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Comparison of Performance Evaluation Models of SBI and ICICI Mutual Funds in India

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Abstract
The tremendous expansion of mutual fund industry indicates the deeper look into the performance of mutual funds. The objective of this paper is to comparison of performance evaluation models of SBI mutual funds and ICICI mutual funds in India by using the parameters of Sharpe ratio, Treynor ratio and Jensen performance index. Therefore, there is a need to identify the similiarity and uniformity in the ranking of these three models, Kendalls Coefficient of Concordance is used to test the hypothesis at 1% and 5% level of significance.

Keywords: Performance evaluation, Sharpe ratio, Treynor ratio, Jensen measure, risk-return and index etc.

1. Introduction

Mutual fund industry has restoring the confidence of investors while volatility of Indian stock market. Therefore, the mutual funds initially established for the sake of retail investors and now it has emerged as dominant players in Indian capital market. The collected money was investing in capital market instruments such as shares, debentures and other securities. The income earned by these investments has realised into capital appreciation in proportion to the number units owned by unit holders. Hence, mutual fund is the suitable investment for the person to invest in a diversified and professionally managed basket. It is essential to get good understanding of investment in mutual funds, companies in the field and mutual fund experts, as customers are easily misguided by offers promoted by various financial institutions and advertisements. Therefore, mutual fund companies should support to the investors in terms of advisory services, ensure full disclosure of related information, participation of investor in portfolio design and proper consultancy services. With this in mind, the objective of the study is to comparison of performance evaluation models of SBI and ICICI mutual funds in India.

2. REVIEW OF LITERATURE

Treynor (1965) specified a new to measure the mutual fund performance. He tried to rate the uniqueness of mutual funds performance with graphically. The steeper line indicates the more systematic

risk of a fund possesses. He incorporated various concepts and developed a single line index called Treynor index.[1]

Sharpe (1966) developed ratio to measure the risk-adjusted return of a portfolio. The index is the average return earned more than the risk-free rate per unit of volatility. The performance of a portfolio associated with the risk-taking activities can be isolated when mean return subtracts the risk-free rate. The calculation of Sharpe ratio for such a portfolio containing zero risks is very simple as the ratio will be exactly equal to zero. The higher the Sharpe ratio, the more attractive the risk-adjusted return from the portfolio.[2]

Jenson's (1968) studied the performance of 115 open-ended mutual funds for the period from 1945-1964 by using regression model. He found that among 115 mutual funds, 76 realised negative risk-adjusted returns after accounting for transition costs and management fees. Thus, he concluded that evidence on mutual fund performance indicated not only that these 115 mutual funds were on an average not able to predict security prices well enough to outperform a buy- the-market-and-hold policy, but also, that there was every little evidence that any individual fund was able to do significantly better than that which he expected from mere random chance. Thus, he concluded that on an average the funds apparently were not quite successful enough in their trading activities to recoup even their brokerage expenses.[3]

Alekhya (2012) evaluated the performance of public and private sector mutual fund schemes for 3 years from 2009 to 2011. He examined the funds sensitivity to the market fluctuations by using Sharpe, Treynor and Jensen parameters. He found that, according to Sharpe, Treynor and Jensen measurement, by comparing all the public and private sector mutual fund schemes SBI, UTI and HDFC, JM financial funds is troubling more than other schemes.[4]

Suchita Shukla (2015) studied five categories of mutual funds namely, mid & small cap, large-cap, multi cap, infrastructure and hybrid funds. He found that, all the selected mutual funds have given better returns than the benchmark return.[5]

Alka Solanki (2016) evaluated the performance of Reliance open-ended equity schemes with growth option from 1st April 2007 to 31st March 2016. They found that, all the schemes studied shows an average higher return than in market return i.e., indices like BSE Sensex and BSE 100 except one like Reliance focused large cap fund.[6]

Amarnath Reddy and Sree Ram (2018) evaluated the selectivity and timing performance of Indian sector mutual funds during the period from 2012 to 2015. They applied Treynor and Mazuy model to evaluate the selectivity and timing performance. Their results showed that managers do not have selectivity and timing ability. Further, their results depicted that there is some evidence of negative market timing.[7]

Anuja Magdum and Girish Samant (2019) conducted the comparative study on mutual fund schemes in selected AMC's in India. They considered 21 schemes under equity-based mutual fund schemes offered by two public sector and two private sector companied in India during the period from 2013 to 2018. They used risk- return and Capital Asset Pricing Model (CAPM) as a tool to evaluate the selected mutual fund schemes return. Their results showed that the private sector mutual fund schemes like,

ABSL and ICICI have been moderate risky as compared with public sector mutual fund schemes such as, SBI and UTI.[8]

3. STATEMENT OF THE PROBLEM

The tremendous expansion of mutual fund industry indicates the deeper look into the performance of mutual funds. However, the investors do not know in their portfolio and risk-return associated with fund. The risk association is vary with each type of mtutual funds; hence, the return will also vary. Since, the investors are investing their money based on the scheme type such as private sector or public sector mutual funds. It was felt that important to analyse the mutual fund performance with the help of popular models, such as Sharpe, Treynor, Jensen's etc.

4. OBJECTIVES OF THE STUDY

The main objective of the study is:

- ✓ To compare the performance evaluation models of SBI and ICICI mutual funds by using standard performance models namely, Sharpe, Treynor and Jensen.

5. HYPOTHESES OF THE STUDY

H_{01}: There is no significant difference among the selected mutual fund schemes as per Sharpe's, Treynor and Jensen's Performance index.

6. RESEARCH METHODOLOGY

The main aim of the study is to compare performance evaluation models of SBI and ICICI mutual funds. For this purpose, the standard methodology was used to evaluate the mutual funds performance which was employed as early as Sharpe (1966), Treynor (1965) and Jensen (1968). The secondary data was collected from official websites of respective mutual funds, various websites, journals, magazines, newspapers etc. The study period of five from 1st April 2014 to 31st March 2019 have been considered for the purpose of study. For benchmarking and comparison purpose, NSE Nifty is used.

7. MUTUAL FUND PERFORMANCE EVALUATION MEASURES

The evaluation of mutual fund performance there are various parameters has followed like,

7.1 Return on Portfolio

The return on portfolio has calculated by taking daily Net Asset Values (NAV) from April 2014 to March 2014. The following formula is using to calculate the portfolio return.

$$R_{pt} = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}} X\ 100$$

----------1

Where,

R_{pt} = portfolio return for two consecutive days

NAV_t = Net Asset Value in time period t

NAV_{t-1} = Net Asset Value in time period t-1

7.2 Average return of Portfolio

$$R_p = \sum_{t=1}^{n} R_{pt} / n$$

----------2

Where,

R_p = average return on portfolio

7.3 Market Return

The return on market has calculated by taking daily closing value of NSE Nifty from 1st April 2012 to 31st March 2017. The following formula is using to calculate the Nifty return.

$$R_{mt} = \frac{D_t - D_{t-1}}{D_{t-1}} X\ 100$$

----------3

Where,

R_m = market return for two consecutive days

D_t = Daily closing value of index in time period t

D_{t-1} = Daliy closing value of index in time period t-1

7.4 Average return of Market

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

----------4

Where,

R_m = average return on the market

Risk measured in terms of σ (standard deviation of portfolio) and β (Beta)

7.4.a. Standard deviation (σ)

$$\sigma_p = \sum p\ (r_i - E\ (r)^2)$$

----------5

7.4.b. Beta (β)

$$\beta = \frac{Cov\ (r, k_m)}{(\sigma\ (k_m))^2}$$

----------6

Where,

r = return on the fund

k_m = return on the index

7.5 Alpha

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

----------7

Where,

R_p = Portfolio return
R_f = Risk free rate of return
R_m = Average market return

7.6 Sharpe ratio

$$S = \frac{R_p - R_f}{\sigma_p}$$

----------8

Where,

R_p = portfolio return
R_f = risk free rate of return
σ_p = standard deviation of portfolio

7.7 Treynor ratio

$$T_n = \frac{R_p - R_f}{\beta_p}$$

----------9

Where,

R_p = average return on Portfolio
R_f = risk free rate of return
β = a measure of systematic risk

7.8 Jensen Performance Index

$$J_p = \alpha + \beta (R_m - R_f)$$

----------10

Where,

α = the intercept
R_f = risk free rate of return
β = a measure of systematic risk
R_m = average market return

8. LIMITATIONS OF THE STUDY

The study has the following limitations:

1. Only growth funds under open-ended schemes are taken for the study, even though there are many mutual funds schemes available in India.
2. The study considered only for SBI and ICICI mutual funds in India.

9. COMPARISON OF PERFORMANCE EVALUATION MODELS

The three models like Sharpe, Treynor and Jensen measures employ to evaluate the perfomance of mutual funds. Therefore, there is a need to identify the similiarity and uniformity in the ranking of these three models, Kendalls Coefficient of Concordance is used to test the hypothesis at 1% and 5% level of significance.

9.1 Comparison of Performance Models of SBI Mutual Fund

Hypothsis: There is no significant agreement among the Sharpe, Treynor and Jensen's measures.

The table 1 shows that the comparison of performance models of SBI mutual fund. It observed that ranking between Sharpe and Jensen's measures is the highest (0.941) and ranking between Treynor's and Jensen's is the lowest (0.869) value of performance evaluation. Testing the significance in the agreement using the Kendall's Coefficient of Concordance provides a value of W is 0.007 and P value is 0.916 which indicates that not significant. Hence, the null hypothesis is accepting at 5% level of significance and it is inferred that the rankings of Sharpe, Treynor and Jensen's measures in performance evaluation of mutual fund schemes have been significant difference. There is no sigfinicant agreement among the three measures in the ranking determination. The lowest value showed among the ranks (R_j) is 7, hence, the best estimation of true ranking is the SBI Magnum Taxgain Scheme 1993 - Regular Plan- G. In all the three measures like, Sharpe, Treynor and Jensen's, on the entire rank scheme, SBI Magnum Taxgain Scheme 1993 - Regular Plan- G is found to be the topper in all three measures among the sample schemes of SBI mutual fund covered under the study in terms of comparison of performance models to the market and risk elements involved.

9.2 Comparison of Performance Models of ICICI Prudential Mutual Fund

Hypothsis: There is no significant agreement among the Sharpe, Treynor and Jensen's measures.

The table 2 shows that the comparison of performance models of ICICI prudential mutual fund. It observed that ranking between Sharpe and Jensen's measures is the highest (0.555) and ranking between Sharpe and Treynor's is the lowest (0.137) value of performance evaluation. Testing the significance in the agreement using the Kendall's Coefficient of Concordance provides a value of W is 0.146 and P value is 0.150 which indicates that not significant. Hence, the null hypothesis is accepting at 5% level of significance and it has inferred that the rankings of Sharpe, Treynor and Jensen's measures in performance evaluation of mutual fund schemes have been significant difference. There is no sigfinicant agreement among the three measures in the ranking determination. The lowest value showed among the ranks (R_j) is 6, hence, the best estimation of true ranking is the ICICI Prudential Infrastructure Fund - G. In all the three measures like, Sharpe, Treynor and Jensen's, on the entire rank scheme, ICICI Prudential Infrastructure Fund - G is found to be the topper in all three measures among the sample schemes of ICICI prudential mutual fund covered under the study in terms of comparison of performance models to the market and risk elements involved.

Table 1 - Comparison of Performance Evaluation Models of SBI Mutual Fund

Models / Schemes	Sharpe		Treynor		Jensen		Rj	S
	Index	Rank	Index	Rank	Index	Rank		
SBI Magnum Income Fund-Regular Plan-G	-0.0424	IX	-11.4679	X	-0.04022	X	19	1.33
SBI Magnum Monthly Income Plan - Regular Plan - G	-0.15226	XI	-17.4929	XI	-0.03831	IX	31	117.64
SBI Regular Savings Funds - Regular Plan - G	-0.17642	XII	-9.68179	IX	-0.04104	XI	32	140.33
SBI Short Term Debt Fund - Regular Plan -G	-0.04581	X	-166.10	XIII	-0.045812	XI	34	191.71
SBI Blue Chip Fund-Regular Plan G	-0.0073	III	-0.70908	IV	-0.00636	III	10	103.09
SBI Contra - Regular Plan -Growth	-0.02839	VII	-2.03285	VII	-0.02497	VII	21	0.71
SBI Magnum Equity Fund-Regular Plan - G	-0.02371	VI	-2.03136	VI	-0.02414	VI	18	4.63
SBI Magnum Global Fund - Regular Plan -G	-0.00791	IV	-0.40651	II	-0.00566	II	08	147.71
SBI Nifty Index Fund - Regular Plan - G	-0.03508	VIII	-4.46782	VIII	-0.03538	VIII	24	14.79
SBI Magnum Balanced Fund - Regular Plan -G	-0.02104	V	-0.70618	III	-0.01259	IV	12	66.48
SBI Premier Liquid Fund - Regular Plan -G	-0.00353	II	0.380199	I	-0.01485	V	08	147.71
SBI Magnum Taxgain Scheme 1993 - Regular Plan- G	0.024176	I	-1.02317	V	0.53174	I	07	173.02
SBI Savings Fund - Regular Plan – G	-1.27658	XIII	-72.92264	XII	-0.047217	XIII	38	318.49
Spearman's Co-efficient of Correlation: Ranking between Sharpe and Treynor's: 0.874** Ranking between Treynor's and Jensen's: 0.869** Ranking between Sharpe and Jensen's: 0.941**							∑Rj = 262	∑S =1427.64

Note: **Correlation is Significant at the 0.01 level (2-tailed)

Table 2 - Comparison of Performance Evaluation Models of ICICI Mutual Fund

Models / Schemes	Sharpe		Treynor		Jensen		Rj	S
	Index	Rank	Index	Rank	Index	Rank		
ICICI Prudential Banking and PSU Debt Fund - G	-0.38325	IX	7.684395	II	-0.04372	VI	17	13.6330
ICICI Prudential Corporate Bond Fund - G	-0.32963	VIII	-68.594	XI	-0.04507	VIII	25	18.5563
ICICI Prudential Flexible Income - G	-1.26243	XI	841.88634	I	-0.04528	IX	21	0.0947
ICICI Prudential Income - G	-0.13993	VI	-14.6428	X	-0.04419	VII	23	5.3254
ICICI Prudential Regular Income Fund - G	-0.25571	VII	-7.68553	IX	-0.04567	XI	27	39.7871
ICICI Prudential Regular Savings Fund - G	-0.46329	X	-86.0807	XII	-0.0453	X	32	127.8641
ICICI Prudential Savings Fund - G	-1.22502	XII	78.80926	III	-0.04633	XII	25	18.5563
ICICI Prudential Dynamic - G	-0.02214	V	-1.47227	VIII	-0.01581	V	18	7.2485
ICICI Prudential Infrastructure Fund - G	0.029083	I	2.96621	IV	0.81178	I	06	215.8637
ICICI Prudential Nifty Next 50 Index Fund - G	-0.00706	II	-1.2968	VII	-0.00749	II	11	93.9407
ICICI Prudential Balanced Fund - G	-0.01604	IV	-1.09953	VI	-0.01102	IV	14	44.7869
ICICI Prudential Liquid - G	-3.78203	XIII	-306.7683	XIII	-0.053493	XIII	39	18.3077
ICICI Prudential Long Term Equity Fund (Tax Saving) – G	-0.0121	III	-0.4397	V	-0.01029	III	11	93.9407
Spearman's Co-efficient of Correlation: Ranking between Sharpe and Treynor's: 0.137 Ranking between Treynor's and Jensen's: 0.330 Ranking between Sharpe and Jensen's: 0.555*							∑Rj = 269	∑S = 697.9051

Note: *Correlation is Significant at the 0.05 level (2-tailed)

10. CONCLUSION

The study investigated the compaison of performance models of SBI and ICICI mutual funds during the five years period from 1st April 2014 to 31st March 2019. In order to measure the performance daliy closing NAV of selected schemes has been used to calculate the fund returns. NSE Nifty has used for comparing benchmarking and the bank rate has been used as risk free rate. To evaluate the performance of selected mutual fund schemes, Sharpe ratio, Treynor ratio and Jensen's performance index are used. From the results of performance evaluation measures, Sharpe index indicates SBI premier liquid fund scheme followed by ICICI prudential liquid fund scheme topped the list, Jensen Alpha measures indicates, SBI Magnum Taxgain Scheme 1993 indicating superior performance compared to expectations.

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