

## “PERFORMANCE EVALUATION OF MUTUAL FUNDS IN INDIA: A CASE STUDY”

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### ABSTRACT

*In present study performance evaluation of selected mutual funds is carried out through risk-return analysis, Treynor's ratio, Sharpe's ratio, Jensen's measure and Fama's measure. The data used in the study is daily closing NAVs for the period from 1st January 2010 to 31st December 2013. The schemes selected for study consist of three public-sponsored, three private-sponsored and three private (foreign)-sponsored mutual fund schemes. The results of performance evaluation measures suggest that out of nine, three schemes namely Franklin India Tax shield-Growth, HSBC Tax Saver Equity Fund – Growth and ING Tax Savings Fund-Growth schemes, performs better in comparison to benchmark index according to all the measures applied in the study and among these Franklin India Tax shield-Growth fund is the best performer. Overall it can be concluded that the private foreign companies sponsored mutual fund scheme performance is better than public and private companies-sponsored mutual fund schemes.*

**KEYWORDS:** *Mutual fund, Market Returns, S&P CNXNIFTY 500.*

### 1. INTRODUCTION

Mutual fund is the mediator that brings together a group of people who wants to invest their money in stocks, bonds and other securities. Mutual fund has become an important tool for mobilization of savings particularly from the household sector. The investment in mutual fund is denoted by unit and represented by the value called Net Asset Value (NAV). Invested amount in a mutual fund, after deducting for all charges are pooled together to form a fund and value of fund is equal to the amount of units multiplied by value of unit at that time.

The returns in a mutual fund depend upon the performance of the fund in the capital market. The investors in mutual fund are given with an option to choose from various schemes i.e. equity funds, debt funds, mixture of equity and debt called balanced funds etc. Mutual fund is the most viable investment option for the small investor because it provides an opportunity to invest in a fund which is professionally managed by the experts. Mutual funds are gaining popularity due to their following features.

- Flexibility to choose amount to be invested.
- Liquidity as the facility of withdrawing money after few years.
- Transparency as the investors can know the amount invested in units

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and the performance of their fund on regular basis.

- Diversification as the guiding principle of investment in the capital market is “not to put all your eggs in one basket”.

It is the mutual fund manager who invests on behalf of all small investors and passes them the benefit. Therefore the small investors are able to participate in the capital market just by holding the units allotted by the respective mutual fund.

## **2. LITERATURE REVIEW**

There is a vast literature on mutual fund performance and here is the review of various past studies in this regards.

Panwar and Madhumati (2006) in their paper investigated the differences in characteristics of public-sector sponsored and private-sector sponsored mutual funds companies and found that public-sector sponsored funds do not differ significantly from private-sector sponsored in terms of portfolio characteristics but significantly different in terms of performance.

Mutual funds outperforms the benchmark i.e. market and gives the benefit of diversification even after adding back the management fees and transactions costs (Otten and Bams, 2000; Rao and Ravindran, 2003; Petajisto,2013; Kumar,2011; Essayyad,1988) whereas the contrary results were given by the studies (Jayadev,1996 and Cai et al.,1997) that mutual funds underperform the benchmark because they tend to invest in large stocks with low book-to-market ratios.

## **3. RESEARCH OBJECTIVES**

1. To examine the performance of mutual funds with regard to risk-return adjustment, models given by Sharpe, Treynor, Jensen and Fama.
2. To examine which company mutual fund outperforms the market i.e. Public sector, Private sector or Foreign Private sector sponsored.

## **HYPOTHESES**

1. There is no significant difference in the performance of the tax saver mutual fund- growth scheme of the selected mutual fund company.
2. Mutual funds do not outperform the market i.e. NIFTY.

## **4. DATA AND THEIR SOURCES**

The present study evaluates the performance of the tax saver mutual fund-growth scheme of the selected mutual fund company. The mutual fund schemes selected for the study are given in Table I. The study is primarily based upon the secondary data. The main source of secondary data is AMFI website, books, journals, brochures, financial advisors and web sites of the selected mutual fund companies. The study spans the period from 1st January 2010 to 31st December 2013. For the study daily closing NAVs of the nine

selected mutual fund company's scheme have been taken from their websites and other sources.

Benchmark Index for the present study is S&P CNX NIFTY 500 as it is the widely accepted market index and covers the majority of companies. It is expected to prove better performance benchmark.

## 5. RESEARCH METHODOLOGY

1. **Return:** For each mutual fund scheme under study the daily returns are computed as

$$r_p = \ln(\text{ending NAV} / \text{beginning NAV})$$

Where  $r_p$  = Return of portfolio

The market returns are computed on similar lines with NIFTY (National Stock Exchange Index) as benchmark where  $r_m$  = return of market.

2. **Risk:** risk is the measure of variability in returns.<sup>3</sup>

**Standard deviation: Measure of Total Risk.**

$$\text{Var}(r) = \frac{1}{n} \sum_{i=1}^n [r_p - r_{am}]^2$$

Where  $r_p$  = return of portfolio

$r_{am}$  = mean rate of return on individual mutual fund scheme. (portfolio)

$$\text{Standard deviation} = \sqrt{\text{Var}(r)}$$

The variance and standard deviation are computed for daily returns.

### **Beta: Measure of Systematic Risk**

For obtaining the beta of selected mutual fund schemes, regression model is applied.

Mathematically:

$$Y = \alpha + \beta X$$

Where Y = return on mutual fund scheme

X = market return called NIFTY return

$\alpha$  = intercept

$\beta$  = slope of the beta coefficient

3. **Risk Free Asset:** risk less asset has zero variability in returns. For this purpose the Treasury bill rate-91 days have been taken as the risk free asset and the interest rate on such deposits is considered as risk free return.
4. **Treynor's Ratio:** Treynor's ratio is a reward to volatility ratio based on systematic risk (beta) developed by Jack Treynor (1965).

$$T_p = \frac{\text{Risk premium}}{\text{Systematic Risk Index}} = \frac{r_p - r_f}{\beta_p}$$

Where  $T_p$  = Treynor's ratio

$r_p$  = portfolio return

$r_f$  = risk free return

$\beta$  = beta coefficient for portfolio

5. **Sharpe's Ratio:** it is a reward to volatility ratio based on total risk (standard deviation) developed by William F. Sharpe (1966).

$$S_p = \frac{r_p - r_f}{\sigma_p} = \frac{\text{Risk premium}}{\text{Total Risk}}$$

Where  $S_p$  = Sharpe's Ratio

$r_p$  = portfolio return

$r_f$  = risk free return

$\sigma_p$  = standard deviation of portfolio returns.

6. **Jensen's Measure:** the Sharpe's and Treynor's ratio provides ranking of portfolio when compared to benchmark whereas Jensen's measure developed by Michael C. Jensen (1968) indicate that the portfolio provides a higher return over CAPM returns if its value is positive and vice-versa for negative value of Jensen's measure.

$$J_p = \text{Portfolio Return} - \text{CAPM Return} = r_p - [r_f + \beta_p (r_m - r_f)]$$

Where  $J_p$  = Jensen's measure for portfolio

$r_p$  = portfolio return

$r_f$  = risk free return

$\beta_p$  = beta coefficient of the portfolio.

$r_m$  = market return

7. **Fama's Measure:** Jensen model uses the systematic risk as measure of premium for computing the excess returns over expected returns whereas Eugene F. Fama (1972) model suggests measuring the fund performance in terms of excess returns over expected returns with total risk as measure for premium

$$F_p = (r_p - r_f) - (\sigma_p / \sigma_m)(r_m - r_f)$$

Where  $F_p$  = Fama's measure for portfolio

$r_p$  = portfolio return

$r_f$  = risk free return

$\sigma_p$  = standard deviation of portfolio returns

$\sigma_m$  = standard deviation of market returns

$r_m$  = market return.

**Table 1: List of mutual fund schemes**

Name of the Mutual fund Scheme	
<p><b>PUBLIC SECTOR:</b></p> <ol style="list-style-type: none"> <li>1. Baroda Pioneer Growth Fund - Plan A - Growth</li> <li>2. Canara Robeco Equity TaxSaver - Regular Plan - Growth</li> <li>3. LIC Nomura MF Tax plan-Growth</li> </ol> <p><b>PRIVATE SECTOR:</b></p> <ol style="list-style-type: none"> <li>1. Reliance Tax Saver (ELSS) Fund-Growth</li> <li>2. Escorts Tax Plan-Growth</li> <li>3. Sahara Tax Gain-Growth</li> </ol> <p><b>FOREIGN PRIVATE SECTOR:</b></p> <ol style="list-style-type: none"> <li>1. Franklin India Tax shield-Growth.</li> <li>2. HSBC Tax Saver Equity Fund - Growth</li> <li>3. ING Tax Savings Fund-Growth.</li> </ol>	

**Table 2: Average return given by the selected mutual fund scheme**

Name of the Mutual fund Scheme	Average Return
<b>PUBLIC SECTOR:</b>	
1. Baroda Pioneer Growth Fund - Plan A - Growth	0.000033
2. Canara Robeco Equity TaxSaver - Regular Plan – Growth	0.000355
3. LIC Nomura MF Tax plan-Growth	0.000334
<b>PRIVATE SECTOR:</b>	
1. Reliance Tax Saver (ELSS) Fund-Growth	0.000334
2. Escorts Tax Plan-Growth	-0.000301
3. Sahara Tax Gain-Growth	0.000265
<b>FOREIGN PRIVATE SECTOR:</b>	
1. Franklin India Tax shield-Growth.	0.000362
2. HSBC Tax Saver Equity Fund - Growth	0.000242
3. ING Tax Savings Fund-Growth.	0.000192
Benchmark-NIFTY	0.000116

Table 2 shows the average return earned by the various schemes. The results show that the highest return is given by Franklin India Tax shield-Growth fund against the benchmark-Nifty returns. It can also be seen here that 8 out of 9 mutual fund schemes have outperform the market and among it Franklin India Tax shield-Growth scheme is the best.

**Table 3: Standard deviation of the selected mutual fund scheme**

Name of the Mutual fund Scheme	Standard deviation ( $\sigma$ )
<b>PUBLIC SECTOR:</b>	
1. Baroda Pioneer Growth Fund - Plan A - Growth	0.010932
2. Canara Robeco Equity TaxSaver - Regular Plan – Growth	0.008649
3. LIC Nomura MF Tax plan-Growth	0.010947
<b>PRIVATE SECTOR:</b>	
1. Reliance Tax Saver (ELSS) Fund-Growth	0.009683
2. Escorts Tax Plan-Growth	0.010626
3. Sahara Tax Gain-Growth	0.009293
<b>FOREIGN PRIVATE SECTOR:</b>	
1. Franklin India Tax shield-Growth.	0.008831
2. HSBC Tax Saver Equity Fund - Growth	0.009640
3. ING Tax Savings Fund-Growth.	0.009729
Benchmark-NIFTY	0.010624

Table 3 gives the standard deviation of the selected mutual fund schemes which is a measure of total risk. Higher is the value of standard deviation higher is the risk being carried out by the particular mutual fund scheme. The results show that the Canara Robeco Equity TaxSaver – growth scheme has the minimum value of standard deviation. So it can be concluded that it is the least risky scheme of mutual fund against the benchmark-nifty.

**Table 4: Beta value of the selected mutual fund scheme**

Name of the Mutual fund Scheme	Beta( $\beta$ )
<b>PUBLIC SECTOR:</b>	
1.Baroda Pioneer Growth Fund - Plan A - Growth	1.018051
2.Canara Robeco Equity TaxSaver - Regular Plan - Growth	0.784345
3.LIC Nomura MF Tax plan-Growth	0.067457
<b>PRIVATE SECTOR:</b>	
1. Reliance Tax Saver (ELSS) Fund-Growth	0.833716
2.Escorts Tax Plan-Growth	0.841083
3.Sahara Tax Gain-Growth	0.823659
<b>FOREIGN PRIVATE SECTOR:</b>	
1. Franklin India Tax shield-Growth.	0.799180
2. HSBC Tax Saver Equity Fund - Growth	0.873424
3. ING Tax Savings Fund-Growth.	0.889070

Table 4 shows the beta value of selected mutual fund schemes. Beta is a measure of systematic risk. It can be seen that 8 out of 9 mutual fund schemes have beta value less than 1 implying that they are less risky than benchmark-nifty portfolio and lowest beta value is given by LIC Nomura MF Tax plan.

**Table 5: Coefficient of determination of selected mutual fund scheme**

Name of the Mutual fund Scheme	Coefficient of Determination ( $R^2$ )
<b>PUBLIC SECTOR:</b>	
1.Baroda Pioneer Growth Fund - Plan A - Growth	0.978884
2.Canara Robeco Equity TaxSaver - Regular Plan - Growth	0.928142
3.LIC Nomura MF Tax plan-Growth	0.003277
<b>PRIVATE SECTOR:</b>	
1. Reliance Tax Saver (ELSS) Fund-Growth	0.836727
2.Escorts Tax Plan-Growth	0.706950
3.Sahara Tax Gain-Growth	0.886696

<b>FOREIGN PRIVATE SECTOR:</b>	
1. Franklin India Tax shield-Growth.	0.924265
2. HSBC Tax Saver Equity Fund - Growth	0.926586
3. ING Tax Savings Fund-Growth.	0.942628

Table 5 shows the coefficient of determination (adjusted  $R^2$ ) of the selected mutual fund schemes. It measures the extent to which the mutual fund scheme returns is being explained by market returns. The maximum and minimum value of  $R^2$  is given by Baroda Pioneer Growth Fund - Plan A – Growth and LIC Nomura MF Tax plan-Growth schemes. Higher value of ( $R^2$ ) indicates that the market explain substantial part of variation in the return of a particular mutual fund scheme selected under study.

**Table 6: Sharpe's value of the selected mutual fund scheme**

Name of the Mutual fund Scheme	Sharpe's Measure
<b>PUBLIC SECTOR:</b>	
1. Baroda Pioneer Growth Fund - Plan A - Growth	-0.01603
2. Canara Robeco Equity TaxSaver - Regular Plan - Growth	0.016981
3. LIC Nomura MF Tax plan-Growth	-0.00531
<b>PRIVATE SECTOR:</b>	
1. Reliance Tax Saver (ELSS) Fund-Growth	0.01299
2. Escorts Tax Plan-Growth	-0.04791
3. Sahara Tax Gain-Growth	0.00612
<b>FOREIGN PRIVATE SECTOR:</b>	
1. Franklin India Tax shield-Growth.	0.01742
2. HSBC Tax Saver Equity Fund - Growth	0.00351
3. ING Tax Savings Fund-Growth.	-0.00166
Benchmark-NIFTY	-0.00865

Table 6 shows the Sharpe's value. It is a measure of reward to volatility ratio. It gives the excess return over risk free return with respect to the total risk of a portfolio. The results shows that 8 out of 9 mutual fund schemes have outperformed against the benchmark and Franklin India Tax shield-Growth is the best among all as it is having the highest positive value implying that it has given the excess return over risk free return.



**Table 7: Treynor's value of the selected mutual fund scheme**

Name of the Mutual fund Scheme	Treynor's Measure
<b>PUBLIC SECTOR:</b>	
1.Baroda Pioneer Growth Fund - Plan A - Growth	-0.00017
2.Canara Robeco Equity TaxSaver - Regular Plan - Growth	-0.00019
3.LIC Nomura MF Tax plan-Growth	-0.00086
<b>PRIVATE SECTOR:</b>	
1. Reliance Tax Saver (ELSS) Fund-Growth	-0.00015
2.Escorts Tax Plan-Growth	-0.00061
3.Sahara Tax Gain-Growth	0.00007
<b>FOREIGN PRIVATE SECTOR:</b>	
1. Franklin India Tax shield-Growth.	0.00019
2. HSBC Tax Saver Equity Fund - Growth	0.00004
3. ING Tax Savings Fund-Growth.	-0.00002
Benchmark-NIFTY	-0.00009

Table 7 shows the Treynor's value. It gives the excess return over risk free return with respect to the systematic risk of a portfolio. The results shows that 4 out of 9 mutual fund schemes have outperformed against the benchmark and Franklin India Tax shield-Growth is the best among all as it is having the highest positive value implying that it has given the excess return over risk free return.

**Table 8: Jensen's value of the selected mutual fund scheme**

Name of the Mutual fund Scheme	Jensen's Measure
<b>PUBLIC SECTOR:</b>	
1. Baroda Pioneer Growth Fund - Plan A - Growth	-0.000081
2. Canara Robeco Equity TaxSaver - Regular Plan - Growth	0.000219
3. LIC Nomura MF Tax plan-Growth	-0.000052
<b>PRIVATE SECTOR:</b>	
1. Reliance Tax Saver (ELSS) Fund-Growth	0.000203
2. Escorts Tax Plan-Growth	-0.000430
3. Sahara Tax Gain-Growth	0.000133
<b>FOREIGN PRIVATE SECTOR:</b>	
1. Franklin India Tax shield-Growth.	0.000277
2. HSBC Tax Saver Equity Fund - Growth	0.000114
3. ING Tax Savings Fund-Growth.	0.000066
Benchmark-NIFTY	0.0000003

Table 8 shows the Jensen's value. Higher value of the Jensen measure means better performance of the mutual fund scheme. The results shows that 6 out of 9 mutual fund schemes have outperformed against the benchmark and Franklin India Tax shield-Growth is the best among all as it is having the highest positive value implying that it has given the excess return over risk free return.

**Table 9: Fama's value of the selected mutual fund scheme**

Name of the Mutual fund Scheme	Fama's Measure
<b>PUBLIC SECTOR:</b>	
1.Baroda Pioneer Growth Fund - Plan A - Growth	-0.000150
2.Canara Robeco Equity TaxSaver - Regular Plan - Growth	0.000429
3.LIC Nomura MF Tax plan-Growth	0.000061
<b>PRIVATE SECTOR:</b>	
1. Reliance Tax Saver (ELSS) Fund-Growth	0.000391
2.Escorts Tax Plan-Growth	-0.000750
3.Sahara Tax Gain-Growth	0.000267
<b>FOREIGN PRIVATE SECTOR:</b>	
1. Franklin India Tax shield-Growth.	0.000441
2. HSBC Tax Saver Equity Fund - Growth	0.000226
3. ING Tax Savings Fund-Growth.	0.000136
Benchmark-NIFTY	0.000005

Table 9 shows the Fama's measure value. Higher value of the Fama's measure indicates better performance. The results shows that 7 out of 9 mutual fund schemes have outperformed against the benchmark and Franklin India Tax shield-Growth is the best among all as it is having the highest positive value implying that it has given the excess return over risk free return.

## 6. CONCLUSIONS

The analysis of the tax saver mutual fund- growth scheme of the selected mutual fund company shows that out of nine, three schemes namely Franklin India Tax shield-Growth. HSBC Tax Saver Equity Fund – Growth and ING Tax Savings Fund-Growth schemes, performs better in comparison to benchmark index according to all the measures applied in the study and among these Franklin India Tax shield-Growth fund is the best performer. Overall it can be concluded that the private foreign companies sponsored mutual fund scheme performance is better than public and private companies- sponsored mutual fund schemes.

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