

# Risk Return Analysis and Comparative Study of Mutual Funds

**Anjali Mahato**

The Byramjee Jeejeebhoy College of Commerce, Mumbai

**Abstract:** *Mutual funds have become attractive investment option over the last few years. A mutual fund invites the prospective investors to join the fund by offering various schemes so as to suit to the requirements of categories of investors. The aim of dividend funds is to provide regular income over the medium to long term. Such schemes normally invest a majority of their corpus in equities. This study aims to analyze the average return and the risk involved in investing in the mutual funds. BETA value is calculated for all six companies to know whether investment in that company is risky or not. In this study, risk adjusted methods of Sharpe, Treynor, and Jensen alpha measure have been used for the performance evaluation of dividend open-ended schemes of equity funds of mutual funds in the mutual fund industry.*

*Yearly return analysis performed on the sample of equity fund of mutual funds clearly showed that all sample funds earned positive returns in the excess of the risk free rate of return over the study period .these funds are supposed to be the best investment vehicle for small investors, but it has observed from the market and other reliable sources that mutual funds have not reached to their expectations.*

**Keywords:** Mutual fund, Equity fund, Dividend fund

## I. INTRODUCTION

Investment plays a crucial role in financial planning as it helps individuals grow their wealth and achieve long-term financial goals. Among the various investment avenues available in the financial market, mutual funds have emerged as one of the most popular options for investors due to their diversification, professional management, and accessibility to small investors. Mutual funds pool money from a large number of investors and invest it in a diversified portfolio of securities such as equities, bonds, and money market instruments. This diversification helps reduce risk while offering the potential for higher returns compared to traditional savings instruments.

One of the most important considerations in investment decision-making is the relationship between risk and return. Risk refers to the uncertainty or variability in the expected return from an investment, while return represents the gain or loss generated from the investment over a specific period. Investors generally expect higher returns when they undertake higher levels of risk. Therefore, evaluating the risk-return relationship is essential for understanding the performance of mutual fund schemes and selecting suitable investment options.

## II. REVIEW OF LITERATURE

Sharpe (1966) conducted one of the earliest studies on mutual fund performance and introduced the Sharpe Ratio, which measures the excess return earned per unit of total risk. The study emphasized that mutual fund performance should be evaluated not only on the basis of returns but also by considering the risk involved. The Sharpe ratio became a widely used tool for comparing the risk-adjusted performance of different mutual funds.

Sharpe, W. F. (1966).

Treynor (1965) proposed another important risk-adjusted performance measure known as the Treynor Ratio, which evaluates the return earned in excess of the risk-free rate per unit of systematic risk (beta). The study highlighted that systematic risk is a crucial factor in evaluating portfolio performance and comparing mutual fund schemes.

Treynor, J. L. (1965).

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Jensen (1968) introduced Jensen's Alpha, a measure used to evaluate whether a mutual fund manager is able to earn returns above those predicted by the Capital Asset Pricing Model (CAPM). The study found that most mutual funds were not able to outperform the market consistently, indicating limited managerial ability in generating abnormal returns.

Jensen, M. C. (1968).

Fama (1970) analyzed the efficient market hypothesis (EMH) and its implications for mutual fund performance. According to the study, in an efficient market it is difficult for fund managers to consistently achieve abnormal returns because asset prices already reflect all available information.

Fama, E. F. (1970).

Ahmad and Nomani (2015) conducted a comparative analysis of risk, return, and diversification of mutual funds in India. The study emphasized that risk refers to the probability of variation in actual returns, while return represents the gain earned on investment. Their analysis highlighted the importance of evaluating mutual funds through risk-return measures in order to determine the financial performance of different schemes.

Krishnamoorthi and Murugesan (2018) analyzed the risk and return of selected mutual fund schemes using statistical tools such as beta, Sharpe ratio, Treynor ratio, and Jensen's alpha. The results indicated that most equity mutual funds generated returns higher than the risk-free rate during the study period, demonstrating the potential of mutual funds as an effective investment option for small investors.

Choudhary, Nigam, and Sayyed (2020) conducted a comparative performance analysis of selected debt mutual fund schemes. The study used parameters such as total returns, average maturity, yield to maturity, and Sharpe ratio to evaluate the risk-adjusted performance of different funds. The findings suggested that investors should compare various schemes based on risk-return characteristics before making investment decisions.

### III. DATA ANALYSIS AND DISCUSSIONS

**Table 1: Risk Analysis of Mutual Fund**

Year	Standard Deviation (%)	Beta	Interpretation
2017	4.265%	0.982	Slightly higher volatility and risk compared to 2018.
2018	4.041%	0.970	Lower volatility indicating relatively stable returns.

**Table 2: Risk Adjusted Performance (Sharpe Ratio)**

Year	Sharpe Ratio	Interpretation
2017	0.249	Better risk-adjusted return compared to 2018.
2018	0.167	Lower risk-adjusted performance compared to previous year.



**Table 3: Portfolio Turnover Ratio**

Year	Portfolio Turnover Ratio	Interpretation
2017	9.95%	Higher portfolio trading activity.
2018	1.47%	Lower trading activity indicating long-term investment strategy.

**Table 4: SIP Performance (Annualised Returns)**

SIP Period	Annualised Returns (%)	Benchmark Returns (%)
Since Inception	20.35	12.74
15 Years	18.92	12.41
10 Years	13.38	7.46
5 Years	14.85	6.99
3 Years	10.25	1.73
1 Year	13.40	1.18

**Table 5: Major Portfolio Holdings (2018)**

Company	Industry	% to NAV
Reliance Industries Ltd.	Petroleum Products	7.61
ICICI Bank Ltd.	Banks	6.99
HDFC Bank Ltd.	Banks	6.62
Larsen & Toubro Ltd.	Construction Project	5.16
Infosys Ltd.	Software	5.02
State Bank of India	Banks	4.89
Housing Development Finance Corp.	Finance	4.70
Balkrishna Industries Ltd.	Auto Ancillaries	4.66
Bharat Petroleum Corp. Ltd.	Petroleum Products	3.65
Company	Industry	% to NAV
Tata Consultancy Services Ltd.	Software	3.64



**IV. CHI-SQUARE TEST ANALYSIS**

**Hypothesis**

- H<sub>0</sub> (Null Hypothesis): There is no significant difference between the mutual fund returns and benchmark returns.
- H<sub>1</sub> (Alternative Hypothesis): There is a significant difference between the mutual fund returns and benchmark returns.

Investment Period	Scheme Returns	Benchmark Returns
Since Inception	20.35	12.74
15 Years	18.92	12.41
10 Years	13.38	7.46
5 Years	14.85	6.99
3 Years	10.25	1.73
1 Year	13.40	1.18

**Expected Values**

Expected frequency is calculated using: E= Row Total×Column Total/Grand total

Investment Period	Expected Scheme Return	Expected Benchmark Return
Since Inception	16.55	16.55
15 Years	15.66	15.66
10 Years	10.42	10.42
5 Years	10.92	10.92
3 Years	5.99	5.99
1 Year	7.29	7.29

**Chi-Square Calculation**

Formula:

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$



Period	O (Scheme)	E	(O-E) <sup>2</sup> /E
Since Inception	20.35	16.55	0.87
15 Years	18.92	15.66	0.67
10 Years	13.38	10.42	0.84
5 Years	14.85	10.92	1.41
3 Years	10.25	5.99	3.02
1 Year	13.40	7.29	5.12

Calculated Chi-Square Value

$$\chi^2 = 11.93$$

Decision Rule

- Degree of Freedom (df) = (r-1)(c-1)  
= (6-1)(2-1)  
= 5
- Chi-Square Table Value at 5% level = 11.07

Result

Test Statistic	Value
Calculated $\chi^2$	11.93
Table $\chi^2$ (5%, df=5)	11.07

Since 11.93 > 11.07, we reject the null hypothesis.

## V. INTERPRETATION

The chi-square test indicates that there is a significant difference between the mutual fund scheme returns and benchmark returns. This suggests that the mutual fund outperforms the benchmark index over different investment periods, making it a potentially attractive investment option for investors.

## VI. CONCLUSION

The present study focused on the risk-return analysis and comparative performance of mutual funds using various financial indicators such as standard deviation, beta, Sharpe ratio, portfolio turnover ratio, and SIP returns. The analysis helps in understanding how effectively mutual funds generate returns in relation to the level of risk undertaken.

From the analysis, it was observed that the standard deviation values were relatively low, indicating moderate volatility in the fund's performance. The beta values were close to 1, suggesting that the fund's movement is closely aligned with the market index and carries a moderate level of systematic risk.

The Sharpe ratio analysis revealed that the risk-adjusted performance of the fund was slightly better in 2017 compared to 2018, indicating that the returns generated per unit of risk were higher in the earlier year. However, the mutual fund still maintained a reasonable level of risk-adjusted returns overall.



The portfolio turnover ratio showed a decline from 9.95% in 2017 to 1.47% in 2018, which indicates that the fund manager adopted a more long-term investment strategy with fewer trading activities. Lower turnover generally reduces transaction costs and reflects stable portfolio management.

The SIP performance analysis demonstrated that long-term investments provided higher returns compared to short-term investments. Returns since inception and over a 15-year period were significantly higher, highlighting the benefits of disciplined and long-term investment through SIP.

The chi-square test results further indicated a significant difference between mutual fund returns and benchmark returns, suggesting that the selected mutual fund scheme has performed better than the benchmark over various investment periods.

Overall, the study concludes that the selected mutual fund scheme provides moderate risk with satisfactory returns, making it a suitable investment option for investors who are willing to invest for the long term. Proper evaluation of risk and return measures can help investors make better and more informed investment decisions while selecting mutual fund schemes.

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