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PERFORMANCE EVALUATION OF SELECTED MUTUAL FUND SCHEME'S IN INDIA

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ABSTRACT

Mutual fund plays a crucial role in the Indian economy. Mutual funds are considered to be the vehicle for mobilization and channelization of savings from individual investors to towards the various capital market instruments. Evaluation of the performance of mutual funds particularly is of a great interest to the researcher across the world. The study attempts to evaluate the past performance of selected open-ended equity funds. The study is based on the secondary data restricted for a period of one year i.e. from 1st January 2016 to 31st December 2016. To analyze the performance of selected mutual funds, which are open-ended, equity funds four conventional or unconditional methods of performance evaluation are used. They are Sharpe's Ratio, Treynor's Ratio, Jensen's Measure and Information Ratio. Investors today's have a wide range of investment avenues available and choosing one of them is a quite horrifying task for any investor. Every investment has its own characteristics in terms of risk with while choosing a best fund to park the resources is a crucial task for any investor certain predetermined developed and widely accepted models and techniques are available to determine the performance of funds and make decision of investment. The present paper aims at throwing light on such model and helps to analyze funds in terms of risk-return analysis.

KEYWORDS

risk-return, beta, alpha, net asset value, performance, benchmark.

JEL CODES

G20, G21, G22, G23, G24, G29.

INTRODUCTION

An Investment shaped with Insight pay's the best returns' thus from the handy pool of securities accessible by the investors from the capital markets viz. shares, bonds, mutual and so on, choosing one of it is a effortful task, mere choosing a security will not provide the benefits assumed by the investors as each stock is subject to certain risk factor and gains too thus a continuous watch over the market has to be done so as to gaze the market sentiments which determine the future of a security but, this is inconceivable for small retail investors who usually due to such limitations make enormous losses of the invested funds thus to facilitate over this limitation Mutual Fund is the best available key Mutual fund is a trust that collects resources from a number of investors and thereby investing the same in a diversified portfolio comprising of all the securities i.e. shares, debenture, and other securities. It is managed by professional managers known to be portfolio managers or fund managers who take the decisions regarding allocation of the pooled funds into various investment avenues investment. Mutual fund companies are of a great significance to the growth of the Indian economy it channelize the resources and thus act as a device facilitating transfer of money from surplus units i.e. the households to the defects i.e. the industry.

Buying of a mutual fund is like eating a small slice of a big pizza. Where benefit of a diversified portfolio is enjoyed comprising of debt, equity etc. The owner of a mutual fund called as the unit holder they share amongst a proportional share of the funds gains, losses, income and expenses, thus the term mutual is well justified.

REVIEW OF LITERATURE

Sharpe (1966) proposed a measure of evaluating the portfolio performance. His finding revealed that the mediocre performance of mutual funds is inferior to the market proxy, subsequently ***Jensen*** in (1967) developed a risk-adjusted measure of portfolio performance that evaluate how much a manager's ability of forecasting the market contribute to fund's returns at large.

Gupta LC (1981) proposed a detailed and well based estimate of portfolio rate of return on equities. His study established a basis of rate of return concept in performance evaluation of stocks.

Sharma (2013) analysed the performance of equity mutual funds industry against risk-free rate and benchmark rate of return over a stipulated period. The results reviled that the Treynor's ratio of all funds outperformed the benchmark and concluded that the benchmark market return index has a significant impact over the mutual fund return.

Dhume P. S. S. (2013) analysed the performance of open ended mutual funds over a period of 11 years and significantly evaluated the factors affecting the performance by concluding that the size of the fund and the timing and the new money flowing into the fund every year and applying tools like Sharpe's model, Treynor's model, Jensen's Alpha and other several models have shown that the performance is affected by the performance of the market index

Hudson (1997) 'whenever performance evaluation is implemented, there will always be two key ingredients a) a measure of return and b) a measure of risk, over a given time horizon. Proper evaluation and comparison is possible only when the reporting standard is of high quality and there are well based standards for calculating NAV's.

OBJECTIVES OF THE STUDY

1. To evaluate the performance of selected mutual funds schemes with the tools of returns, Standard deviation, and Beta.
2. To assess the selected funds on the basis of various performance analysis ratios i.e. Sharpe, Jensen, Treynor's and information.
3. To compare the performances of selected mutual funds schemes with the BSE 200 index.

RESEARCH METHODOLOGY

Data: The study is completely established on secondary data and the sources of the data collection include fact sheets on mutual funds, articles, AMFI reports and websites and various other web sources.

Period of Study: the study is based on selected equity growth fund schemes floated by the selected funds during the period of January 2016 to December 2016 have been considered for the study.

Benchmark index: For conducting the study BSE – 200 index of BSE has been chosen as the benchmark index as BSE National index of 200 stocks is comparatively broad as compared to BSE S&P constituted of only 30 stocks. BSE - 200 and will cover most percentage of scheme portfolios.

TOOLS USED FOR DATA ANALYSIS

Returns: Returns on any investment consist of two ingredients namely the income in the form of dividends, interest received in cash and secondly the change in price of the asset due various several aspects which lead to capital gain or loss. This element relates to the gains or losses made as against the purchase and sale of an asset this return is calculated as given below:

$$Portfolio\ Return = \frac{Todays\ NAV\ Price - Yesterdays\ NAV\ Price}{Yesterdays\ NAV\ Price} * 100$$

Where R_{it} is the difference between Net Asset Value of two consecutive days divided by the NAV of the preceding day.

$$Market\ Return = \frac{Todays\ Index\ Price - Yesterdays\ Index\ Price}{Yesterdays\ Index\ Price} * 100$$

Where R_{mt} is the difference between Index values for two consecutive days divided by the Index value of the preceding day.

Risk: Risk is neither good nor bad. When investor holds securities with himself, the holding is associated with possibility of realizing lower returns than that which are expected. The difference between the expected rate of return on mutual funds and the risk free return is the risk premium. The risk can be measure in terms of Beta and Standard deviation

Standard Deviation: It is used to measure variation in the individual returns from the average expected returns over a certain period of time. The concept of standard deviation is commonly used in risk of portfolio investment. A higher standard deviation means greater fluctuation in expected returns and vice versa.

Beta: Beta measures the systematic risk and shows how the stock prices respond to changes in the market factors. It is calculated by relating the returns of the stock with the returns of the market index. Markets usually have Beta '0' thus when the mutual fund have a Beta value higher than that of the market it is said to be more volatile and thus riskier than the market. If the Beta is less than 1 than the stock is less risky as compared to market and if beta is 0 than the risk is same as market risk. A negative beta is very rare.

$$\beta = \frac{\mathbf{N}\sum \mathbf{XY} - (\sum \mathbf{X})(\sum \mathbf{Y})}{\mathbf{Variance\ X}}$$

Where N = No. of days. X = Rolling returns of market Y = Rolling returns of scheme

Alpha: the size of the alpha exhibits the unsystematic returns and its average returns independent of market return. If the fund produces the expected returns at a particular level of risk assumed, than the fund will have an Alpha equal to Zero. A positive alpha indicates that the fund manager produced returns greater than that expected for the risk taken. Alpha is calculated by comparing the risk-adjusted expected returns.

$\propto = (R_p - R_f) - \beta\ (R_m - R_f)$

Where

R_p = returns of the Portfolio

R_f = Risk free rate of return

R_m = Average market return

Sharpe's Index

It is a ratio indicating the relationship between the portfolios additional returns over risk free return and total risk of the portfolio measured in terms of standard deviation. It is a measure of risk adjusted performance that use a benchmark based on the Ex post (past) capital data. It is measured relative to the total risk of the portfolio where total risk is the standard deviation of portfolio return.

$S_p = \frac{(Rp - Rf)}{\partial p}$ $Sm = \frac{(Rm - Rf)}{\partial m}$

Where Sp = Sharpe's Ratio for portfolio Sm = Sharpe's ratio for market index

Rp = rate of return on portfolio Rm = Rate of return on market

Rf = Risk free return Rf = Risk free return

∂p = Standard deviation of portfolio ∂m= standard deviation of Market

Treynor's Ratio

This ratio measures the relationship between the funds additional returns over the risk free return i.e. (Rp – Rf) and fund volatility measure by (β). Higher the ratio it indicated that the stock performed better than the benchmark and vice versa.

Treynor's Ratio = $\frac{Portfolio\ average\ return(Rp) - Riskfree\ rate\ of\ return(Rf)}{Beta\ Coefficient\ of\ Portfolio\ (\beta p)}$

Jensen's Performance index

The risk adjusted return measure was developed by Jensen (1968). It is mentioned as a measure of absolute performance as a definite standard is set and against that the performance is measured. It is based on Capital Asset Pricing Model (CAPM).

$\propto = (Rp - Rf) - \beta p\ (Rm - Rf)$

Where

$\propto$ = Jensen's measure. Rp = returns of the portfolio

Rf = risk free rate of return βp = Beta of the fund

Rm = Market return.

Information Ratio

The information ratio, developed in the year 1973 by Treynor and Black, assesses a manager's skill in deviating from a benchmark to produce excess returns. The information ratio, which is sometimes called the appraisal ratio is defined by the residual return of the portfolio when compared to its residual risk.

$IR = (R_p - R_m) / TE$

where R_p is portfolio rate of return R_m is Market return

TE is Tracking error (it is defined as time series standard deviation of the difference between a fund return and its market index return) = TE = $\partial(R_p - R_m)$

LIMITATIONS OF THE STUDY

1. The paper only studies open-ended schemes and closed ended schemes were not take into consideration.
2. The data collected is for a period of 1 year only due to time constraints.
3. The study has been conducted and analysed based on the set of data available, which is governed by time factor.

DATA ANALYSIS AND INTERPRETATION

TABLE 1.1: SUMMARY STATISTICS OF SELECTED FUNDS

Sr. no	Name Of The Scheme	Avg (Rp)	Min	Max	Skew	Kurt	r	r^2
1	DSP Black Rock Equity Fund (g)	0.021%	-3.79%	3.62%	-0.5	1.79	0.73	0.86
2	JM Equity Growth fund	0.017%	-2.98%	3.12%	0.03	1.39	0.78	0.88
3	Tata Equity Opportunities Fund (g)	0.014%	-3.66%	3.51%	-0.45	1.84	0.75	0.87
4	SBI Small & Mid cap Fund (g)	0.007%	-4.97%	2.91%	-1.06	3.44	0.63	0.79
5	L & T Equity Fund (g)	0.020%	-3.41%	3.13%	-0.31	1.04	0.76	0.87
6	Sahara Growth Fund (g)	0.017%	-3.58%	4.53%	0.08	1.94	0.75	0.87
7	Sundaram Diversified Equity Fund (g)	0.031%	-4.07%	3.58%	-0.55	1.91	0.73	0.86
8	Escorts Opportunities Fund (g)	-0.010%	-2.38%	2.18%	-0.17	0.98	0.63	0.80
9	Canara Robeco Equity Diversified Fund(g)	-0.005%	-4.41%	3.21%	-0.69	2.32	0.74	0.86
10	HDFC Midcap Opportunities fund (g)	0.046%	-3.34%	2.93%	-0.61	1.43	0.70	0.83

Where **Rp** – average returns of the portfolio

Min and **Max** are the minimum and maximum return paid by the fund over the year.

Skew – Skewness

Kurt- Kurtosis

r and **r²** is the correlation and coefficient of determination respectively

Table 1.1 highlight the summary statistics of the sample open ended equity growth fund scheme for a period of 1st January 2016 till 31st December 2016. The table reveals that out of the 10 funds 8 funds are giving an average positive returns over the period and from the above 8 funds the highest returns are offered by HDFC Midcap opportunities fund i.e.(0.046%) however the lowest returns are paid by Canara Robeco Fund i.e. (-0.005%).

All the selected 10 funds have shown a positive Correlation. Coefficient of determination displays the percentage of explained variance. The fund which displayed a high degree of positive correlation is JM Equity growth fund, Tata equity opportunities fund and L & T equity growth fund.

In terms of the minimum and the maximum returns given by the funds all the 10 funds are giving negative returns however Escorts opportunity fund offers the lowest negative return i.e. -2.38% and Canara Robeco offered the highest negative return from the sample. Apart from this Sahara growth fund provided the highest return as compared to others.

The skewness and kurtosis of "0" indicate that the distribution is symmetric and normal respectively

TABLE 1.2: SUMMARY STATISTICS OF SELECTED OPEN-ENDED EQUITY FUNDS

Sr. no	Name Of The Scheme	∂	∂ (annualized)	β	T.E	RFR.
1	DSP Black Rock Equity Fund (g)	0.010	0.166	0.80	0.010	0.0611
2	JM Equity Growth fund	0.008	0.128	0.65	0.009	0.0611
3	Tata Equity Opportunities Fund (g)	0.010	0.151	0.74	0.010	0.0611
4	SBI Small & Mid cap Fund (g)	0.011	0.167	0.68	0.010	0.0611
5	L & T Equity Fund (g)	0.010	0.154	0.77	0.010	0.0611
6	Sahara Growth Fund (g)	0.010	0.165	0.81	0.010	0.0611
7	Sundaram Diversified Equity Fund (g)	0.011	0.168	0.81	0.010	0.0611
8	Escorts Opportunities Fund (g)	0.006	0.102	0.42	0.008	0.0611
9	Canara Robeco Equity Diversified Fund(g)	0.010	0.166	0.80	0.010	0.0611
10	HDFC Midcap Opportunity (g)	0.010	0.152	0.69	0.010	0.0611

Where **'∂'** is the standard deviation **β** is the Beta returns

T.E is tracking error **RFR** – is risk free rate of return (T-bill 91 days yield)

Table 1.2 highlight the beta and standard deviation of the selected funds Beta value measure the market risk. The funds having a beta value of 1 indicate that the returns of the fund and the index move in tandem. However no funds from the sample have a beta value of equal to or higher than 1 thus the fund and the index return are not moving proportionately but 4 funds from the above have a beta more than 0.80 which are DSP Black rock Equity fund, Sahara Growth fund, Sundaram Diversified equity fund, Canara Rebeco equity diversified fund.

Tracking error refers to the difference between fund return and benchmark return. The fund manager should always try to minimize the tracking error, lesser the tracking error better it is thus from the above table JM Equity growth fund and escorts equity fund has the lowest tracking error, but out of the 10 funds total of 8 funds are having a tracking error of 0.010.

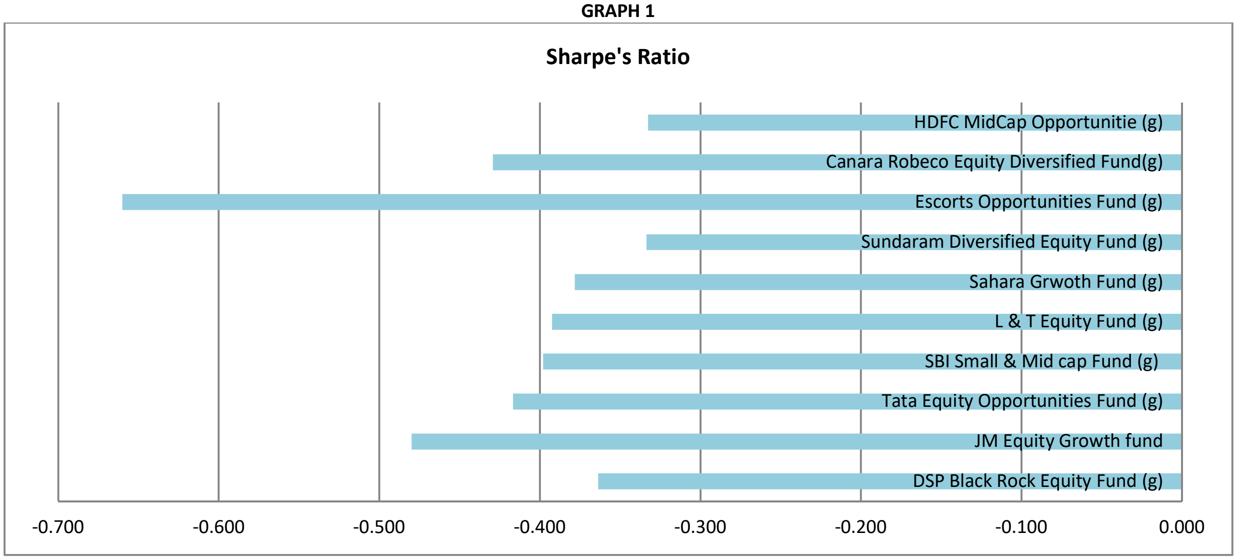
Standard deviation of fund indicates the variation in fund returns. It measures the amount of risk. The funds having a low percentage of standard deviation of returns is considered to be a better fund as having a lower risk. The funds that exhibit a lower standard deviation of risk are escorts opportunity fund and JM Equity fund.

TABLE 1.3: SHARPE'S RATIO, TREYNOR'S RATIO, JENSEN'S RATIO AND INFORMATION RATIO OF SELECTED MUTUAL FUND SCHEMES WITH RESPECTIVE RANKS

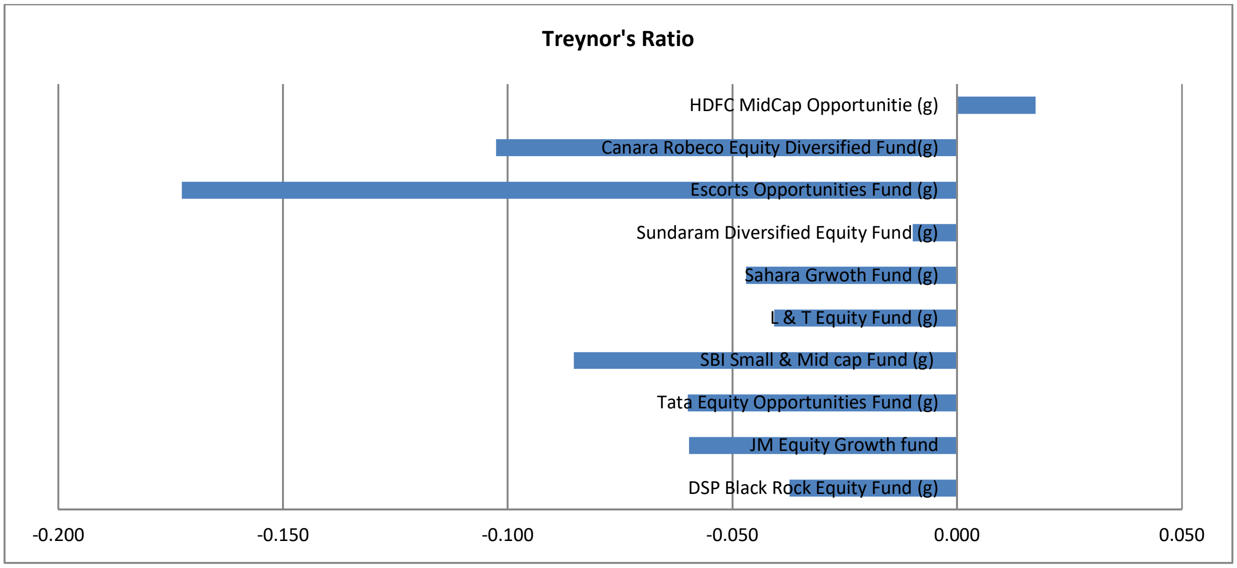
Sr. no	Name Of The Scheme	Sharpe's Ratio	Rank	Treynor's Ratio	Rank	Jensen's Alpha	Rank	Information Ratio	Rank
1	DSP Black Rock Equity Fund (g)	-0.364	3	-0.037	3	-0.0014	4	0.37	3
2	JM Equity Growth fund	-0.480	9	-0.060	6.5	-0.0125	5	-0.13	5
3	Tata Equity Opportunities Fund (g)	-0.417	8	-0.060	6.5	-0.0188	8	-1.30	7
4	SBI Small & Mid cap Fund (g)	-0.398	6	-0.085	8	-0.0306	9	-3.13	8
5	L & T Equity Fund (g)	-0.392	5	-0.041	4	0.0215	3	0.34	4
6	Sahara Growth Fund (g)	-0.378	4	-0.047	5	-0.0147	6	-0.72	6
7	Sundaram Diversified Equity Fund (g)	-0.334	2	-0.010	2	0.0311	2	2.98	2
8	Escorts Opportunities Fund (g)	-0.660	10	-0.172	10	-0.0915	10	-7.81	10
9	Canara Robeco Equity Diversified Fund(g)	-0.429	7	-0.103	9	-0.0157	7	-6.15	9
10	HDFC Midcap Opportunity (g)	-0.333	1	0.017	1	0.1053	1	7.39	1

GRAPHS SHOWING SHARPE'S RATIO, TREYNOR'S RATIO, JENSEN'S ALPHA AND INFORMATION RATIO REPRESENTING THE RESPECTIVE RESULTS OF THE MUTUAL FUNDS

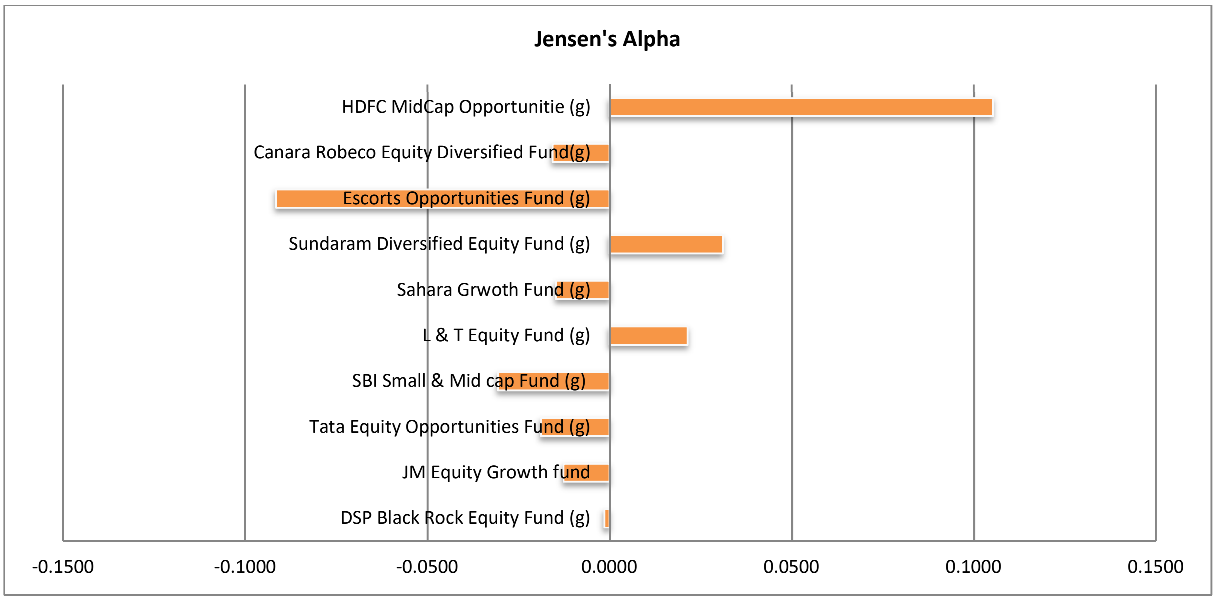
GRAPH 1



GRAPH 2



GRAPH 3



GRAPH 4

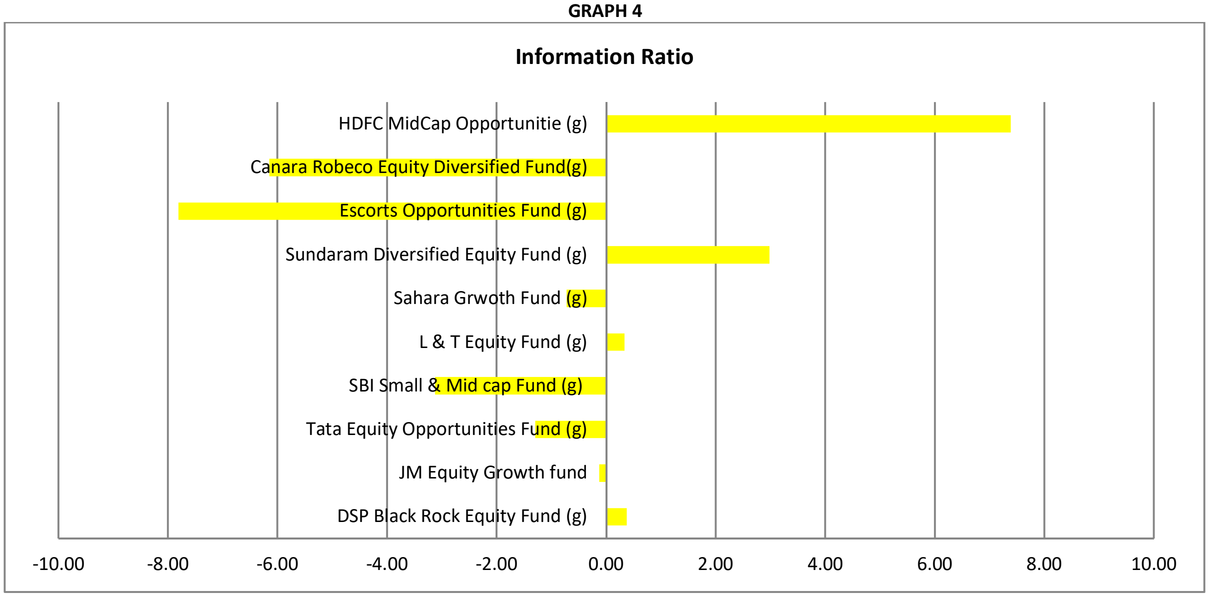


Table 1.3 and the respective graphs of ratios and measures reveals the results of computation of Sharpe's ratio, Treynor's ratio, Jensen's Ratio and Information ratio for the sample funds selected. The table also depicts the ranking given to each of the funds based on the performance. Out of the total 10 funds not a single fund shows a positive Sharpe's Ratio which means that they are not able to earn a risk premium to the risk per unit.

Computation of Treynor's ratio also reveals the same result however HDFC Midcap opportunity fund show a positive Treynor's ratio and hence only HDFC fund outperformed as compared to the benchmark i.e. BSE 200.

Jensen's alpha is also represented in the above table as per which only 3 funds have a positive result which means that they have outperformed the index. However the rest 7 funds show a negative result for Jensen's Alpha indicating that the performance was below the market proxy index.

Information ratio displays the fund manager's skills to deviate from the benchmark in order to earn excess returns. This usually depends on the level of knowledge and experience of the fund manager and also information to which he has access to. As seen from the above table out of the 10 selected funds 4 funds showed a positive information ratio indicating that they are able to earn a superior returns as compared to the index i.e. BSE 200, which are HDFC Midcap opportunity fund (7.39), Sundaram Diversified equity fund (2.98), L & T equity fund (0.34) and DSP Black rock Equity fund (0.37). However the remaining 6 fund depicted a negative Information ratio.

As per the analysis in case of Sharpe's Ratio and Treynor's ratio the 1st rank is secured by HDFC Midcap Opportunity fund and the 2nd rank is given to Sundaram diversified Equity Growth fund, however in Jensen's ratio and Information ration both the funds have secured the same ranks. Thus they are top 2 funds out of the sample 10 funds. The worst 2 performing funds which secured lowest ranks i.e. 10 in all the ratios is Escorts opportunity fund (g) and the next worst performers are Canara Rebeco equity diversified fund, SBI Small midcap fund and JM Equity growth fund.

CONCLUSION

Mutual fund is a safe avenue of investment and one of the best alternatives available for small retail investors in India. The main goal of any investment is to earn returns followed by other goals like liquidity, safety etc. however returns is a function of risk, higher the risk higher the return on this basis mutual funds can be categorized as moderate risky form of investment as a result this investments are beneficial for investors willing to assume a certain level of risk.

The above models discussed in the paper are very useful in assessing the risk level and the equivalent returns earned by the portfolio funds on basis of which investments can be decided upon by investors. An investor should always be alert and responsive towards changes in the market thereby ensuring an optimum portfolio which maximizes returns over time and help investors to book profits and escape losses.

Investment in mutual funds is subject to market risk which is associated with returns thus a careful evaluation of securities is a must while framing a portfolio. Mutual funds are a mine of diamonds in the basket of securities which can be assessed at any time and be exploited without getting exhausted.

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