

"Performance Evaluation of mutual fund: A Comparative Analysis of Diversified Top Ranked Equity Fund in India."

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ABSTRACT

"Performance evaluation is an integral part of the portfolio management process. It required to check whether the investment strategy of the fund manager is consistent with the investment objective or not. Even it also required to check the superior performance of the fund manager is attributable to his stock selection or market timing skill. Choice of the proper benchmark is a most important part of the performance appraisal. The benchmark should be as similar as possible to the investment objective, risk, and constraints of the portfolio

Keywords

risk, return, portfolio management, performance evaluation, investment objective, market, performance appraisal.

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Introduction

Evaluation of a portfolio is essential to verify whether the fund manager has achieved the investment objective or not. It also helps in facilitating a mid –course correlation if necessary. We must understand it the importance of portfolio segment measurement, it depends on the various types of valuation done at the time of each additional cash flow. The process of segment measurement helps in explaining the total portfolio return and how it was achieved. Scientific investment entails two things: risk and return. Hence, while evaluating the performance of portfolio or a fund manager, the analysis is incomplete until and unless we also consider the risk undertaken for generating the required return. Hence when performance evaluation is undertaken, both risk and return should always be considered. The evaluation of a portfolio during the schedule time horizon is very important from the point of view of both the investors and the portfolio manager. Therefore, the portfolio performance is adjusted at the end of the time period. The risk undertaken under by the portfolio manager to generate the return is the most important factor in the performance evaluation of the portfolio. Technical measure of the highest degree like Sharpe's measure, Treynor's measure, Jensen measure and Fama's measure are also employed to affect a sharper analysis. Superior performance attached to a portfolio can also be due to the fund manager's efficiency and his ability in timing the market. All the measure to evaluate the performance of a portfolio are not devoid of drawbacks. Despite their flaws, they are widely used by the analysis worldwide.

Literature review

Ms. Shilpi Pala & Prof. Arti Chandanib (2014): In this research the main focuses is on equity and debt mutual fund. The researcher tried to compare the fund taken in the sample on the basis of two deferent periodic return i.e. 3 year & 5

year compounding annually growth rate (CAGR). It is also found that few of them funds has highest expense ratio which has the lowest preference by the investors.

Meenu Baliyan, & Punjika Rathi (2017)

According to this research the whole analysis is focused on risk adjusted performance appraisal criteria of mutual fund. The researcher tried to find the awareness about the mutual fund and on the basis of that there investment is depend. In most of the cases as per the result and findings of the study is that the investors are less aware about the mutual fund and also about the facility of the reliance mutual fund .most of the investor are risk averse so, they prefer to invest in less risky asset i.e. in government security as well as debt fund for that they prefer to take advice through advisory.

Dr.Shantanu Mehta, Charmi Shah: (2017)

This research is based on the few equity mutual fund. Investors are categorized on the basis of their investment time horizon. Most of investor prefer long term investment. That is they want to keep their investment more than one year. It also found that a 3 year duration mutual fund are giving more return that 5 year duration mutual fund. So, long term mutual fund are advisable and sort term fund are not advisable because it provides negative return to the investors. It is also found in the study that the investor preference fluctuate on the basis of availability of deferent categories plan i.e. is on diversification.

Dr. Vikas Choudhary and Preeti Sehgal Chawla: (2013)

This research has designed on comparative analysis basis in which the average return , Sharpe measures , and Treynor's ratio has taken in to the consideration and for the risk measure standard deviation of the fund has taken in to the consideration. It is also found that the beta of the all mutual fund is less than one, so it defined the defensive

portfolio. So investor in these type of portfolio are risk averse, they opt which are less risky with good return.

Sachin Kumar Rohatgi, P.C. Kavidayal, Bhakti Bhushan Mishra, Krishna Kumar Singh, Anjali Dixi: (2020)

This research paper includes a sample of 6 mutual fund for their comparative analysis with Sharpe and Treynor's ratio and their ranking, to choose their fund. It is found that axis long term equity fund have got the first rank in both the ratio i.e. Sharpe as well as Treynor's measure.

Mohamed.zaheeruddin,2. Pinninti Sivakumar, 3.K.Srinivas Reddy: (2013)

As per this research the researcher tried identify the risk loving and risk averse investment avenue. According to this research mutual fund is the best investment avenue for risk averse or small savings investor. There is a suggestion for small investor is that the alternative investment is also available for the same investor. Therefore risk averse investor can also invest in debenture, bonds, treasury bills and some other non-financial assets like post office savings deposit, bank deposit, and pension fund to avoid risk.

Priyanka g. Bhatt k. Prof. (dr.) Vijay h.vyas (2014)

This analysis basically taken for the study of the period of 2011 where data taken for study for the performance evaluation of the few selected mutual fund, the research incorporated the volatility and risk adjusted performance measure specially Sharpe, Treynor measures. It is found the most of the portfolio are highly volatile.

P. Sathisha, K. Sakthi Srinivasanb : (2016)

There are 20 equity diversified open ended mutual fund scheme has taken. Most of the scheme has found positive return during their study. For measuring the risk of all scheme standard deviation has taken in to consideration. All scheme have their beta less than one found in the study. So it define defensive fund and less volatile.

Objective of the research

To evaluate the portfolio performance of investors and portfolio manager.

To evaluate the fund's manager efficiency and ability in timing the market.

Research methodology

There are various process available for performance evaluation of mutual fund. In this study we are considering only **risk adjusted performance criteria**.

Standard deviation measure total risk, or variability. We already know that the total risk can be broken down in to its component parts, i.e., systematic risk and unsystematic risk. Systematic risk (measured by beta) is the component of a security's or portfolio volatility related to the market in general, while unsystematic risk (total risk net of systematic risk) measure the residual variability of a security after

market- related risk is removed. Once the risk of a portfolio is quantified and measured, it can then be related to return to determine whether the return earned was sufficient to reward the investor for the degree of risk assumed. This can be done by using any of the following measures.-

- Sharpe's measure
- Treynor's measure
- Jensen's measure

Sharpe's measure: evaluate the performance of the portfolio based on the total risk of the portfolio, i.e. it takes standard deviation as a measure of risk.

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

Or in other words, Sharpe's measure

= (Avg. rate of return on the portfolio- Avg. rate of return on the risk free investment)

Standard deviation of the return on the portfolio

Numerator is the risk premium earned in the portfolio, Sharpe's measure indicates the return per unit of total risk.

Treynor's measure: Treynor's has suggested that the appropriate measure of risk is the systematic risk or the beta of the portfolio. Treynor's measure relates the rate of return earned over and above the risk- free rate to the portfolio beta during the time period under consideration.

$$\text{Treynor's ratio} = \frac{(R_p - R_f)}{\text{Beta of the portfolio}}$$

Or in other words, Treynor's measure

= (Avg. rate of return on the portfolio- Avg. rate of return on the risk free investment)

beta of the portfolio

Where, portfolio beta is the slope of the characteristic line, which measures the portfolio's volatilities relative to the market i.e. its systematic risk. The numerator, $(R_p - R_f)$ is the measure of risk premium earned by the portfolio and the denominator as already pointed out is the measure of systematic risk of the portfolio. Therefore, Treynor's ratio indicates return per unit of risk. Because the market beta equals one, the market risk premium becomes the slope of the SML. Portfolio plotting above the SML have thus superior risk- adjusted returns. The total risk of a portfolio consists of systematic and unsystematic risk and the latter can be diversified away. Hence, Treynor's measure attempt to measure the return per unit of systematic risk.

Jensen's measure (a): The Sharpe and Treynor's ratio indicates the relative performance of various portfolios on a risk – adjusted basis. Jensen's measure provides absolute performance of the portfolio on a risk- adjusted basis with respect to a definite standard against which performance of the various funds can be calculated.

$$(a = R_i - R_f + (R_M - R_f) \cdot \beta)$$

Data analysis and interpretation

Market Return (R_m) = 10%, Risk free Nominal Rate of return (R_f) = 6.5%.

Scheme Name /Symbol	Avg. Return(R _i)	SD	BETA	(R _m -R _f)B	(R _m -R _f)	AVG-RF	R _f +(R _m -R _f)B
Kotak India EQ Contra Fund (A)	10%	15%	1.01	3.5%	4%	3.99%	10.0%
Axis Long Term Equity Fund (B)	12%	15%	0.90	3.2%	4%	5.69%	9.7%
LIC MF Tax Plan 1997 – Growth (C)	10%	17%	0.98	3.4%	4%	3.03%	9.9%
Mirae Asset Tax Saver Fund (D)	15%	20%	0.99	3.5%	4%	8.65%	10.0%
IIFL Focused Equity Fund (E)	12%	16%	1.02	3.6%	4%	5.75%	10.1%
LIC MF Large & Mid Cap Fund (F)	11%	18%	0.78	2.7%	4%	4.62%	9.2%
Mirae Asset Emerging (G)	17%	20%	0.76	2.7%	4%	10.33%	9.2%
Axis Bluechip Fund (H)	12%	17%	0.78	2.7%	4%	5.36%	9.2%
BNP Paribas Large Cap Fund (I)	10%	18%	0.83	2.9%	4%	3.52%	9.4%
Canara Robeco Large Cap Fund (J)	10%	13%	0.86	3.0%	4%	3.91%	9.5%
Axis Midcap Fund (K)	11%	18%	0.67	2.3%	4%	4.49%	8.8%
Invesco India Mid Cap Fund (L)	10%	20%	0.82	2.9%	4%	3.35%	9.4%
DSP Equity Fund (M)	10%	19%	0.91	3.2%	4%	3.98%	9.7%
JM Multicap Fund (N)	12%	18%	0.90	3.2%	4%	5.14%	9.7%
DSP Natural Resources and New Energy Fund (O)	15%	27%	0.96	3.4%	4%	8.14%	9.9%
Invesco India Infrastructure Fund (P)	9%	28%	1.13	4.0%	4%	2.36%	10.5%
LIC MF Infrastructure Fund (Q)	6%	22%	1.02	3.6%	4%	-0.258%	10.1%
Sundaram Rural and Consumption Fund (R)	12%	18%	0.67	2.3%	4%	5.72%	8.8%
Axis Small Cap Fund (S)	12%	18%	0.96	3.4%	4%	5.84%	9.9%

Table -2

Sch eme Na me	Shar pe Mea sures	Ra nk	Trey nor's Mea sures	Ra nk	JENS EN(a)	Ra nk
A	0.27	11	3.95	16	0.455	16
B	0.37	3	6.33	7	2.548	6
C	0.18	16	3.10	17	-0.394	17
D	0.44	2	8.74	2	5.185	2
E	0.36	4	5.65	11	2.188	8
F	0.26	12	5.93	9	1.894	11
G	0.53	1	13.60	1	7.676	1
H	0.31	7	6.88	5	2.634	5
I	0.20	15	4.25	14	0.623	14
J	0.29	9	4.56	12	0.908	12
K	0.25	13	6.71	6	2.153	9
L	0.17	17	4.10	15	0.488	15
M	0.21	14	4.38	13	0.797	13
N	0.29	10	5.72	10	1.994	10
O	0.30	8	8.48	4	4.784	3
P	0.9	18	2.09	18	-1.590	18
Q	-0.1	19	-0.25	19	-3.828	19
R	.032	6	8.55	3	3.383	4
S	.033	5	6.09	8	2.486	7

Findings

Treynor's and Jensen's measure's consider the systematic risk (β), the ranking given by the funds, will not be always identical because Treynor's ratio is are relative performance measure whereas Jensen's measure is an absolute performance measure. The different rankings obtained by the Sharpe and Treynor measure can be explained on the basis of different measures of risk being used in two approaches. The Sharpe's measure, therefore implicitly evaluates the funds' performance on the basis of return, also takes in to account how- well diversified the portfolio was during this period. If a portfolio is perfectly diversified (unsystematic risk=0). The two measure give identical rankings because the total variance of the portfolio would be a systematic variance. If a portfolio is poorly diversified, it is possible for it to have a high ranking on the basis of Treynor's measure, but a much lower ranking on the basis of Sharpe's measure. Any difference should be directly attributable to the poor diversification of the portfolio.

Conclusion

The measure's that is Sharpe and Treynor are complementary and both measure should use. As pointed

out by Sharpe, if one is dealing with a well –diversified group of portfolio, such as mutual fund, the two measures will provide very similar ranking. Since Sharpe felt the variability due to unsystematic risk was probably transitory, he felt that the Treynor measure might be a better measure for predicting future performance, and his result generally confirmed this expectation.

Additional matters-it is found that the in large no of cases, Sharpe's and treynor's measure of performance produces similar ranking of portfolio; typically, therefore, they agree on whether a particular portfolio has done better than the market or not. The situation of disagreement is an exceptional rather than rule. This happens because most of the portfolio are diversified. In short, Sharpe's measure will be appropriate for evaluating funds which are not expected to be fully diversified whereas Treynor's ratio will be more suitable for funds which are supposed to be well-diversified.

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