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# A study on performance evaluation mutual fund schemes in India

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**Abstract**
Indian capital market endows with a variety of investment alternatives for investors to assist them in various investment tools and to make certain the profitable return. Along with diverse range financial products, mutual fund ensures the maximum return and minimum risks to the investors. Development of various mutual fund schemes in the Indian capital market has proved to be one of the most catalytic investment avenue in generating significant investment growth. The Asset management companies are taking vigorous part in financial affluence and they promote investment practice among the investors.
This Mutual fund industry has witnessed magnificent growth in past few years. This study is aimed at evaluating performance of mutual funds and also to inspecting the role of asset management companies in reference to public and private sector. The main objective of this study work is to study financial performance of selected mutual fund schemes through the statistical parameters such as (beta, standard deviation, coefficient of determination, Sharpe ratio). The findings of this study will helpful to investors for their investment decisions in future.

**Keywords:** mutual funds, capital market, investment practices

## Introduction
Mutual fund is the pool of the money, based on the trust who invest the savings of a number of investors who shares a common financial goal, like the capital appreciation and dividend earning. The money thus collect is then invested in capital market instruments such as shares, debenture, and foreign market. Investors invest money and get the units as per the unit value which we called as NAV (net asset value). Mutual fund is the most suitable investment for the common man as it offers an opportunity to invest in diversified portfolio management, good research team, and professionally managed Indian stock as well as the foreign market, the main aim if the fund manager is to taking the scrip that have under value and future will rising, then fund manager sell out the stock. Fund manager concentration on risk return trade off, where minimize the risk and maximize the return through diversification the portfolio. The most common features of the mutual fund unit are low cost. The below I mention the how the transactions will done or working with mutual fund.

## Literature review
(Dr.R.Narayanasamy, 2013) In India, capital market provide various investment avenues to the investors. The findings of this research study will be help full to investors for their future investment decisions. The mutual \fund guarantees the minimum risks and maximum return to the investor. This study mainly focused on the performance of selected equity large cap mutual fund schemes in terms of risk- return relationship the various statistical tools used for calculated the performance of the selected open ended equity mutual fund schemes.
(Mrs. B. Kishori, 2016) This paper analysis the performance of open-ended, growth-oriented. The different mutual fund schemes analysis their performance through daily NAV of schemes. BSE-Sensex has been used for market portfolio. Results will be useful for investors for taking better investment decisions.
(DR. G.S. Batra, 2012) Mutual fund invested in a well-diversified portfolio of different companies. The findings of the study reveal that only three schemes have performed better than benchmark. To study the performance evaluation of selected open ended schemes in terms of risk and return relationship.
The importance of risk and return for any investment, this paper analyses risk adjusted returns of mutual funds and also absolute returns. They have attempted to find out if the fund managers have outperformed the benchmark for a given risk class. This reveals that the selection of performance measure is very important in assessing the performance of the mutual fund.
(Dr. R. Perumal, 2016) Investment decision making towards mutual funds by using Statistical tools and ratio analysis of mutual fund schemes. The objective of this research work is to exploits the use of statistical tools and ratio analysis in terms of financial performance. The research findings are useful to the Mutual Fund Companies in terms of understand their performance among the mutual fund companies in the market.
(Burlakanti & Chiruvoori, 2013) All These Fund houses have several mutual fund schemes in each segment like equity, debt, gilt and liquid funds. Availability of wide range of equity MF schemes in each AMC, it would be difficult for the investor to choose the best scheme. It is overlook to consider risk and return of each fund to earnings better returns before taking investment decision.

## Objectives of the study
- To identify the performance of open ended equity mutual fund schemes.
- To measure the performance of mutual fund companies

- To analysis the risk return parameter for mutual fund performance
- To study the purpose of evaluating the future investment regarding open ended equity schemes.

**Scope of the study**

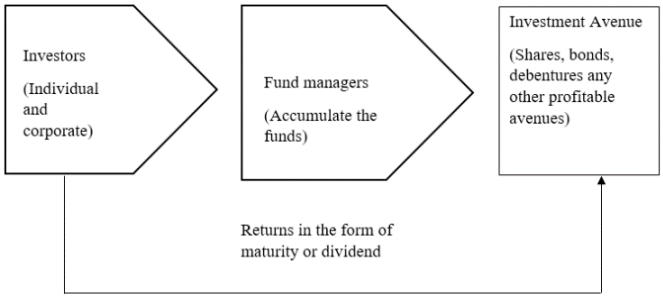
The present study comprise of 20 mutual fund schemes launched by different sector. The time of this period of this research work is from April 2013 to March 2017. The NAV of the selected scheme have been compared for five years with an annual return. Then these schemes have been compared with the bench mark return to evaluate the performance of these equity schemes.

**Significance of the study**

Evaluating the historical performance of mutual funds is important both for investors as well as portfolio managers. It enables an investor to access as to how much return has been generated by the portfolio manager and what risk level has been assumed in generating such returns. Further, an investor can also appraise the comparative performance of different fund managers. Similarly fund managers would also be able to know their performance over time and also other competitors in the industry. The evaluation also provides a mechanism for identifying strengths and weaknesses of fund managers in the investment process, which helps them to take corrective action.

**Mechanism of mutual fund investment**

The mechanism of mutual fund investment is been explained in the diagram below




**Research methodology**

**Research design**

The quality of any research project will be enhanced by a good understanding of research design. Research design is a layout of the executing research project. Research design is the way of systematic collection of data and analysis of data which is relevant to the objective of the research project. Its cyanotype for the collection, measurement and analysis of data.

For this research study descriptive research design has been applied and also data collection is secondary data sources of information. Method of collecting the secondary data was collected from the Association of Mutual Fund India, BSE India etc. initially this study tries to evaluate the performance of the 20 equity mutual fund schemes.

**Data source**

For the present study, the secondary data was collected from the various sources from the Association of Mutual Fund India, BSE India etc. initially this study tries to evaluate the performance of the 20 equity mutual fund schemes.

**Tools and techniques used**

Analysis has been done by using following statistical tools.

**1) Sharpe ratio:** It indicates the risk-return performance of portfolio.

$$\text{Sharpe Index} = \frac{\text{Portfolio Average Return (Rp)} - \text{Risk Free Rate of Return (RF)}}{\text{Standard Deviations of the Portfolio Return}}$$

**2) Treynor ratio:** It measure the returns earned in excess of that which could have been earned on investment that has no diversifiable risk.

$$\text{Treynor Index} = \frac{\text{Portfolio Average Return (Rp) - Risk Free Rate of Return (RF)}}{\text{Beta Coefficient of Portfolio}}$$

**3) Jensen ratio:** It measures the risk-adjusted performance of a security or portfolio in relation to the expected market return.

$$\text{Alpha } (\alpha) = (Rx - Rf) - \beta\,(Rm - Rf)$$

**4) Beta:** It measures the volatility or systematic risk of a security with comparison to the market as a whole. Beta is calculated as,

$$\beta = \frac{\text{Covariance (Rx, Rm)}}{\text{Variance (Rm).}}$$

**5) Standard deviation:** It shows the historical volatility.

$$\sigma x = \frac{\sqrt{\Sigma\,(Rx - \bar{Rx})^2}}{N}$$

**Limitations of the study**

- The data is limited to performance of the equity mutual funds only for the period of last five years.
- The data is limited to 20 schemes only.

**Data analysis and interpretation**

**Table 1:** Analysis of risk, return and beta

| S.no | Schemes | Return | Risk | Beta |
|---|---|---|---|---|
| 1 | Sbi banking &financial fund | 0.4687 | 0.0390 | 0.5949 |
| 2 | Sbi diversity equity fund | 0.3965 | 0.0330 | 0.4426 |
| 3 | Sbi magnum equity fund | 0.1673 | 0.0139 | 0.3265 |
| 4 | Sbi infrastructure fund | -0.0396 | -0.0033 | 0.7027 |
| 5 | Reliance diversified power sector fund | 1.0419 | 0.0868 | 0.9619 |

| | | | | |
|---|---|---|---|---|
| 6 | Reliance infrastructure fund | 0.7827 | 0.0652 | 0.5925 |
| 7 | Uti banking sector fund | 0.8091 | 0.0674 | 0.6851 |
| 8 | Hdfc growth fund | 0.8426 | 0.0702 | 0.6875 |
| 9 | Icici infrastructure fund | 0.7396 | 0.0616 | 0.6354 |
| 10 | Hdfc index fund | 0.1378 | 0.0114 | 0.26 |
| 11 | Hdfc infrastructure fund | 0.7282 | 0.0606 | 0.6916 |
| 12 | Uti infrastructure fund | 0.3308 | 0.0275 | 0.4477 |
| 13 | Hdfc equity saving fund | 0.4373 | 0.0364 | 0.6285 |
| 14 | Axis saver equity fund | -0.1570 | -0.0130 | 0.0869 |
| 15 | Axis equity fund | -0.0403 | 00.0033 | 0.3275 |
| 16 | Axis long term equity fund | 1.1805 | 0.0983 | 0.7397 |
| 17 | L&t infrastructure fund | 1.0430 | 0.0869 | 0.7251 |
| 18 | Tata india consumer fund | 0.5960 | 0.0496 | 0.6470 |
| 19 | Tata resource & energy fund | 0.7700 | 0.0641 | 0.6283 |
| 20 | Brila sunlife infrastructure fund | -0.0636 | -0.0636 | 0.2075 |

**Inference**

The above table exhibits that axis long term equity fund has yielded the highest returns (1.1805) of all selected mutual funds. Reliance diversified power sector fund growth has earned the next highest returns, followed by Birla sun life top 100 fund etc. Axis saver equity fund has delivered the lowest return.

The above table exhibits axis long term equity fund has yield the highest risk (0.0983) of all selected mutual funds. L & T infrastructure fund growth has earned the next highest risk, followed by reliance diversified power sector fund etc. Birla sun life infrastructure fund the lowest risk.

Since Beta value is less than 1n means the fund reacts less than market reaction. All the funds has Beta less than 1, which indicates that the securities price will be less volatile than the market.

**Table 2:** Analysis of Ratios in Sharpe, Treynor and Jensen Measure with Rank

| S.no | Schemes | Sharpe | Rank | Treynor | Rank | Jensen | Rank |
|---|---|---|---|---|---|---|---|
| 1 | Sbi banking &financial fund | 1.1504 | 11 | 0.7221 | 12 | 0.9074 | 12 |
| 2 | Sbi diversity equity fund | 0.9476 | 12 | 0.8221 | 11 | 0.6941 | 13 |
| 3 | Sbi magnum equity fund | 0.3894 | 15 | 0.4696 | 16 | 0.3320 | 15 |
| 4 | Sbi infrastructure fund | -0.0913 | 18 | -0.0516 | 17 | 0.2174 | 18 |
| 5 | Reliance diversified power sector fund | 2.4768 | 1 | 0.9929 | 3 | 2.2448 | 1 |
| 6 | Reliance infrastructure fund | 1.8823 | 6 | 1.2108 | 8 | 1.3685 | 8 |
| 7 | Uti banking sector fund | 1.8995 | 5 | 1.0825 | 6 | 1.5174 | 5 |
| 8 | Hdfc growth fund | 1.9363 | 7 | 1.1234 | 4 | 1.5776 | 4 |
| 9 | Icici infrastructure fund | 1.6739 | 4 | 1.0670 | 7 | 1.3662 | 9 |
| 10 | Hdfc index fund | 0.3027 | 16 | 0.4858 | 15 | 0.2676 | 16 |
| 11 | Hdfc infrastructure fund | 1.5593 | 8 | 0.9652 | 9 | 1.4254 | 7 |
| 12 | Uti infrastructure fund | 0.6796 | 14 | 0.6773 | 13 | 0.6389 | 14 |
| 13 | Hdfc equity saving fund | 0.8442 | 13 | 0.6378 | 14 | 0.9514 | 11 |
| 14 | Axis saver equity fund | -0.2808 | 20 | -1.6560 | 20 | -0.1119 | 20 |
| 15 | Axis equity fund | -0.0759 | 17 | -0.1129 | 18 | 0.1103 | 17 |
| 16 | Axis long term equity fund | 2.4257 | 2 | 1.4629 | 1 | 2.2126 | 2 |
| 17 | L&t infrastructure fund | 2.2155 | 3 | 1.3184 | 2 | 1.9624 | 3 |
| 18 | Tata india consumer fund | 1.3552 | 9 | 0.8444 | 10 | 1.1608 | 10 |
| 19 | Tata resource & energy fund | 1.3062 | 10 | 0.1234 | 5 | 1.4889 | 6 |
| 20 | Brila sunlife infrastructure fund | -0.1079 | 19 | -0.2819 | 19 | 0.0416 | 19 |

**Inference**

It represents the result of Sharpe measure and Treynor measure. It is observed from the above table higher positive value of Sharpe measure was found in reliance diversified power sector fund (2.4768) which followed by axis long term equity fund (2.4257) and L & T infrastructure fund (2.2155). In the study, the Sharpe ratio was positive for all schemes which showed that funds were providing returns greater than risk free rate. It also found from that the 10 out of 20 schemes have better Sharpe ratios in comparison to the benchmark portfolios.

In the context of Treynor measure, it is revealed for the table 2 that 2 schemes, out of 5 had outperformed the benchmark. HDFC growth fund is the top performed which followed by HDFC equity fund. It also found from the table that schemes have better. Treynor ratios in comparison to the benchmark portfolios.

In the Jensen measure of the mutual fund schemes. Result of Jensen measure revealed that 10 out of 20 schemes were showed positive alpha which indicated superior performance of the schemes and remaining 4 schemes negative alphas. Among the entire schemes higher alpha was found with reliance diversified power sector fund followed by reliance mutual fund.

**Suggestions**

- Investors who have a lower risk appetite may invest in reliance diversified power sector fund and birla sunlife equity fund as it has lowest beta among all the other funds.

- Investors who want the highest returns and are willing to take higher risk could invest their funds in reliance ddiversified power sector fund as it yield the highest returns among all the other equity mutual funds and also it has low variations when compared with the market performance. So it can be preferred by risk adverse investors.
- Investors who are interested in consistent returns also can invest in reliance diversified power sector fund, among all the other selected mutual funds.

**Conclusion**

The present study investigates the performance of 20 open ended, diversified equity schemes for the period of April 2013 to March 2017 (five years) of transition economy. Daily closing NAV of different schemes have been used to calculate the returns from the fund schemes. S & P BSE Sensex has been used for market portfolio. The historical performance of the selected schemes were evaluated on the basis of Sharpe, Treynor, Jensen measure whose results will be useful for investors for taking better investment decisions.

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