allocation. This paper analyzes the Indian Mutual Fund Industry pricing mechanism with empirical studies on its valuation. It also analyzes data at both the fund-manager and fund-investor levels.

Guha (2008) focused on return-based style analysis of equity mutual funds in India using quadratic optimization of an asset class factor model proposed by William Sharpe. The study found the "Style Benchmarks" of each of its sample of equity funds as optimum exposure to 11 passive asset class indexes. The study also analyzed the relative performance of the funds with respect to their style benchmarks. The results of the study showed that the funds have not been able to beat their style benchmarks on the average.

Anand and Murugaiah (2008) examined the components and sources of investment performance in order to attribute it to specific activities of Indian fund managers. They also attempted to identify a part of observed return which is due to the ability to pick up the best securities at given level of risk. For this purpose, Fama's methodology is adopted here. The study covers the period between April 1999 and March 2003 and evaluates the performance of mutual funds based on 113 selected schemes having exposure more than 90percent of corpus to equity stocks of 25 fund houses. The empirical results reported reveal the fact that the mutual funds were not able to compensate the investors for the additional risk that they have taken by investing in the mutual funds. The study concludes that the influence of market factor was more severe during negative performance of the funds while the impact selectivity skills of fund managers was more than the other factors on the fund performance in times of generating positive return by the funds. It can also be observed from the study that selectivity, expected market risk and market return factors have shown closer correlation with the fund return

In the Indian context, very few studies have compared the performance of the mutual fund schemes of private sector and public sector which this present work has attempted to study.

DATA AND SOURCES OF STUDY

The period of study is from1996-97 to 2008-09 (13 years). As on 31st March 2009, there were 19 private sector mutual fund companies and 12 public sector mutual fund companies operating in India. The study aimed at analyzing the performance of open-ended mutual funds schemes which are primarily equity based. But most of these came into existence from year 2001 onwards. This study analyzed mutual funds over longer period of time and thus those mutual funds having a minimum of 10 years of operation were selected. On this basis, 10 private sector mutual fund companies operating in private sector and 7 in public sector were short listed. Out of these, those which have growth-oriented open-ended schemes with continuous availability of NAV data were selected. Thus, six Private Sector Mutual Funds and three Public sector Mutual funds, when combined accounted for 23 Open-ended Growth-Oriented (equity-based) Mutual Fund Schemes (see Table1 in Appendix). An open-end fund is one that is available for subscription all through the year. These do not have a fixed maturity. Investors can conveniently buy and sell units at Net Asset Value (NAV) related prices. These schemes have been selected on the basis of regular data availability and launched during April 1996 until March 2009.

The study has used secondary data. This is because our study pertains to historical analysis of reported financial data. Daily Net Asset Values (NAV) data have been used for the Schemes and the daily closing prices for the benchmark market index (NSE Nifty) have also been used. The main sources of data have been Economic Times Investment Bureau and the official website of National Stock Exchange (www.nse-india.com).

RESEARCH METHODOLOGY

The various measures of return / risk and portfolio performance used in the present study are presented below:

Return.

The returns are computed on the basis of the NAV of the different schemes and returns in the market index are calculated on basis of NSE Nifty on the respective date.

The return from a Mutual fund scheme (R_{st}) at time t, given in Equation-1, is as follows:

$$R_{st} = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}}$$

$$(1)$$

where NAV_t and NAV_{t-1} are net assets values for time period t and $t-1$, respectively.

The Mean Return of the mutual fund scheme (R_{mt}) over a period of time, given in Equation-2, is as follows:

$$R_s = \sum_{t=1}^{n} \frac{R_{st}}{n}$$

$$(2)$$

where R_{st} is the return from a Mutual fund scheme at time t and n is the total number of time period studied.

The return on the market (representative by a stock index) at time t, given in Equation-3, is as follows:

$$R_{mt} = \frac{I_t - I_{t-1}}{I_{t-1}}$$

$$(3)$$

where I_t and I_{t-1} are value of a benchmark stock market index at period t and $t-1$, respectively. In our case, we have taken the NSE Nifty as the benchmark stock index representing the broad market.

The mean Return of the market portfolio (R_{mt}) over a period of time, given in Equation-4, is as follows:

$$R_m = \sum_{t=1}^{n} \frac{R_{mt}}{n}$$

$$(4)$$

where R_{mt} is the return from a stock market index (for our case, NSE Nifty) at time t and n is the total number of time periods studied.

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Risk-Free Rate of Return (R_f)

In this study, the weekly yields on 91-day Treasury bills have been used as risk free rate.

Risk

The risk is calculated on the basis of week-end NAV. The following measures of risks associated with mutual funds have been for the study:

i.   *Beta* (β): *i.e.*, fund's volatility as regard market index measuring the extent of co-movement of fund with that of the benchmark index.

ii. Standard Deviation (σ): *i.e.*, fund's volatility or variation from the average expected return over a certain period.

iii. Co-efficient of Determination ($R2$): *i.e.*, the extent to which the movement in the fund can be explained by corresponding benchmark index (here, NSE Nifty)

For further evaluating the performance of mutual funds, the risk-return relation models given by Sharpe (1966), Treynor (1965) and Jensen (1968) have been applied.

Sharpe Ratio.

The Sharpe measure provides the reward to volatility trade-off. It is the ratio of the fund portfolio's average excess return divided by the standard deviation of returns and is given by Equation-5.

$$\text{Sharpe measure} = \frac{AR_p - AR_f}{\sigma_p}$$

(5)

where AR_P = average return on mutual fund portfolio over the sample period, AR_f = average risk free return over the sample period, and σ_p = standard deviation of excess returns over the sample period.

By dividing the average return of the portfolio in excess of the risk-free return by the standard deviation of the portfolio, the Sharpe ratio (given by Equation-5) measures the risk premium earned per unit of risk exposure. In other words, this ratio measures the change in the portfolio's return with respect to a one unit change in the portfolio's risk. The higher this "Reward-to-Variability-Ratio" the more attractive is the evaluated portfolio because the investor receives more compensation for the same increase in risk.

Treynor Ratio.

The Treynor measure is similar to the Sharpe ratio, except that it defines reward (average excess return) as a ratio of the CAPM *beta* risk. Treynor's performance measure is defined as the risk premium earned per unit of risk taken. Thus, the Treynor ratio is computed as the average return of the portfolio in excess of the risk-free return divided by the portfolio's *beta*. Treynor's ratio is given by Equation-6 as shown below.

$$\text{Treynor measure} = \frac{AR_p - AR_f}{Beta_p}$$

(6)

where $Beta_p$ = beta risk value for the mutual fund portfolio .

Jensen *Alpha*.
    The Jensen alpha measure is the intercept form the Sharpe-Litner CAPM regression of portfolio excess returns on the market portfolio excess returns over the sample period. Jensen's *alpha* is the arithmetic difference of the portfolio's return from the return of a portfolio on the securities market line with the same *beta*. Jensen defines his measure of portfolio performance as the difference between the actual returns on a portfolio in any particular holding period and the expected returns on that portfolio conditional on the risk-free rate, its level of "systematic risk", and the actual returns on the market portfolio. Jensen's *Alpha* measure is given by the Equation-7 as shown below.

$$R_{Pt} - R_{ft} \; = \; R_{ft} + Beta_P \, (R_{Mt} - R_{ft}) + e$$

(7)

where R_{Pt} is the mutual fund portfolio return in time period t, R_{ft} is the risk free return in time period t, R_{Mt} is the return on the market portfolio in time period t and e is the error term or residual value.

EMPIRICAL FINDINGS AND DISCUSION

Return Earned by the Schemes
    The second and third column of Table 2 (see appendix) depicts the return earned by the mutual fund schemes as against the return on the stock market index for the period since inception date of the mutual fund scheme till March 2009. Using Equation 1 and Equation-3, return for the individual mutual find scheme and the market has been calculated using NAV and daily index value (like NSE Nifty), respectively.

    It is observed that all the 3 schemes of Franklin Templeton *i.e.*, Balanced, Blue chip and Prima Plus among the private sector, and the 3 schemes of UTI *i.e.*, Dynamic Equity, India Advantage Equity and Money Market among Public sector were the highest return-earning schemes as against corresponding market returns witnessing returns in range of 0.33 percent to 0.47 percent and 0 .17 percent to 0.29 percent respectively. Negative returns were observed in 3 schemes namely, Birla-Gilt-plus Liquid, LIC – Equity and LIC – Index Sensex which also failed to beat the market and thus were the worst performers. Out of the 23 schemes, 15 schemes (65 percent) had mean returns above their corresponding market returns which is a fairly good indicator of mutual fund performance. Only LIC schemes showed poor performance, while rest had average returns.

Systematic Risk (*Beta*)
    The fourth column of Table 2 presents the systematic risk of the 23 mutual fund schemes. *Beta* signifies the sensitivity of the return on the mutual fund scheme in comparison to the movement in the stock market index. *Beta* is a measure of systematic risk. *Beta* value for a mutual fund scheme is calculated as the percentage change in NAV of the scheme for one percent change in the stock market index (in our case, NSE Nifty). *Beta* values of higher that unity imply higher portfolio risk for the schemes than the market portfolio, and vice-versa. It is observed that out of the 23 selected mutual fund schemes, five schemes namely, Birla-Gilt-plus Liquid(1.0323), Birla-Asset Allocation Aggressive (1.0915), LIC-Equity(1.0143), LIC-Index Sensex (1.0215) and UTI-Money Market (1.0023) were found to be more risky (*beta* > 1.0) than

the market. Remaining 28 schemes had *beta* in the range of 0.800 to 0.995 except HDFC-Capital Builder (0.7314), HDFC-Gilt Short Term (0.7419) and Prudential ICICI-Gilt Treasury (0.79470) holding portfolio that were least risky among the lot. In private sector, schemes of DSP Merill and Franklin Templeton were those having adequately risky portfolios well below the market risk, while in the public sector the same phenomenon was observed in the 3 schemes of SBI.

Co-efficient of Determination (R^2)

The fifth column of Table 2 shows the values of co-efficient of determination for each of the 23 mutual fund schemes considered for the purpose of this study, when measured with the market index (NSE Nifty). Co-efficient of determination (R^2) is a statistic that will give some information about the goodness of fit of a model. In regression, the R^2 coefficient of determination is a statistical measure of how well the regression line approximates the real data points. An R^2 of 1.0 indicates that the regression line perfectly fits the data. Values of R^2 outside the range 0 to 1 can occur where it is used to measure the agreement between observed and modeled values. R^2 is given directly in terms of the explained variance: it compares the explained variance (variance of the model's predictions) with the total variance (of the data).

High value of R^2 shows higher diversification of the schemes portfolio that can easily contain the market variability. It is found from the fifth coloumn of Table 2 that the highest R^2 value was found in SBI-Magnum Index (0.786), followed by DSP Merill-Top 100 Equity(0.754) and Franklin Templeton-Prima Plus (0.729) which indicates that these schemes have reasonably exploited the diversification strategy for forming their portfolio. Lower values of R^2 as witnessed in schemes of Birla Sunlife (< 0.50) and Detusche (< 0.50) among private sector and LIC in public sector (< 0.35) suggest that these are inadequately diversified. The schemes of these 3 Mutual funds were also observed to have low mean returns with most of them failing to beat the market returns as shown in second and third columns of Table 2. Thus it may be safely concluded that inadequate diversification of mutual fund schemes correlated with below-market returns.

Simple mean returns or measures of systematic risk (*beta*) as discussed above do not highlight the combined effect of both portfolio risk and returns. Thus, for meaningful evaluation of mutual fund schemes, risk-return relationship has been analyzed by using different measures of performance as given by Sharpe, Tryenor and Jensen models.

Results of Sharpe Ratio Measure

The second and third columns of Table 3 (see appendix) depict the values of Sharpe ratio for the schemes and the market index. Sharpe ratio for the individual mutual find schemes and the market is calculated using Equation 5. Sharpe ratio is an excess returns earned over risk-free return (R_f) per unit of risk *i.e.*, per unit of standard deviation Positive values of schemes indicate better performance. Higher positive values of Sharpe ratio found in Detusche-Alpha Equity (1.840), Deutsche-Dynamic Equity Reg. (1.781), DSP Merrill-Top 100 Equity (1.771) among the private sector and SBI-Magnum Index (1.694), SBI-Magnum Balanced (1.923), SBI-Magnum Gilt (2.189), UTI-Dynamic Equity (1.552), UTI-India Advantage Equity (1.300) and UTI-Money Market (1.341) among public sector show existence of adequate returns as against the level of risk involved. Thus, the investors of these schemes have been rewarded well on their

invested money. These schemes were also those which had out-performed the market index which further strengthens our above conclusion.

11 schemes (48 percent) have failed to beat the market Sharpe ratio and also have shown negative values. The worst performers are the 3 schemes of DSP Merrill Lynch (negative values and/or less than market Sharpe ratio) and the 3 schemes of LIC namely, LIC-Equity (-0.733), LIC -Index Sensex (-0.841) and LIC-Short Term Plan (-0.433).

Although the 3 schemes of Franklin Templeton namely Balanced, Bluechip and PrimaPlus had negative Sharpe values, these schemes had higher values than their corresponding values of market index which goes to show the better performance of Franklin Templeton in a falling market.

On the whole, the performance has been a mixed one with SBI and UTI being the best in public sector and Detusche taking the glory in private sector.

Results of Treynor Ratio Measure
Treynor ratio measures the excess return earned over risk-free return per unit of systematic risk *i.e.*, *beta*. The fourth and fifth column of Table 3 presents the Treynor ratio values for the individual mutual fund schemes and the market portfolio, respectively. Treynor ratio *I* calculated using Equation 6. Here, the major observations mirror the similar finding as in Sharpe ratio. The only exception being the 2 schemes of Prudential ICICI namely, Balanced (-0.031) and Gilt Treasury (-0.027) out-performing the market portfolio while in Sharpe measure these were under-performers as against the market. This is primarily due to lower values of *beta* for these schemes as shown in fourth column of Table 2.

The highest Treynor ratio was found in SBI-Magnum Gilt (0.154), followed by SBI-Magnum Balanced (0.097), SBI-Magnum Index (0.084) and UTI-Dynamic Equity (0.073). The least values of Treynor ratio were witnessed in DSP Merill-Balanced (-0.093), followed by LIC-Index Sensex (-092) and LIC-Equity (-.084). 13 schemes (57 percent) showed positive values for Treynor ratio with 15 schemes (65 percent) out-performing the market portfolio values of Treynor ratio.

Results of Jensen Measure (*Alpha*)
The last column of Table 3 shows the Jensen's *alpha* values for the 23 selected open-ended growth-oriented Mutual funds schemes. The values of Jensen's *alpha* are calculated using Equation 7. It is the regression of excess return of the scheme (dependent variable) with excess return of the market (independent variable). Higher *alpha* values indicate better performance. Among the public sector, higher *alpha* was fond with UTI-Dynamic Equity (.021) followed by SBI-Magnum Balanced (.017) and UTI-Money Market (.014), while in private sector higher *alpha* measures was evidenced in the 3 schemes of DSP Merill Lynch namely, Top 100 Equity (.018), India TIGER Fund (.014) and Balanced (.009). Positive but *t* negligible (< 0.004) *alpha* values were recorded in Birla Sunlife namely Gilt-plus Liquid (.0001) and Asset Allocation Aggressive (.0003).

Only 7 schemes (30 percent) showed negative *alpha* values which indicates the failure on part of their funds managers to forecast security prices in time for taking better investment decisions. While LIC failed to have positive *alpha* value in public sector, negative values was shown in schemes of Detusche and HDFC in private sector.

CONCLUDING REMARKS

Table 4 (see appendix) presents the performance of the mutual funds classified as private sector and public sector in summarized form showing various parameters of performance. On the basis of returns, UTI mutual fund schemes and Franklin Templeton schemes have performed excellently in public and private sectors respectively. Much of this is due to these schemes having portfolio of equities with high risk (high *beta* risk). On the other hand, LIC, Birla SunLife and HDFC schemes have failed to satisfy their investors in terms of returns which was in spite of taking higher risk.

On the basis of Sharpe ratio, Deutsche, Franklin Templeton, Prudential ICICI (in private sector) and SBI and UTI (in public sector) mutual funds have out-performed the market portfolio with positive values. These funds (except Deutsche and Prudential ICICI) are also observed to have high R^2 values (Coefficient of determination) indicating better diversification of the fund portfolio. The remaining 4 mutual funds witnessed negative values and also had Sharpe ratio below that of the market. The conclusion remained more or less similar with regard to Treynor measure except HDFC mutual fund turning out to beat the market as out-performer with positive values. Jensen *alpha* measure had mixed responses in private sector funds, while in public sector only UTI and SBI managed relatively higher *alpha* values indicating better performance.

The overall analysis finds Franklin Templeton and UTI being the best performers, and Birla SunLife, HDFC and LIC mutual funds showing poor below-average performance when measured against the risk-return relationship models and measures. One of the lacunas of this study is that only open-ended growth-oriented schemes have been analyzed for the sample mutual funds. Future research may attempt to investigate and compare the close-ended schemes with open-ended and also the debt schemes with equity based growth oriented schemes.

The broad implications of the findings are that the equity based open-ended mutual find schemes of Franklin Templeton and UTI provide relatively superior returns to the investors. The small investors are well-advised to analyse the return and risk parameters of the mutual funds, over longer period of time, before their investment decisions. Although mutual finds are instruments of diversified investments, a prudent choice between the many available mutual fund schemes will go a long way in generating wealth for the investors. Further, in times of high stock market volatility, mutual funds are the best source of investments with assured and adequate returns provided the selection of the mutual funds is in the right direction.

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APPENDIX

TABLE 1
List of selected mutual funds

Private Mutual Funds	Public Mutual Funds
Birla Sunlife (2 schemes)	LIC (3 Schemes)
Deutsche (2 Schemes)	
DSP Merill Lynch (3 Schemes)	SBI (3 Schemes)
Franklin Templeton (3 Schemes)	
HDFC (2 Schemes)	UTI (3 Schemes)
Prudential ICICI (2 Schemes)	
6 MFs (14 Schemes)	**3 MFs (9 Schemes)**

TABLE 2
Mean return, beta and co-efficient of determination

Name of Scheme	Scheme Return	Market Return	*Beta*	R^2
Birla Sunlife - Gilt-plus Liquid	-.0021	- .0017	1.0323	0.325
Birla Sunlife - Asset Allocation Aggressive	.0014	.0015	1.0915	0.492
Detusche - Alpha Equity	.0007	.0009	0.8142	0.431
Deutsche - Dynamic Equity Reg.	.014	.0011	0.7911	0.493
DSP Merill - Balanced	.0010	.0007	0.9827	0.662
DSP Merill – India TIGER Fund	.0037	.0021	0.8814	0.678
DSP Merill – Top 100 Equity	.0019	.0013	0.8927	0.754
Franklin Templeton – Balanced	.0033	.0017	0.9913	0.692
Franklin Templeton – Bluechip	.0047	.0016	0.9421	0.714
Franklin Templeton – Prima Plus	.0041	.0011	0.8132	0.729
HDFC – Capital Builder	.0010	.0014	0.7314	0.481
HDFC – Gilt Short Term	.0019	.0027	0.7419	0.581
LIC – Equity	**-** .0008	.0029	1.0143	0.232
LIC – Index Sensex	**-** .0051	.0031	1.0215	0.249
LIC – Short Term Plan	.0005	.0016	0.9192	0.330
Prudential ICICI – Balanced	.0004	.0001	0.8929	0.417
Prudential ICICI – Gilt Treasury	.0005	..003	0.7947	0.465
SBI – Magnum Index	.0009	.0008	0.9245	0.786
SBI – Magnum Balanced	.0031	.0020	0.8133	0.610
SBI - Magnum Gilt	.0021	.0014	0.8428	0.625
UTI – Dynamic Equity	.0017	.0011	0.9122	0.703
UTI- India Advantage Equity	.0029	.0015	0.8945	0.714
UTI – Money Market	.0024	.0013	1.0023	0.697

TABLE 3
Sharpe ratio, Treynor ratio and Jensen's alpha of the mutual fund schemes

Name of Scheme	Sharpe Ratio		Treynor Ratio		Jensen
	Scheme	Market	*Scheme*	Market	*Alpha*
Birla Sunlife - Gilt-plus Liquid	0.894	1.273	.033	.047	.001
Birla Sunlife - Asset Allocation Aggressive	0.799	1.118	.045	.079	.003
Detusche - Alpha Equity	1.840	1.325	.049	.033	-.012
Deutsche - Dynamic Equity Reg.	1.781	1.259	.037	.024	-.014
DSP Merill - Balanced	-0.673	-0.433	-.093	-.058	.009
DSP Merill – India TIGER Fund	- 0.844	-0.723	-.072	-.067	.014
DSP Merill – Top 100 Equity	1.771	1.826	.084	.092	.018
Franklin Templeton – Balanced	-1.347	-1.449	-.017	-.022	.007
Franklin Templeton – Bluechip	-1.507	-1.818	-.031	-.053	.005
Franklin Templeton – Prima Plus	-1.602	-1.934	-.043	-.061	.002
HDFC – Capital Builder	0.934	0.993	-.077	.089	-.011
HDFC – Gilt Short Term	0.847	1.243	.076	.098	-.004
LIC – Equity	-0.733	-0.507	-.084	-.057	-.004
LIC – Index Sensex	-0.841	-0.615	-.092	-.062	-.001
LIC – Short Term Plan	-0.433	-0.317	-.042	-.035	-.005
Prudential ICICI – Balanced	-0.217	-0.143	-.031	-.037	.004
Prudential ICICI – Gilt Treasury	-0.119	-0.107	-.027	-.022	.002
SBI – Magnum Index	1.694	1.443	.084	.073	.011
SBI – Magnum Balanced	1.923	1.334	.097	.081	.017
SBI - Magnum Gilt	2.189	1.430	.154	.094	.006
UTI – Dynamic Equity	1.552	1.211	.073	.055	.021
UTI- India Advantage Equity	1.300	1.128	.056	.053	.008
UTI – Money Market	1.341	1.098	.058	.041	.014

TABLE 4
Overall Performance of the Selected Mutual Funds

Mutual Fund Scheme		Return	*Beta* (Risk)	Sharpe Ratio	Treyor Ratio	Jensen *Alpha*	R^2
Private Sector	Birla Sunlife	Poor	High	+ ve Under-performer	+ ve Under-performer	+ ve Very Low	Very Low
	Deutsche	Moderate	Low	+ve Over-Performer	+ ve Over-Performer	- ve Moderate	Low
	DSP Merill Lynch	Good	High	- ve Under-performer	- ve Under-performer	+ ve Relatively High	High
	Franklin Templeton	Excellent	High	- ve Over-Performer	- ve Over-Performer	+ ve Low	High
	HDFC	Poor	Low	+ ve Under-performer	+ ve Over-Performer	- ve Mixed	Low
	Prudential ICICI	Moderate	Low	- ve Over-Performer	- ve Over-Performer	+ ve Very Low	Low
Public Sector	LIC	Poor	High	- ve Under-performer	- ve Under-performer	- ve Low	Very Low
	SBI	Good	Low	+ ve Over-Performer	+ ve Over-Performer	+ ve Relatively High	High
	UTI	Excellent	High	+ ve Over-Performer	+ ve Over-Performer	+ ve Relatively High	High

Note: Under-performer denotes situation where the Scheme's Specific Performance is BELOW that of the Market; Over-Performer situation where the Scheme's Specific Performance is ABOVE that of the Market.