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Performance Evaluation of Selected Open – Ended Mutual Funds in India

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Abstract: *A mutual fund is a trust that pools the savings of a number of investors who share a common financial goal. The money thus collected is then invested in capital market instruments such as shares, debentures and other securities. The income earned through these investments and the capital appreciation realized is shared by its unit holders in proportion to the number of units owned by them. The mutual fund industry in India was started in the year 1963 with the formation of Unit Trust of India. This industry was privatized in the year 1993. In this study an attempt is made to analyse the performance evaluation of ten open ended mutual fund schemes for a period from April 01, 2010 to March 31, 2015.The analysis was done by using various financial tests like Average Return, Beta, Coefficient of Determination (R^2), Sharpe Ratio, Treynor Ratio, Fama's net selectivity and Treynor Mauzy Model, Thedata for the study was sourced from various websites of mutual fund schemes and from amfiindia.com. the investors who have invested in the selected mutual funds have earned the market return as the lower level and the investors who have invested in the Kotak 50 Growth fund have earned the higher return than the market return.*

Keywords: *Mutual Fund, Performance Evaluation, Risk , Return., ratios, JEL Classification: G10, G11*

I. Introduction

Investment is the sacrifice of certain present value for some uncertain award to be received in future. In other words, an investment is commitment of funds that will be held over some future time period. Broadly, an investment decision is a trade-off between risk and return. A Mutual fund is a trust that pools the savings of a number of investors who have a common investment objective. The income of investor is collected and invested by the fund manager in various types of Asset classes like stocks debt instruments and short term money market instruments and other securities depending on the objectives of the scheme, which in turn gives little savings to its unit holders in proportion of the number of units they own. There are many types of mutual funds like equity funds, bond funds, balanced funds, growth funds, income funds, tax saving funds, country funds, index funds, exchange traded funds, sector funds and the like.

Indian mutual fund industry has evolved over the years at an annual growth rate of 15% from 2007 to 2013.Though India's savings rate has been between 30-35%, since last few years, investment in mutual funds have been minimal as compared to other avenues for investment. Emphatically speaking, mutual fund business follows a business to business model rather than a business to consumer model, thus distribution is a critical success factor for any mutual fund. Despite the efforts, the mutual fund products continue to remain a 'push' product rather than a 'pull' product in the market.

1.1 Challenges for the Mutual Fund Industry in India:

Lack of financial education and awareness: Financial literacy is one of the most fundamental factors impeding the growth of penetration of any financial products in the smaller cities and towns. Investors need to be made aware of their financial goals and the means to achieve the same.

Limited Distribution Network: Another critical issue for fund houses is to distribute their products in smaller cities with availability of quality distribution infrastructure. Fund houses need infrastructure like branches, adequate number of relationship managers and sales service staff in these locations which helps the fund houses to increase their sales volume.

Distribution cost: Cost of establishing a distribution network is quite high. It is the cost per transaction or the low sales volume that makes the pursuit economically unviable or at the least challenging.

Cultural bias towards physical assets: Studies reveal that 46% of total individual wealth in India is invested in physical assets (gold and real estate). Although, in the past few decades, the investors have increasingly relied on financial assets to invest their savings; the contribution of MFs in the asset portfolio is very low. Insurance products constitute 17 % of the individual savings in financial assets, whereas the share of mutual funds is much less than at 3 per cent.

Partnering with a bank: Fund houses could leverage from large network of bank branches covering the hinterland as well. Bank sponsored AMCs such as HDFC MF, SBI MF have a greater advantage over the other asset management players.

Technology: As the cost of establishing a distribution network is comparatively high, technology could play a pivotal role in garnering new AUM via internet and mobile banking channels. Online channel for mutual funds is increasingly becoming popular amongst investors. Almost all, fund houses in India provide service to transact online.

II. Review of Literature

Jensen Michael (1968) developed a composite portfolio evaluation technique concerning risk-adjusted returns. He evaluated the ability of 115 fund managers in selecting securities during the period 1945-66. Analysis of net returns indicated that, 39 funds had above average returns, while 76 funds yielded abnormally poor returns. Using gross returns, 48 funds showed above average results and 67 funds below average results. Jensen concluded that, there was very little evidence that funds were able to perform significantly better than expected as fund managers were not able to forecast securities price movements.

NaliniPrava Tripathy (2005) concluded that the Indian capital market has been increasing tremendously during last few years. With the reforms of economy, industrial policy, public sector and financial sector, the economy has been opened up and many developments have been taking place in the Indian money market and capital market.

Gupta & Agarwal (2009) found very little research on the construction of best mutual fund portfolio. Their objective of the research was to construct the best portfolio using cluster method, taking industry concentration as a variable and compares the performance of two types of portfolios with selected benchmarks. Results are found to be encouraging, as far as risk mitigation is concerned. The results expected to help in the construction of best portfolio of mutual funds.

Ravi Vyas and Suresh Chandra Moonat (2012) found that the highly volatile funds are risky and therefore the fund manager should collect all possible information before making an investment. A careful and reasonable diversification of investment in mutual funds should be done on the investor's part to balance the risk involved in investment. And suggested that investors should inculcate the habit of saving regularly so, that the little savings will grow into a big returns.

J.S. Yadav and O.S. Yadav (2012) in their analysis of comparison between Mutual Funds and Foreign Institutional Investors, it was found that, though the India is an attractive destination for investment by Foreign Institutional Investors, investments made by the mutual funds were greater than investment made by FII's, during the recession MF industry has played a vital role in pushing the economy upward while FII's withdrew their investment, showing the importance of MF's in Indian economy.

Kalpesh (2012) assessed the performance of Indian mutual funds by applying relative performance index, risk-return analysis, Treynor's ratio, Sharp's ratio, Sharpe's measure, Jensen's measure, and Fama's measure. Data used for the study is daily closing Net Asset Values from AMFI. Also they concluded that all selected mutual fund companies have positive return during 2007 to 2011. HDFC and Reliance mutual fund have performed well as compared to the Sensex return. ICICI prudential and UTI Mutual fund has lower level of risk compare to HDFC and Reliance mutual fund. Beta is less than one to all selected mutual fund companies which means the funds are less volatile than the Index. Sharpe's Index of HDFC Mutual fund is higher than the other thus showing good performance compared to other funds. Treynor's Index result revealed that the HDFC and Reliance mutual fund offers better return in comparison to ICICI Prudential, UTI, and Birla Sun Life Mutual funds for the same level of risk exposure.

Sarita Bahl and Meenakshi Rani (2012) found that the performance of 29 open ended, growth-oriented equity schemes. Their study revealed that 14 out of 29 sample mutual fund schemes had outperformed the benchmark return. The results also showed that some of the schemes had underperformed, due to diversification problem. In the study, the Sharpe ratio was positive for all schemes which showed that funds were providing returns greater than risk free rate. Results of Jensen measure revealed that 19 out of 29 schemes showed positive alpha which indicated superior performance of the schemes.

Inderjit Kaur (2013) found that how far the mutual fund schemes are performing with respect to market risk and analyzing the performance with respect to the selectivity and timing ability of the mutual fund manager. The performance analysis was done by Sharpe's ratio, Treynor's Ratio and Jenson's Measure. The analysis of the ability of the mutual fund manager with respect to selectivity and timing ability was assessed using Fama's Net Selectivity method and Treynor-Mazuy model of timing. Based on the empirical findings related to performance evaluation, market timing and selectivity skills among the top ten equity mutual funds in India for the period 2008-10 shows that there exists significant positive alpha among Indian mutual funds.

Kavita Arora (2015) had studied the performance of Indian mutual fund schemes. The findings suggest that the overall performance of mutual fund schemes during the study period was mixed. Study revealed that in both Sharpe and Treynor's Ratio the selected mutual fund schemes have performed better than the benchmark indices. Also the study further revealed 64 per cent of growth schemes, 60 per cent of tax planning schemes, 76 per cent of income schemes and 100 per cent of balanced schemes have performed better than the benchmark indices.

Sunil and Pratap (2015) studied mutual fund schemes of selected Indian companies comprising Equity, Debt and Hybrid Schemes. The total of 390 schemes comprising of 178 equity mutual funds, 138 debt schemes and 74 hybrid schemes are selected for their study. The performance of selected Indian companies' mutual fund is analyzed with the help of Return, risk (standard Deviation), and Sharpe ratio. Also the selected mutual funds are compared with their respective benchmark indices. Findings of the study revealed the sector fund has performed better than the other type of equity funds. The worst performance is given by infrastructure fund followed by large cap equity funds. The Ultra short term debt fund has performed better than the other type of debt funds. The worst performance is given by long term GILT fund followed by short term GILT funds. The equity oriented hybrid fund has performed better than the other type of hybrid funds. The worst performance is given by arbitrage fund and conservative debt hybrid funds. Thus they concluded that Equity, Debt and Hybrid mutual funds have performed better than their benchmark and generated better returns for the investors of equity mutual funds during 2009-10 to 2013-14.

III. Need for the Study

Mutual fund is an investment that pools money from shareholders and invests in a variety of securities, such as stocks, bonds and money market instrument. The need of the study is to analyze the performance of mutual funds and to identify the new market trends in the above mentioned sectors.

IV. Objectives of the Study

- To evaluate the selected funds assessment on the various performance ratios((Sharpe, Treynor, Jensen)
- To assess the selectivity ability of the mutual fund manager.
- To assess the market timing ability of the mutual fund manager.

V. Research Methodology

The study is of analytical in nature.

5.1 Period of the Study

The sample period taken for study is from April 01, 2010 to March 31, 2015. The data consists of daily NAV of the chosen open ended funds and NSE nifty index.

5.2 Source and Collection of Data

To gain an overview of the current performance trends of the Indian mutual fund industry, secondary data have been used and collected from the fact sheets, newspapers, journals, books and periodicals. The data were also collected from various websites of AMCs, AMFI, and moneycontrol.com. The Net Asset Values of the sample mutual fund schemes have been collected on monthly basis over a period of eight years. BSE Sensex has been used as a benchmark for performance evaluation of different schemes and provides the time series data over a fairly long period of time. Further, the monthly yields on 91- day treasury bills of Government of India have been used as a surrogate for risk free rate.

5.3 Sample Selection

The ten open ended funds are selected based on CRISIL ranking 2015. They are Birla Sun Life Frontline Equity Fund – Growth fund,BNP Paribas Equity Fund – Growth fund, Franklin India Opportunities Fund – Growth fund, Kotak 50 – Growth fund, UTI Equity Fund – Growth fund, Baroda Pioneer Growth Fund – Growth fund, JM Equity Fund – Growth fund, JPMorgan India Equity Fund - Regular Plan – Growth fund, Principal Large Cap Fund – Growth fund, UTI MasterShare Unit Scheme – Growth fund.

5.4 Tools for Analysis

A. **Average Returns**: The performance evaluation is done by comparing the returns of a mutual fund scheme with returns of a benchmark portfolio. In this study, the returns have been called as average returns. Average return is obtained by taking the simple mean of monthly returns, whereby monthly returns are calculated by using the NAVs of the mutual fund scheme.
B. **Standard Deviation:** Its significance lays in the fact that sample is free from defects of sampling, it measures the absolute dispersion, the greater the SD; greater will be magnitude of the deviation of the

values from their mean. Small SD means high degree of uniformity & homogeneity of a series. The total risk is measured in terms of standard deviation.

C. **Beta**: Beta is a fairly commonly used measure of risk. It basically indicates the level of volatility associated with the fund as compared to the benchmark. The success of beta is heavily dependent on the correlation between a fund and its benchmark. If the fund portfolio doesn't have relevant benchmark index then the beta would be inadequate. A beta that is greater than one means that fund is more volatile than the benchmark, while a beta of less than one means that the fund is less volatile than the index. A fund with a beta very close to 1 means the fund's performance closely matches the index or benchmark.

D. **Coefficient of Determination (R^2):** It is a measure of a security's diversification in relation to the market. The closer the R^2 is to 1.00, the more completely diversified the portfolio (Reilly and Brown, 2003). R^2 is ranging from 1 to 1.00, gives an idea about how well a fund's performance correlates with that of the benchmark. An R^2 of 0 means that a fund's returns have no correlation with the market and an R^2 of 1.00 indicates that a fund's returns are completely in sync-up and down-with the benchmark. (Contas and Shim, 2006).

E. **The Sharpe Measure:** The Sharpe Ratio measures the fund's excess return per unit of its risk (i.e. total risk). This ratio indicates the relationship between the portfolio's additional return over risk-free return and total risk of the portfolio, which measured in terms of standard deviation. A high and positive Sharpe Ratio shows a superior risk-adjusted performance of a fund while low and negative Shape Ratio is an indication of unfavorable performance. Generally, if Sharpe Ratio is greater than the benchmark comparison, the fund's performance is superior over the market and vice-versa. According to Sharpe, it is the total risk of the fund that the investor are concerned about so, the model evaluates fund on the basis of reward per unit of total risk, symbolically, it can be return as :

$$Sharpe\ Ratio = \frac{R_p - R_{rf}}{\sigma_p}$$

R_p = Expected portfolio/asset return

R_{rf} = Risk-free rate of return

σ_p = Portfolio/asset standard deviation

F. **The Treynor's Performance Index**: Treynor ratio measures the relationship between fund's additional return over risk-free return and market risk is measured by beta. The larger the value of Treynor ratio, the better the portfolio has performed. Generally, if the Treynor ratio is greater than the benchmark comparison, the portfolio has outperformed the market and indicating superior riskadjusted performance. Using the beta, rather than the standard deviation (as in the Sharpe Index), we are assuming that the portfolio is a well-diversified portfolio.

$$Treynor\ Ratio = \frac{r_p - r_f}{\beta_p}$$

Where,
R_P is the average return on portfolio
$R_f$is the average risk-free rate of return
$\beta_P$stands for sensitivity of fund return to market return.

G. **Fama's Net Selectivity** - The Fama's Net Selectivity Measure is an absolute measure of performance. It is given by the annualized return of the fund, deducted the yield of an investment without risk, minus the standardized expected market premium times the total risk of the portfolio under review

Net selectivity (Rp –Rf)-(σp/σm) (Rm –Rf).
Rp = Average return of the scheme
Rf = Risk free rate of return
Rm =Average return of the market
σp = Standard Deviation of the scheme's returns
σm = Standard Deviation of the market returns.

H. Treynor Mazuy Model:

A model widely used in mutual fund studies to assess both selectivity and market timing performance. A positive value for ap suggests selectivity ability, a positive value for b2 is indicative of market timing ability since this term allows the characteristic line to become steeper as excess returns on the market portfolio get larger. A negative value for b2 is interpreted as a lack of ability of fund managers to time the market correctly.

$r_{pt} = a_p + b_1 r_{mt} + b_2 r_{mt}^2 + e_{pt}$

where

r_{pt} = the excess return on portfolio p over the risk free rate during period t

a_p = estimated selectivity performance

b_1 = the portfolio's estimate of systematic risk

r_{mt} = excess return of the market portfolio over the risk free rate during period t

b_2 = estimated indicator of market timing performance

e_{pt} = residual excess return on portfolio P during period t.

VI. Results and Findings

Table 6.1 Risk- Return Analysis:

Year	Fund Name	Risk	Return	R^2
2010-2015	Birla Sun Life Frontline Equity Fund - Growth	3.146500542	1.314518	0.11
2010-2015	BNP Paribas Equity Fund - Growth	2.749607102	1.429263	0.11
2010-2015	Franklin India Opportunities Fund - Growth	3.344721838	1.261892	0.10
2010-2015	Kotak 50 - Growth	4.745466492	2.772977	0.71
2010-2015	UTI Equity Fund - Growth	3.871650893	-0.3146	2.16
2010-2015	Baroda Pioneer Growth Fund - Growth	3.425207734	0.917194977	12.48
2010-2015	JM Equity Fund - Growth	3.486148441	0.885096505	13.08
2010-2015	UTI Master share Unit Scheme - Growth	2.916687568	1.144543301	11.12
2010-2015	JPMorgan India Equity Fund - Regular Plan - Growth	3.024385578	1.244907265	12.18
2010-2015	Principal Large Cap Fund - Growth	3.106068813	1.080659281	35.13

From the above table it is inferred that Kotak 50- Growth fund has given the better return with respect to the other funds and the market and at the lower risk which shows that it has performed well while comparing to other funds. Whereas UTI Equity Fund has given the lower return with higher risk also less than the market return. And the other funds have given the return mostly equal to the market return with respect to the average risk which is also equal to market risk. Also from the above table Franklin India Opportunities fund has the lowest R square value which implicates that the fund has the low correlation with the market which indicates that the fund does not overreact to the market actions or fluctuations. Whereas UTI Equity Fund has the highest correlation with the market which shows there will be high fluctuations in the value of the fund with respect to the market fluctuation. The other three funds have the average r square value which does not have the higher fluctuation with respect to the market

Table 6.2 Risk Adjusted Return Analysis:

Year	Fund Name	Sharpe's Ratio	Rank	Treynor's Ratio	Rank	Jenson's Alpha	Rank
2010-2015	Birla Sun Life Frontline Equity Fund - Growth	0.74	5	1.05	4	0.41	4
2010-2015	BNP Paribas Equity Fund - Growth	1.41	3	1.47	3	0.60	3
2010-2015	Franklin India Opportunities Fund - Growth	1.21	4	1.65	2	0.73	2
2010-2015	Kotak 50 - Growth	2.04	2	2.21	1	1.08	1
2010-2015	UTI Equity Fund - Growth	-1.00	10	-9.83	10	-0.92	10
2010-2015	Baroda Pioneer Growth Fund - Growth	0.23	9	0.45	8	-0.02	8
2010-2015	JM Equity Fund - Growth	0.46	7	0.39	9	-0.07	9
2010-2015	JPMorgan India Equity Fund - Growth	2.12	1	1.02	5	0.37	5
2010-2015	Principal Large Cap Fund - Growth	0.45	8	0.73	7	0.18	7
2010-2015	UTI Master share Unit Scheme - Growth	0.51	6	0.87	6	0.27	6

From the table it is inferred for Sharpe's ratio, JP Morgan India Equity Fund shows the highest Sharpe value comparing with other funds and it has given the better return with respect to the market risk. Whereas the Birla Sun Life Equity fund has the lowest Sharpe ratio which indicates the lowest performance comparing to other funds.

Treynor's ratio indicate that Kotak 50 Equity Fund - Growth has performed well better than the other schemes which was taken for the study. Whereas UTI Equity fund has the low Treynor ratio which is an indication of the poor performance with respect to other selected schemes.

Jenson's alpha reveal that that Kotak 50-Growth fund has the highest alpha value which shows that the fund has the better portfolio and given the better return with respect to the market . Whereas Birla Sun Life Frontline Equity Fund has the lowest alpha value which shows that the fund has not performed well.

Thus from all the above risk adjusted returns Kotak 50-Growth fund has secured first rank in which all the three ratios are higher values with respect to the other fund risk adjusted values. Whereas Franklin Opportunities Equity Growth fund has secured the second rank, BNP Paribas Equity Fund has secured the third rank, UTI Equity Fund has secured fourth rank and finally Birla Sun Life Equity Fund has secured the last rank which shows that it does not performed well with respect to risk adjusted return.

6.3 Fund Selectivity Analysis:

Year	Fund Name	Fama's Net Selectivity
2010-2015	Birla Sun Life Frontline Equity Fund - Growth	0.39
2010-2015	BNP Paribas Equity Fund - Growth	0.42
2010-2015	Franklin India Opportunities Fund - Growth	0.49
2010-2015	Kotak 50 - Growth	0.96
2010-2015	UTI Equity Fund - Growth	-0.08
2010-2015	Baroda Pioneer Growth Fund - Growth	-0.38
2010-2015	JM Equity Fund - Growth	-0.39
2010-2015	JPMorgan India Equity Fund - Growth	-0.11
2010-2015	Principal Large Cap Fund - Growth	0.024
2010-2015	UTI Master share Unit Scheme - Growth	-0.22

The Fama's Index gives the excess return obtained by the manager that cannot have been obtained investing in the market portfolio. It compares the extra return obtained by the portfolio manager with a specific risk and the extra return that could have been obtained with the same amount of systematic risk. An analysis of above table reveals that Kotak has highest value revealing that it is the best fund selection to be done by the fund manager which gives the excess return apart from the market risk. Whereas the JM Equity Fund - Growth has the lowest fama index which shows that fund manager has not selected the portfolio for the fund with respect to the market.

6.4 Treynor Mazuy Model:

Year	Fund Name	Treynor Mazuy Model
2010-2015	Birla Sun Life Frontline Equity Fund - Growth	-0.0016
2010-2015	BNP Paribas Equity Fund - Growth	0.0011
2010-2015	Franklin India Opportunities Fund - Growth	0.0356
2010-2015	Kotak 50 - Growth	0.0119
2010-2015	UTI Equity Fund - Growth	-0.0458
2010-2015	Baroda Pioneer Growth Fund - Growth	-0.0106
2010-2015	JM Equity Fund - Growth	0.01226
2010-2015	JPMorgan India Equity Fund - Regular Plan - Growth	-0.0845
2010-2015	Principal Large Cap Fund - Growth	0.0884
2010-2015	UTI Master share Unit Scheme - Growth	-0.0890

The market timing is measured with Treynor-Mazuy model. A high positive value shows the better market timing. From the above table it can be inferred that only four funds out of ten have positive values which shows that the fund has better market timing ability. The other funds that secured negative values shows that the fund have no proper timing ability.

VII. Conclusion

From the study it has been found that in all the analysis such as risk adjusted return analysis Kotak 50 Equtiy Fund has secured the first position while comparing with others. Fama's Net Selectivity Analysis shows that Kotak 50 Equity Fund has secured the highest value which shows the fund manager has the high ability to select the portfolio for the fund. Whereas the UTI Equity Fund has secured the lowest value which shows the fund manager has the lower fund selectivity ability skill while comparing to others. Market timing ability result shows that Kotak 50 Growth fund have secured higher positive value while comparing with other funds which

shows that the fund has performed well and also have the better timing ability. But in most of the cases the timing ability of the fund have failed as per the result.

From the above analysis it was clear, the investors who have invested in the selected mutual funds have earned the market return as the lower level and the investors who have invested in the Kotak 50 Growth fund have earned the higher return than the market return. Also the fund has the better future as per the current study and it can be preferred in case of investment. By and large the large cap equity fund was better performing as per the analysis.

Assets under Management as a percent of GDP for India is about 5 to 6 percent, significantly lower than some other emerging economies, say Brazil 40%, South Africa 33%. This Indicates sufficient headroom for growth. However, the industry growth will continue to be characterised by external factors such as volatility and performance of the capital markets, and macro-economic drivers such as GDP growth, inflation and interest rates.

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