Measuring Risk Adjusted Return (Sharpe Ratio) of the Selected Mutual Funds – A case of Daily Returns

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Abstract
Generally, it has been observed that most of the small & retail investor invest their money in avenue which shall provide higher return at relatively low to moderate risk. Mutual fund in an investment option which provide higher return at relatively low to moderate risk. This paper aims to provide insights of risk and return aspect of three (3) mutual funds namely Birla Sun life Top 100, ICICI Top 100 and HDFC Equity Fund by applying Sharpe Ratio. The comparison has been also made with market return as benchmark. The calculations are done on daily basis for one year i.e. Jan. 2013 and Dec. 2013. The result indicates that, out of three funds Birla sun life top 100 and ICICI top 100 outperformed the market. As far as Sharpe ratio is concerned only ICICI top 100 found positive, which is better option for investment out above three.

Keywords: Mutual Funds, Sharpe Ratio, BSE Sensex.

Introduction
With the initialization of reforms in Indian economy in 1991 and onwards, the economy has seen great growth in almost all segment of the economy. As a part of global treaties, India was forced to open its doors for private players for business. Gradually, almost all sectors of Indian economy were opened one by one and many are in pipeline. Financial sector was also one of the part of it. Indian capital market has observed so many fundamental changes by SEBI. In earlier times there were only few investment options available to investors for investment but with the initialization of financial reforms, the investors now have many options for investment. The basic characteristic of an investment option, from the investor’s point of view should be low risk and high return. Mutual funds are the options which provide relatively higher return with low to moderate risk. The concept of mutual fund in India was however launched by UTI (Unit Trust of India), in 1964. However, due to lack of transparencies and other issues related to capital market, investors suffered much loss on their investment.

With the great efforts performed by SEBI time to time, capital market was able to manage several financial crisis. Mutual fund is one of the most transparent investment option for investment working on NAV (Net Asset Value) concept. Presently the concept of mutual fund has become very familiar to almost all retail investor. The key benefits of mutual funds is that, it can be started with nominal amount of INR 500, besides that tax benefit is also available in some schemes, smart moves by experts, advantage of equity return and at the same time investors can reap the benefit of economies of scale as well as diversification of risk.

Review of Literature
Wermers (2000) made study of performance of mutual fund in US from 1975 to 1994 on the basis of fund returns and cost associated with it. It was found that, mutual fund trading was more than double form 1975 to 1994 period besides that, several stock outperformed the market by 1.3 percent but their net return was underperformed.

A study performed by Carhart (1997) suggest that net return are negatively correlated with the expense level, which are generally much higher for actively managed funds.

Grinblatt and Titman (1989, 1993) and Wermers (1997) mentioned that mutual fund that there is special ability of managers to select the fund that outstripped their benchmark return, even before any expenses are deducted. It was empirically proven that growth oriented mutual funds were outperformed their benchmark by an average two to three per cent per year before expense.

Sharpe (1966) mentioned that in a modern portfolio theory the expected return of portfolio is linearly associated with risk (unsystematic risk), by the application of various theories and concepts he developed Sharpe Ratio. The ratio deals with identifying the risk and return aspects with reference to risk free rate of return which is also known as reward to variability. It was emphasized that unsystematic risk can be reduced, and it is generally due to managerial inefficiency. Sharpe examined 34 open ended mutual fund from 1954 to 1963 and found substantial variability in the Sharpe ratio from .78 to .43. He opined that the reason behind variability could be high fund expenses of AMCs or may be differences in the managerial skills of fund manager.

Brown et al (1996) found “tournament view” of funding. It was described as those mutual funds which has poor financial performance for the half year tend to increase the risk position in the upcoming half year. The fund manager tend to strive with each other for capturing
market. It was empirically found that investor used to invest in those mutual fund which realize good performance at the end of year.

Sharpe Ratio
In finance, the Sharpe ratio (also known as the Sharpe index, the Sharpe measure, and the reward-to-variability ratio) is a way to examine the performance of an investment by adjusting for its risk. The ratio measures the excess return (or risk premium) per unit of deviation in an investment asset or a trading strategy, typically referred to as risk (and is a deviation risk measure), named after William Forsyth Sharpe. The higher the ratio the better performance.

\[
\frac{\bar{r}_p - r_f}{\sigma_p}
\]

Where:
\(\bar{r}_p\) = Expected portfolio return
\(r_f\) = Risk free rate
\(\sigma_p\) = Portfolio standard deviation

(www.investopedia.com/terms/s/sharperatio.asp)

Research Objectives
a) To measure performance of selected mutual fund i.e. Birla Sun Life Top 100, HDFC Top 200 and ICICI Top 100 by application of Shape ratio.

b) To identify the best performing mutual fund scheme with compare to risk and return amongst the selected mutual fund with reference to BSE Sensex

Research Methodology
Data Collection- The entire study is based on secondary data. These data have been collected from various websites and annual reports of respective AMCs. (Mentioned at reference)

Period of Study- For the evaluation of selected mutual fund, time period from Jan.2013 to Dec.2013 was selected. The calculation were made on daily bases by NAV.

Application of Statistical Tool- For the calculation of risk and return were made on the basis of Sharpe Model. BSE Sensex is taken as Benchmark return.

Calculation of Risk-free return – SBI fixed deposit interest rate has been considered as risk free return which is 8.25% P.A.

Calculation of Return on Fund - Daily returns have been calculated by closing value of NAV – (minus) Opening Value of NAV/Opening Value i.e. New NAV - Old NAV/Old NAV on daily basis. For calculation of Std. Dev. PA 252 trading days have been considered.

Limitation- Transaction cost and dividend payout have been ignored (if any)

Results and Discussion

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Birla Sun Life Top 100</th>
<th>HDFC Equity Top 200</th>
<th>ICICI Top 100</th>
<th>Benchmark SENSEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Return</td>
<td>0.08021</td>
<td>0.01892</td>
<td>0.1064</td>
<td>0.073878</td>
</tr>
<tr>
<td>Performance with benchmark (Sensex)</td>
<td>0.006332</td>
<td>-0.05496</td>
<td>0.032522</td>
<td>---</td>
</tr>
<tr>
<td>Std. Dev. (Daily)</td>
<td>0.010605</td>
<td>0.011954</td>
<td>0.009666</td>
<td>0.01100301</td>
</tr>
<tr>
<td>St. Dev (Annual)</td>
<td>0.168355</td>
<td>0.189762</td>
<td>0.153447</td>
<td>0.17466736</td>
</tr>
<tr>
<td>G sec SBI FD Int. Rate</td>
<td>0.0825</td>
<td>0.0825</td>
<td>0.0825</td>
<td>---</td>
</tr>
<tr>
<td>Sharpe Ratio</td>
<td>-0.0136</td>
<td>-0.33505</td>
<td>0.155754</td>
<td>---</td>
</tr>
</tbody>
</table>
The above table indicates that Sharpe ratio for Birla Sun Life Top 100 is -.0136, -.33505 for HDFC equity and 0.155754 for ICICI Top 100. Which indicates that from the selected three mutual fund ICICI Top 100 is best as far as Sharpe ratio is concerned. With reference to benchmark return Birla Sun Life Top 100 and ICICI top 100 are outperformed stock, while HDFC equity is underperformed.

Reference


[10] www.bseindia.com