# Performance Evaluation of Mutual Funds in comparison to category average and Benchmark

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There are many reasons why investors prefer mutual funds. Buying shares directly from the market is one way of investing. But this requires spending time to find out the performance of the company whose share is being purchased, understanding the future business prospects of the company, finding out the track record of the promoters and the dividend, bonus issue history of the company etc. The present research is a study of examining and analysing equity mutual fund schemes by using different financial and statistical tools. Three schemes taken for this purpose are Large Cap, Small & Mid CAP, and Diversified Equity Mutual Fund Schemes.

This paper was an attempt to evaluate the performance of equity mutual fund ranked 1 by CRISIL, and compared the annualized return with their category average and benchmark. The collected data have been analysed on basis of returns of last one year as on 16 may 2014. Various statistical and financial techniques namely, Standard Deviation and Sharpe ratio have been used to measure volatility of returns, and returns per unit of risk respectively. Furthermore, Coefficient of determination ($R2$), Expenses ratio and Corpus size of funds have also been evaluated.

## Introduction:

A mutual fund is a professionally managed type of collective investment scheme that pools money from many investors and invests it in stocks, bonds, short-term money market instruments and other securities. There are many reasons why investors prefer mutual funds. Buying shares directly from the market is one way of investing. But this requires spending time to find out the performance of the company whose share is being purchased, understanding the future business prospects of the company, finding out the track record of the promoters and the dividend, bonus issue history of the company etc. An informed investor needs to do research before investing. However, many investors find it cumbersome and time consuming to pore over so much of information, get access to so much of details before investing in the shares. Investors therefore prefer the mutual fund route. They invest in a mutual fund scheme which in turn takes the responsibility of investing in stocks and shares after due analysis and research. The investor need not bother with researching hundreds of stocks. It leaves it to the mutual fund and its professional fund management team. The history of Mutual Funds in India can be dated back to 1963, when UTI was established, by an act of Parliament. As on 30th April 2012, the total numbers of mutual fund schemes in India are 1292, which is worth Rs 6, 80,154 crores (also called Asset under management). In this context it becomes pertinent to study the pattern and behaviour of the Mutual fund schemes, to which the common man is still unaware of. The risk-return relationship is perhaps one of the best ways to analyse the performance of a mutual fund.

**CRISIL Mutual Fund Ranking**

CRISIL is one among the leading rating agencies in India. CRISIL is a full-service rating

agency.CRISIL rating serves lenders, investors, issuers, market intermediaries and regulators by improvingavailability of information and providing benchmarks. CRISIL Rating is used by investors and lenders tosupplement their internalevaluation process and to benchmark credit quality across investment options.

In India, CRISIL has developed a methodology based on global best practices for ranking mutualfunds. In thepast decade the mutual fund ranking has gained high acceptance among investors, intermediaries, and assetmanagement companies.

Only open ended schemes are considered for ranking and the basic criteria for including mutualfund scheme in the ranking universe are three-year NAV history (one-year for liquid, ultra short-term debt,short term income and index funds, and five years for consistent performers), assets under management inexcess of cut-off limits and complete portfolio disclosure. The performance criteria covers risk adjustedreturns along with portfoliocharacteristics like industry concentration, company concentration, liquidity, etc. to make the analysis forward looking.

The present study was confined to examine and evaluate the return fetched by mutual fundschemes ranked 1 by CRISIL.

**Objectives of the study**

The last decade has seen a tremendous growth in the mutual fund industry. As per the latest data the assets under management in this industry is more than Rs 6.8 thousand billion. Today the Indian market is flooded with more than a thousand mutual fund schemes, promising better returns than others. However for a common man, it becomes a challenge to select the best portfolio to invest. With

this, it becomes pertinent to analyse the performance of these assets under management. An attempt has been made to study the performance of equity based mutual fund in India.

The present study aims to achieve the followingobjectives by considering the main objective as to select the best Equity Mutual fund among selected eleven funds during the period of study:

a) To compare and analyse the performance of selected Equity Mutual Fund schemes

b) To compare the growth of selected Equity Mutual Fund schemes with their Industry average.

c) To find out the best Equity Mutual Fund scheme in terms of return over the selected period of study.

d) To suggest the means to improve return by investment in mutual funds.

**Literature review**

Generally mutual funds are used to bridge thegap that exists between investor and investmentavenues available at the stock markets and this fact hasmadetheir performance measurement a frequentlystudied topic in investment circles of most countries. Prior to 1960 investors used to estimate a portfolio's out come more or less completely on the basis of onefactor i-e rate of return. The element of risk was known tothem but they were not capable to enumerate therisk. Inearly 1960s, portfolio theory taught them the art ofquantifying the risk.

Treynor (1965) and Sharpe (1966) have provided the conceptual framework of relative measure of performance of equity mutual funds while Treynor

used systematic risk. Sharpe used total risk to evaluate the mutual fund portfolio performance higher value of Treynor's index indicates better performance of portfolio and vice versa. The Treynor's measure of portfolio performance is relative measure that ranks the funds in terms of risk and return. The index is also termed as reward to volatility ratio.

SathyaSwaroopDebashish (2009) measured the performance of the equity based mutual funds in India. 23 schemes were studied over a period of April 1996 to March 2009 (13 years). The analysis was done on the basis of mean return, beta risk, coefficient of determination, sharp ratio, Treynor ratio and Jensen alpha. The first analysis has been done on the basis of returns, followed by a comparison between market returns and the return on schemes. It was concluded that UTI mutual fund schemes and Franklin Templeton schemes have performed excellently in public and private sectors respectively. Further, on the basis of the parameters like Sharpe ratio, Deutsche, Franklin Templeton, Prudential ICICI (in private sector) and SBI and UTI (in public sector) mutual funds schemes have out-performed the market portfolio with positive values. However, the overall analysis finds Franklin Templeton and UTI being the best performers, and Birla Sun Life, HDFC and LIC mutual funds showing poor below-average performance when measured against the risk-return relationship models and measures.

Fama and Macbeth (1973)' examine the return of securities, using OLS techniques and find that the CAPM, or market model, explains returns well. They examined three testable implications of the market model, (1) the relationship between risk and return is linear, (2) beta is a complete measure of risk, and (3) higher risk should be associated with higher returns. They conclude that none of the three

testable implications can be rejected. The results are consistent with efficient markets and a sound asset pricing model, however, the estimated intercept was somewhat higher than $R_f$.

According to Gupta LC (1981) presented a detailed and well-based estimate of "Portfolio" rate of return on equities. This pioneering study in the Indian context has been a major contribution in this field and is regarded as the benchmark on the rate of return on equities for the specified time. He laid the basis of rate of return concept in performance evaluation.

According to Amaud (1985) benchmark comparison is 3rd level of performance which indicates how well or worse the managed portfolio has performed.

Haslem (1988) evaluated fund performance by comparing the fund return with the return on market portfolio with the comparable risk. The fund's systemic risk, beta co-efficient is used to compare portfolio risk relative to the market risk. 'Beta' is a measure of risk of the fund's portfolio relative to the risk of the market portfolio.

Radcliff (1994) had concluded in his work that to receive greater average yearly returns, the investors must accept greater variability in returns, they should have higher risk tolerance level.

AmpornSoongswang (2009) studied 138 open ended equity mutual funds managed by 17 asset management companies in Thailand during the period 2002-2007. When the mutual funds were measured using Treynor ratio, Sharp ratio and Jensen's alpha, showed that performance of Thai open ended mutual funds significantlyoutperformthemarket. However, by using the Data Envelopment analysis (DEA) technique, the results suggested that for 3 month

time period of investment only, the open ended equity mutual fund significantly outperform the market.

**Research methodology**

To conduct the research following methodology is employed:

**Data collection**

The present research is a study of examining and analysingequity mutual fund schemes by usingdifferent financial and statistical tools. Three schemes takenfor this purpose are Large Cap, Small & Mid CAP, and Diversified Equity Mutual FundSchemes. This study compares 11 equity fundslaunched by public sector, private sector, and foreignmutual fund players in India. 4 from large cap i.e. Birla Sun Life Long Term Advantage Fund, Birla Sun Life Top 100 Fund, ICICI Prudential Top 100 Fund - Regular Plan&Quantum Long Term Equity Fund. 3 from small& Mid CAP i.e. Franklin India Smaller Companies Fund, Mirae Asset Emerging Bluechip Fund - Regular Plan&SBI Magnum Midcap Fund. 4 fromDiversified Equity i.e. ICICI Prudential Dynamic Fund - Regular Plan, ICICI Prudential Exports and Other Services Fund - Regular Plan, Tata Ethical Fund - Plan A&Principal Growth Fund.

The schemes have beenselected using deliberate sampling method subject to thecriteria mentioned as under:

1. Considering corpus size of AMC 25 crore to 1000 crore

2. All the funds are taken as  rank 1 by CRISIL

3. Top 11 schemes ranked on the basis of 5 years compounded annualized returns.

The study is exclusively based on secondary data, which has been collected from various websites, journals and fact sheets of various mutual fund schemes published by them time to time.

**Tools and Techniques**

The collected data have been analysed on basis of returnsof last one yearas on 16 may 2014. Various statistical andfinancial techniques namely, Standard Deviation andSharpe ratio have been used to measure volatility ofreturns, and returns per unit of risk respectively. Furthermore, Coefficient of determination (R2), Expensesratio and Corpus size of funds have also been evaluated.In addition to these tools, various tables and hasalso been used to make the data presentable and easy tounderstand.

*I.    Sharpe's Ratio*

Sharpe ratio reflects the additional return over the Risk-Free return per unit of its variability. It is basicallyreturn per unit of risk. The rule states that higher theSharpe ratio, the better the fund's performance is inrelation to the amount of fluctuation. It can be explainedthrough the formula:

**S = RP – Rf /sp**

Where,

S = Sharpe's Index;

rp = average monthly return of fund;

rf = risk free return

*II.    Standard Deviation*

It is possibly one of the most common risk measureused in assessment of portfolios- be it of mutualfunds or any other investment product. It is used tomeasure the variation in the individual return fromthe average expected return over a

certain period.Standard deviation is used in the concept of risk of aportfolio of investment. Higher the standardDeviation means a greater fluctuation in expectedreturn.

$$\sigma = \sqrt{(Y-Y)/N}$$

Where,

Y = fund return

### III.    Beta (b)

Beta Measure reflects the systematic risk assigned toeach of the schemes, Beta of the Index is always being1 (with itself). Beta of a risk-free investment is zero.More the Beta value, the higher the degree ofcorrelation with the market index and the fund will be.

$$\beta = n\Sigma XY - (\Sigma x\Sigma y) / n\Sigma x - (\Sigma x)^2$$

Where,

X =Index return

Y = fund return

### IV.    Jensen's Alpha (Differential Return)

Jensen's Alpha reflects the return that is expected forthe scheme given the risk exposure of the scheme andcompares that with the return actually realized overthe period under study. If the actual return of the fundis more than thereturn as predicted by its Beta, then ithas a positive alpha, and if it returns less than theamount predicted by Beta, the fund has a negativealpha. A fund's return and its risk both contribute to itsAlpha value. The higher a funds' risklevel, the greaterthe returns. It must generate in order to produce a highAlpha which becomes more volatile. Systematic riskcan

be reduced through proper diversification of theportfolio of the fund.

$$a = Y - \beta X$$

Where,

X =Index return;

Y = fund return

### V.    R-Squared

R-Squared measures the co-relation between returns generated by a fund and its benchmark index. This is indispensable in ascertaining the reliability of the beta of a fund. It is a statistical measure that represents the percentage of a fund or security's movements that can be explained by movements in a benchmark index. R-squared values range from 0 to 100. An R-squared of 100 means, that all the movements of a fund are completely explained by movements in the index. A high R-squared (between 85 and 100) indicates the fund's performance patterns have been in line with the index. A fund with a low R-squared (70 or less) doesn't act much like the index

**Results & findings**

**Part-1 Analysis of performance of the selected EquityFund schemes in comparison to industry average and benchmark**

This part analysis the performance of the selected equityFund schemes in comparison to the Industry average and benchmark performance of selected similar category Funds. The performance has been judged through comparing the fund return with the category average and also with the benchmark return. A detailed comparison shown in the table below:

**TABLE 1: PERFORMANCE OF SELECTED EQUITY FUND IN COMPARISON TO THE INDUSTRY AVERAGE AND BENCHMARK OF SELECTED SIMILAR CATEGORY FUND**

| EQUITY FUNDS | Fund Returns | Category avg | Difference of Fund returns and Category returns | Benchmark returns | Difference of Fund returns and Benchmark returns |
|---|---|---|---|---|---|
| **LARGE CAP** | | | | | |
| Birla Sun Life Long Term Advantage Fund | 24.0 | 17.4 | 6.6 | 16.7 | 7.3 |
| Birla Sun Life Top 100 Fund | 23.7 | 17.4 | 6.3 | 16.7 | 7.0 |
| ICICI Prudential Top 100 Fund - Regular Plan | 28.1 | 17.4 | 10.7 | 16.7 | 11.4 |
| Quantum Long Term Equity Fund | 22.3 | 17.4 | 4.9 | 19.1 | 3.2 |
| **SMAL & MID CAP** | | | | | |
| Franklin India Smaller Companies Fund | 40.3 | 30.7 | 9.6 | 16.5 | 23.8 |
| Mirae Asset Emerging Bluechip Fund - Regular Plan | 34.9 | 30.7 | 4.2 | 16.5 | 18.4 |
| SBI Magnum Midcap Fund | 35.0 | 30.7 | 4.3 | 17.8 | 17.2 |
| **DIVERSIFIED EQUITY** | | | | | |
| ICICI Prudential Dynamic Fund - Regular Plan | 33.5 | 19.6 | 13.9 | 16.7 | 16.8 |
| ICICI Prudential Exports and Other Services Fund - Regular Plan | 44.8 | 19.6 | 25.2 | 16.3 | 28.5 |
| Tata Ethical Fund - Plan A | 22.4 | 19.6 | 2.8 | 17.1 | 5.3 |
| Principal Growth Fund | 28.9 | 19.6 | 9.3 | 16.7 | 12.2 |

Table explores the returns of selected equity schemes over a period of one year. As on 16 may 2014; the three schemes of equity funds are selected for the study represented in the first column. The annualised returns of these schemes are shown in column of fund return. These fund return are then compared with category average and the benchmark return. All the funds that selected are ranked one by the CRISIL and all have outperformed.

In case of the large cap scheme the ICICI Prudential Top 100 Fund - Regular Plan has generated more return in comparison to the other funds of large cap i.e. 28.1 and the difference of the fund return with category average and benchmark is also high i.e. 10.7 and 11.4 respectively. in small and mid cap scheme Franklin India Smaller Companies Fund has generated more return in comparison to the other funds of large cap i.e. 40.3 and the difference of the fund return with category average and benchmark is also high i.e. 9.6 and 23.8 respectively. In diversified equity scheme again ICICI Prudential Exports and Other Services Fund - Regular Plan Fund has generated more return in comparison to the other funds of large cap i.e. 44.8 and the difference of the fund return with category average and benchmark is also high i.e. 25.2 and 28.5 respectively.

Taking all three schemes simultaneously we found that in terms of return equity diversified scheme have perform outstanding specially ICICI

Prudential Exports and Other Services Fund - Regular Plan.

**Part-2 Analysis of performance of the selected Equity Fund schemes of risk- return and other factors**

**TABLE 2: PERFORMANCE EVALUATION OF SELECTED FUNDS IN TERMS OF RISK-RETURN AND OTHER FACTORS**

| EQUITY FUNDS | Fund Risk Grade | Standard Deviation | Sharpe Ratio | Sortino Ratio | Beta | Alpha | R-Squared |
|---|---|---|---|---|---|---|---|
| **LARGE CAP** | | | | | | | |
| Birla Sun Life Long Term Advantage Fund | Average | 16.84 | 0.18 | 0.31 | 0.94 | 3.12 | 0.96 |
| Birla Sun Life Top 100 Fund | Average | 17.1 | 0.25 | 0.44 | 0.96 | 4.35 | 0.96 |
| ICICI Prudential Top 100 Fund - Regular Plan | Below Average | 17.33 | 0.24 | 0.45 | 0.95 | 4.27 | 0.92 |
| Quantum Long Term Equity Fund | Below Average | 16.12 | 0.23 | 0.49 | 0.88 | 3.83 | 0.91 |
| **SMALL & MID CAP** | | | | | | | |
| Franklin India Smaller Companies Fund | Average | 18.32 | 0.53 | 1 | 0.91 | 9.82 | 0.75 |
| Mirae Asset Emerging Bluechip Fund – Regular Plan | Low | 16.84 | 0.6 | 1.06 | 0.83 | 10.19 | 0.75 |
| SBI Magnum Midcap Fund | Average | 18.05 | 0.49 | 0.87 | 0.84 | 9.01 | 0.67 |
| **DIVERSIFIED EQUITY** | | | | | | | |
| ICICI Prudential Dynamic Fund – Regular Plan | Below Average | 16.17 | 0.25 | 0.46 | 0.86 | 4.21 | 0.86 |
| ICICI Prudential Exports and Other Services Fund – Regular Plan | - | 17.23 | 0.65 | 1.08 | 0.71 | 11.33 | 0.52 |
| Tata Ethical Fund – Plan A | Low | 10.67 | 0.37 | 0.6 | 0.52 | 4.01 | 0.72 |
| Principal Growth Fund | Average | 18.78 | 0.23 | 0.39 | 1.00 | 4.38 | 0.9 |

The analysis is based on the performance of selected funds in terms of risk return and other factors. Table 2 reveals the standard deviation of return of selected funds. On an average principle growth fund from diversified equity scheme and Franklin India Smaller Companies Fund from small and mid cap are the risky scheme. However in case of large cap scheme ICICI Prudential Top 100 Fund - Regular Plan is the most risky fund and Quantum Long Term Equity Fund is the least risky fund. In case of small and mid cap scheme Franklin India Smaller Companies Fund is the risky fund and Mirae Asset Emerging Bluechip Fund –

Regular Plan is the least risky fund. In diversified equity the Principal Growth Fund is the most risky one while Tata Ethical Fund – Plan A is the defensive one.

Sharpe ratio reflects the additional return over the Risk-Free return per unit of its variability. In terms of returns, the scheme i.e., ICICI Prudential Exports and Other Services Fund – Regular Plan is having maximum returns per unit of risk (0.65) while Birla Sun Life Long Term Advantage Fund having minimum return per unit of risk i.e. (0.18). however in case of large cap scheme Birla Sun Life Top 100 Fund and ICICI Prudential Top 100 Fund

- Regular Plan are competing each other for maximum return per unit of risk i.e. (.25) and (.24) respectively. In case of small and mid cap scheme all are performed well but Mirae Asset Emerging Bluechip Fund – Regular Plan has the highest Sharpe ratio i.e. (.60). The equity diversified scheme has shown fluctuated return as ICICI Prudential Exports and Other Services Fund – Regular Plan having maximum return per unit of risk i.e. (.65) while Principal Growth Fund having least return per unit of risk (.23)

Beta clearly shows that on an average, all schemes had been defensive as the average beta value is less than one. However comparative analysis among the schemes Tata Ethical Fund – Plan A from equity diversified scheme is the most defensive fund as the beta value is (0.52). While the Principal Growth Fund from equity diversified scheme is the most risky as the beta value is (1.0).

Jensen's Alpha reflects the return that is expected for the scheme given the risk exposure of the scheme and compares that with the return actually realized over the period under study. In case large cap scheme Birla Sun Life Top 100 Fund has the highest alpha i.e. (4.35) while the Birla Sun Life Long Term Advantage Fund has lowest alpha (3.12). In case of small and mid cap scheme all the funds have high alpha value specially Mirae Asset Emerging Bluechip Fund – Regular Plan has (10.19). In case of equity diversified scheme the alpha value fluctuates from 4 to 11 but ICICI Prudential Exports and Other Services Fund – Regular Plan has the maximum value among all the funds i.e. (11.33). R-Squared measures the co-relation between returns generated by a fund and its benchmark index. All the funds have higher value of Sharpe ratio specially Birla Sun Life Long Term Advantage Fund, Birla Sun Life Top 100 Fund and ICICI Prudential Top 100 Fund - Regular Plan.

**Conclusion**

This paper was an attempt to evaluate the performance of equity mutual fund ranked 1 by CRISIL, and compared the annualized return with their category average and benchmark. In most of the cases it was found that the schemes has outperformed in comparison to the category average and benchmark return.

The return generated by the large cap scheme is in line with the benchmark performance and category average. But it involves high risk as analysed by calculating standard deviation and beta. The return of small and mid cap scheme is also correlated with the category average and benchmark return, except Franklin India Smaller Companies Fund which over perform the industry average and benchmark. However the small and midcap scheme has generated high return but involves high unsystematic risk as calculated by standard deviation which cannot be diversified. In case of equity diversified scheme all the fund are performed outstanding. They have generated more return in comparison to the category average and benchmark return. Specially ICICI Prudential Exports and Other Services Fund – Regular Plan has difference of fund return and benchmark return is (28.5). Diversified equity scheme also have less risk as they have low standard deviation and beta. The risk nature is only due to systematic risk which can be minimise through diversification

The small and midcap scheme can improve the returns to the investorsby increasing the systematic risk of the portfolio, which in turn can bedone by identifying highly volatile shares. Alternatively, small and midcap scheme cantake advantage by diversification, which goes to reduce the risk if the samereturn is given to the investor at areduced risk level, the compensation forrisk might seem

adequate. The large cap scheme can earnbetter returns by adopting the marketing timing strategy and selecting theunder priced securities.

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