Performance Evaluation of Selected Mutual Funds

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Abstract - Mutual fund may be a proficient way to collection the funds of various capitalist at one place and spend this further in different options like shares and commodities for short time duration and long duration. Unit Trust of India (UTI) started this concept in India. In Indian context mutual funds is challengeable observable fact. Investment through mutual funds catches magnificent success in the financial scenario of India. As it is indeed an attractive way to motivate the tiny investor as they can also invest according to their financial capabilities. As number of Mutual fund players have expanded in the money related market, it is essential to check their performance and variables influencing it. People put their money in mutual funds according to their foreordained destinations. This research paper has attempted to discover the exhibition of framework mutual funds in India. For the study we have selected the 5 mutual funds and analysis has been done by assessing various financial tests like Average Return, Sharpe Ratio, Treynor Ratio, Standard Deviation, Beta and Coefficient of Determination.

Keywords: Mutual Fund, Average Return, Standard Deviation, Beta, Coefficient of Determination, NAV, Performance Evaluation, Sharpe Measure, Treynor Measure,

I. INTRODUCTION

The most significant pattern in the mutual fund industry is the hostile extension of the foreign owned mutual fund companies and the decay of the organizations drifted by nationalized banks and littler private area players. Many nationalized banks got into the mutual funds business in the mid nineties and got looking great so far because of the securities exchange blast winning at that point. These banks didn't generally comprehend the mutual funds business and they just saw it as another sort of banking movement.

As per Association of Mutual Funds in India (AMFI), "A mutual fund is a trust that pools the savings of a number of investors who share common financial goal. Anybody with an investible surplus of as little as a few thousand rupees can invest in mutual funds. This investor buys units of a particular mutual fund scheme that has a defined investment objective and strategy." Mutual fund is a proficient way to collection the funds of various capitalist at one place and spend this further in different options like shares and commodities for short time duration and long duration.

II. LITERATURE REVIEW

Paper Title	Author	Published	Data	Techniques	Results
Investment Management of Mutual Funds: Evidence of Timing and Selectivity from India.	Joyjit Dhar	2005	1997-2003	Jensen measure and Fama criteria.	The study, has revealed that majority of the fund managers possess higher selectivity skills based on Fama criterion. However,
An evaluation of equity diversified mutual funds: The case of the Indian market	Rajesh R. Duggimpudi Hussein A. Abdou Mohamed Zaki	2010	2000 to 2009 Covering 17 Mutual funds	Treynor, Sharpe and Jensen techniques used.	17 mutual funds have outperformed the market in terms of their performance with higher returns for a given unit of risk.
Hybrid Mutual Funds: An Analysis	Dr. Ashok Khurana & Kavita Panjwani	2010	15 mutual fund schemes	Arithmetic mean, standard deviation, correlation, Beta, Treynor ratio, Sharpe ratio, Fama, Alpha has been applied.	These funds have also outperformed the Crisil Balance Fund Index over the period of last 5 years. Canara Robeco Balanced Growth Scheme is relatively more volatile with highest standard deviation,

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Effect of Fund Size on the Performance of Balanced Mutual Funds: An Empirical Study in Indian Context	Ms. Sarika Keswani	2011	1st April 2007 to 31st March 10	Correlation coefficients between fund size and the four parameters of performance (Return, Risk, Return/Risk, and Sharpe Ratio) and ANOVA.	The standard deviation of the performance variables are found to be significantly low, implying that the fund size did not significantly related with the performance of Balanced funds. The ANOVA of performance variables of Micro-, Small-, Medium-, and Large Balanced Funds indicated that these variables are not significantly different from each other.
Mutual Fund Investments, FII Investments and Stock Market Returns in India	Suchismit a Bose	2012	2008-2012	Five-day moving average values of FII and MFEQTY,	The study examines this relation in a multivariate VAR framework bringing in stock market returns and daily data of net investment flows from these two investor groups for the post-crisis period between 2008 and 2012.
Perception of Investor on Mutual Fund	Vippar & Margam	2013	One Year 2012-13	Chi-square, Factor Analysis	Perception of investor is independent of Sectors (Public/Private) on liquidity, flexibility, tax saving, service quality, transparency but dependent on income, security and management fees etc.
Study on Mutual Fund	Goyal S. & Bansal D.	2013	One year 2012-13	Conceptual analysis based on Annual report	Professional management required in most of the mutual funds in terms of services and marketing
Performance evaluation of mutual funds:A study of selected equity diversified mutual funds in India	Mamta & Satish Chandra Ojha	2017	50 Months	Sharpe Ratio and Treynor Ratio	The Sharpe 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. The analysis reveals that four out of ten diversified fund schemes are greater than the benchmark comparison which means the specific funds have outperformed the market and indicates the superior risk-adjusted performance. But the portfolio in totality has not outperformed as maximum funds are below the benchmark comparison.
Performance Evaluation of mutual funds in India. A comparative Study of Public and Private sector mutual funds	Kandpal.V. & Kavidyal .P.C	2011		Sharpe Tenyor and Jenson Ratio	Private sector mutual funds are performing good over the public sector mutual fund
The performance of diversified equity growth schemes	Prof. Jalpa Patel & Prof. Mitesh Patel	2012	43 companies for the period of 2003 to 2010	Sharpe's measure, Treynor's measure, Jensen's alpha & Rank conflict	It was concluded that there was rank conflict as Sharpe's & Treynor's Measures give the same result but in case of Jensen"s Alpha measures were different

Objective of the study

1. To analyze trends in returns and performance of selected mutual funds scheme offered in selected banks like SBI, HDFC, KOTAK ,AXIS AND IDBI Banks.

III. RESEARCH METHODOLOGY

This research is based upon secondary data; therefore information has collected from NSE and BSE websites. Data has been collected for one financial year i.e.2019-20 and this study has considered infrastructure mutual funds of HDFC Mutual fund, Reliance Mutual Fund, ICICI Prudential Mutual Fund, Birla Sun Life Mutual Fund, UTI Mutual Fund, SBI Mutual Fund.

SCOPE OF STUDY:

The scope of study will be kept limited to the time period of 3 months. Data regarding NAV's for the majority of equity funds under open-ended schemes will be covered under this study.. In this study the weekly yield on 364-days treasury bills will be used as an option for risk free rate of return. The reasons for studying the performance of mutual fund for this duration is that it covers the both boom and recession period (due to COVID 19)

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The reason for choosing private and public sector and growth/ equity oriented schemes is that from all of the sectors of the economy private sector's overall growth rate is 946.77% from 2000-10 which is very much high as compare to public and UTI sector and researcher want to present a comparative analysis of the mutual funds.

Methods:

To check the performance of mutual funds researcher have used the following tools and techniques have been used-

For Return Analysis:-

Average Return was calculated for analyzing return on mutual funds

The monthly returns of the schemes were computed by using the following equation.

Rpt = NAVt – NAVt-1/ NAVt-1

The average return of the market portfolio is computed as follows:

For each mutual fund schemes in the sample, the returns have been calculated taking monthly Net Asset Values from March 2020 to may 2020. The NAVs are adjusted assuming dividends are reinvested at the ex-dividend NAV.

Calculation of return:-

Rpt = NAVt – NAVt-1/ NAVt-1

Where:

Rpt= Difference between Net Asset Values (NAVs) for two consecutive days divided by the NAV of the preceding day.

't' and 't-1'= Month end Month beginning respectively, t-1,2,3,…n. In is the natural logarithm to the base 'e'.

The average return on the market portfolio is determined as follows:

$$Rp = \frac{1}{n}\sum_{t-1}^{n} Rpt$$

Where,

Rp = Average return on the mutual fund schemes. It is also called an average return on the portfolio.

The average return of the market index is computed as follows:

$$Rm = \frac{1}{n}\sum_{t-1}^{n} Rmt$$

For Risk Analysis: Standard deviation is a measure of risk.

Standard deviation is a measure of total risk. In the present study, the standard deviation of monthly returns has been taken as the measure of risk.

$$\sigma p = \sqrt{\frac{1}{n}\sum(Rmt - Rm)^2}$$

The risk of the market has been calculated as under:

$$\sigma m = \sqrt{\frac{1}{n}\sum(Rmt - Rm)^2}$$

Beta: Beta is the systematic risk. Beta is undiversifiable in nature. It has been calculated by

Beta measures the systematic risk and shows how sensitive the return of a security is in relation to the market return. It is calculated by relating the return on a security with return for the market.

The beta estimated form the following formula is,

$$\text{Beta} = \frac{COV(Rp,Rm)}{\sigma m}$$

Where,

Rpt is the return on the mutual fund scheme

Rmt is the return on market index i.e. SENSEX

ep is the error term

α is the constant term

Performance Evaluation by Risk Adjusted measures:-

For this purpose, Sharpe Ratio and Treynor Ratio and Jenson ration were calculated.

SHARPE MEASURE:

Sharpe (1966) developed a composite index which is very similar to the Treynor measure, the only difference being the use of standard deviation, instead of beta, to measure the portfolio risk, in other words except it uses the total risk of the portfolio rather than just the systematic risk:

$$\text{Sharpe ratio} = \frac{Rp - Rf}{\sigma p}$$

Where:

Si = Sharpe performance index

óp = Portfolio standard deviation

This formula suggests that Sharpe prefers to compare portfolios to the capital market line (CML) rather than the security market line(SML). Sharpe index, therefore, evaluates funds performance based on both rate of return and diversification (Sharpe 1967). For a completely diversified portfolio Treynor's and Sharpe indices would give identical rankings

TREYNOR MEASURE:

Developed by Jack Treynor, this performance measure evaluates funds basis of Treynor's Index. This Index is a ratio of return generated by the fund over and above risk free rate of return during a given period and systematic risk associated with it (beta).

Treynor (1965) was the first researcher developing a composite measure of portfolio performance. He measures portfolio risk with beta, and calculates portfolio's market risk premium relative to its beta:

$$\text{Treynor ratio} = \frac{Rp - Rf}{\beta P}$$

Where:

Ti = Treynor's performance index

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Rp = Portfolio's actual return during a specified time period

Rf = Risk-free rate of return during the same period

Âp = beta of the portfolio

Jenson Ratio:-

The ratio is calculated by subtracting funds beta from difference between funds return and risk-free return and multiplying the result by difference of index return and risk free return.

Jenson Ratio (α) = Rp – [Rf + (Rm – Rf) β]

Where:

Rp = Realized return of portfolio.

Rf = Risk-free rate of return during the same period

Rm = Market Return

Calculation of SHARPE RATIO

Banks	Standard Deviation	Average Return	Risk free return	Sharpe ratio
SBI	0.015654	0.00192	0.03	2.45401
HDFC	0.02291	0.00632	0.03	1.76089
KOTAK	0.018954	0.00289	0.03	2.07809
AXIS	0.009656	0.00105	0.03	3.88819
IDBI	0.040072	0.00632	0.03	1.06864

The above table shows the comparative analysis of performance of mutual funds of different banks using Sharpe ratio. The highest ratio among the above 5 banks is of HDFC and axis bank, they are having the equal Sharpe ratio. While on the other side, IDBI is having the lowest Sharpe ratio. KOTAK banks fund is performing mid-way between the hdfc and axis bank, while the funds of SBI are less than that of Kotak bank.

The mutual funds of HDFC and AXIS banks are performing better as they have higher Sharpe ratio as compared to the other mutual funds.

Calculation of TREYNER RATIO

Banks	Beta	Average return	Risk Free Return	TREYNER RATIO
SBI	0.25755	0.00192	0.0365	0.149
HDFC	0.15126	0.00632	0.0365	0.267
KOTAK	0.020641	0.00289	0.0365	1.908
AXIS	0.00447	0.00105	0.0365	8.40
IDBI	0.086715	0.00632	0.0365	0.49

The above table shows the Treynor index ratio of the selected banks equities are SBI is 0.508%, HDFC bank return is 0.393%, kotak bank return is 0.04%, AXIS bank return is 0.053%, IDBI bank return is 0.445%. According to the Treynor index ratio of the selected diversified equities the HDFC equity return over the bench mark and the systematic risk (beta) is good while comparing to other equities based mutual funds.

Banks	Beta	Average return	Risk Free Return	Market Return	JENSEN RATIO
SBI	0.25755	0.00192	0.0365	0.00325	0.0086
HDFC	0.086715	0.00632	0.0365	0.00325	0.0098
KOTAK	0.020641	0.00289	0.0365	0.00325	0.0011
AXIS	0.00447	0.00105	0.0365	0.00325	0.0012
IDBI	0.086715	0.00632	0.0365	0.0325	0.0010

The above table shows the Jensen ratio of 5 banks which are SBI, HDFC, KOTAK, AXIS and IDBI Bank. The highest Jensen ratio among the above banks is of IDBI bank which is 0.0010. The ratio of SBI is 0.0086 and HDFC is 0.0098 .There is the slight variations between the ratios of KOTAK and AXIS bank. The ratio of AXIS bank is 0.0012 and that of KOTAK is 0.0011.

COMPARATIVE ANALYSIS OF RATIOS

BANKS	SHARPE RATIO	TREYNOR RATIO	JENSEN RATIO
SBI	2.45401	0.149	0.0086
HDFC	1.76089	0.267	0.0098
KOTAK	2.07809	1.908	0.0011
AXIS	3.88819	8.40	0.0012
IDBI	1.06864	0.49	0.0010

The above table inferences the Sharpe ratio, Treynor ratio and the Jensen ratio of the selected bank equities. The highest Sharpe ratio is of Axis banks and the lowest is of IDBI bank. AXIS, SBI and KOTAK Bank equities funds are performing better. The highest Treynor ratio is of AXIS Bank and the least is of SBI bank. HDFC and KOTAK banks are performing moderate. The highest Jensen ratio is of HDFC banks and least is of IDBI banks. AXIS, HDFC and KOTAK banks are performing moderately. Overall we can say that AXIS bank is performing better than that of others bank. Sharpe and Treynor ratios of Axis banks are performing higher as compared to other ratios.

IV. FINDINGS

This study provides documentation on the risk-adjusted performance of mutual funds. Researcher has analyzed 5 banks named SBI, HDFC, KOTAK, AXIS and IDBI Banks. Researcher tried to find out the trend in returns of these mutual funds. The highest Sharpe ratio is of AXIS banks and the lowest is of IDBI bank. SBI and KOTAK equities funds are performing better. The highest Treynor ratio is of

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AXIS and the least is of AXIS SBI bank. IDBI and KOTAK banks are performing moderate. The highest Jensen ratio is of HDFC banks and least is of IDBI banks. AXIS, HDFC and KOTAK banks are performing moderately. Overall we can say that AXIS bank is performing better than that of others bank. All the ratios of AXIS banks are performing higher as compared to other ratios

V. CONCLUSION

Growth opportunities in mutual funds are very high in India and this growth rate invites not only domestic investors as well as foreign investors. Mutual funds investment provides the safety, hedging and return also to the middle class investors or small investors who carry low risk bearing capacity. India's high rate of savings and a rapid-liberalizing economy is expected to raise the mutual fund sector to new hikes. Although mutual funds are instruments in which investment comes from different investors and then diversified into different investment options to minimize the risk and increase the investors return further, in times of high volatility, mutual funds are the best source of the investments with guaranteed and sufficient return provided the selection of mutual funds in the right direction

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