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An Empirical Study on the Relationship between risk and return analysis in Mutual fund

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Abstract

This study examines the relationship between risk and return of selected mutual fund schemes to evaluate their performance and investment potential. The study is analytical in nature and is based on secondary data collected from reliable sources such as AMFI and mutual fund company websites. Selected schemes, including SBI Large Cap Fund, SBI Midcap Fund, UTI Flexi Cap Fund, and UTI Multi Asset Allocation Fund, are evaluated using financial performance measures such as annual returns, standard deviation, beta, Sharpe ratio, and Treynor ratio. The findings provide insights into the risk-return characteristics of the selected schemes and help investors make informed investment decisions based on their financial goals and risk tolerance.

Keywords: Mutual Funds, Risk, Return , Sharpe Ratio, Treynor Ratio

Introduction

Mutual funds are one of the most popular investment options, offering investors an opportunity to invest in a diversified portfolio of securities managed by professional fund managers. By pooling money from multiple investors, mutual funds invest in assets such as equities, debt instruments, and money market securities based on specific investment objectives. They provide benefits such as diversification, professional management, liquidity, and accessibility, making them suitable for both new and experienced investors. Mutual fund schemes are available in different categories, including large-cap, mid-cap, flexi-cap, and multi-asset allocation funds, each designed to meet different risk and return expectations.

Risk and return are the key factors that influence the performance of mutual fund investments. Generally, higher returns are associated with higher levels of risk, making it important for investors to evaluate both before making investment decisions. This study examines the relationship between risk and return of selected mutual fund schemes using performance measures such as annual returns, standard deviation, beta, Sharpe ratio, and Treynor ratio. By comparing the selected schemes, the study aims to provide a better understanding of their risk-return characteristics and assist investors in choosing mutual funds that match their financial goals and risk tolerance.

Review of Literature

Previous studies have examined the relationship between risk and return in mutual funds using various performance measures. Debasish (2010) highlighted the importance of Sharpe Ratio, Treynor Ratio, and Jensen's Alpha in evaluating fund performance. Tripathy (2011) emphasized long-term investment and regular portfolio review due to inconsistent fund performance. Kumar and Sehgal (2012) found a positive relationship between risk and return, while Chaudhary (2013) reported that equity funds offered higher returns with greater risk compared to debt funds. Kaur and Jain (2014) and Mehta (2015) stressed the role of diversification and professional fund management in reducing investment risk. Later studies by Bhattacharyya (2016), Pandow (2017), Rehmani (2018), Deb (2019), Bansal (2020), Singh (2021), Nedumparambli (2022), Sharma (2023), and Sheela (2025) concluded that diversification, market conditions, investor behaviour, and advanced analytical techniques significantly influence mutual fund performance and risk-return dynamics.

1.8 Research Gap

Even if numerous investigations related to funds have been done in India, the most of comprehensive study concentrates on evaluating fund schemes using various metrics of potential loss and reward.

Many such research endeavors look regarding Sharpe and Treynor ratios, but do not provide a full or in-depth justification of the real connections between risk and rewards. Furthermore, other mutual fund categories such as debt funds and hybrid funds are omitted from many of the research projects conducted in India that

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exclusively evaluate equity funds. Another limitation is the prevalence to common of these investigations, which depends on outdated, pre-COVID data, with only a small number addressing post-COVID market fluctuations. However, certain macroeconomic indicators, such as the inflation rate, interest rate, and the general market environment, all of which had a significant effect in investment risks and returns of various investment products, remain underexpolored in the existing research and the role that investors play in their investment selection process, despite the impact they have on investor choices and behavior.

Nevertheless, this research is primarly based on a broad variety of advanced analytic techniques, and much research lacks adequate use of those sophisticated techniques for in-depth analysis of modern financial markets.

Hence, there is there is a necessity for research incorporting other product categories of mutual fund and recent data from the market, as well as other broader economic and non-economic variables that could affect risk and return in mutual funds.

Limitations for the study

- The study is based only on secondary data collected from reliable published sources.
- The analysis is limited to four selected mutual fund schemes.
- The findings are based on a specific study period and may not reflect future market conditions.
- The study does not account for the impact of unexpected events such as financial crises or pandemics.

Need for the study

- Investors often find it difficult to evaluate the **risk and return** of mutual fund schemes.
- Higher risk does not always result in **higher returns**, creating uncertainty in investment decisions.
- India's growing mutual fund industry offers many investment options, making fund selection more challenging.
- There is a need to examine whether **mutual funds provide returns proportional to the risks undertaken**.
- The study helps investors make **informed investment decisions** based on the risk-return relationship.

Statement of the problem

- The relationship between **risk and return** in mutual funds is not always clear.
- Higher risk does not always lead to higher returns.
- Similar risk levels can produce different returns across mutual fund schemes.
- Selecting the most suitable mutual fund scheme is challenging due to numerous investment options.
- Many investors lack knowledge of risk and return analysis.

Objectives of the Study

- To understand the concepts of risk and return in mutual fund investments.
- To evaluate the risk associated with selected mutual fund schemes.
- To examine the relationship between risk and return of selected mutual fund schemes.
- To compare the risk and return of different categories of mutual fund schemes.

Hypotheses

Null Hypothesis(H0):

There is no strong relationship between risk and return in mutual funds.

Alternative Hypothesis(H1):

There is a significant relationship between risk and return in mutual fund. Higher risk is associated with higher returns.

Research methodology

The study is **analytical and quantitative** in nature. It analyzes the relationship between risk and return of selected mutual fund schemes using secondary data and financial performance measures such as returns, standard deviation, beta, Sharpe ratio, and Treynor ratio.

Secondary Data

- AMFI (Association of Mutual Funds in India)
- SBI Mutual Fund and UTI Mutual Fund official websites
- Annual reports and fact sheets of mutual funds

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- SEBI publications
- Research journals, books, and financial website.

Table 1:Performance of SBI Mutual fund schemes of 1 year

SBI Mutual Fund	Return	Risk	Standard deviation	Sharpes ratio	Beta	Treynor's Ratio
(2024-2025)	13.23	6.6878	3.2808	1.99	0.96	6.814
(2024-2025)	1.20	6.6878	4.2453229	-1.29	0.99	-5.54
(2024-2025)	-4.08	6.6878	4.872492	-2.209	0.99	-10.87
(2024-2025)	6.3527	6.6878	3.259641	-0.1028	0.38	-0.88
(2024-2025)	19.5816	6.6878	2.04391	6.3083	0.54	23.877

Interpretation: The selected SBI Mutual Fund schemes showed different levels of return and risk during 2024–2025. Among them, the **fifth scheme** performed the best with the highest return and risk-adjusted performance, while the **second and third schemes** recorded poor performance due to low or negative returns. Overall, the funds exhibited varying risk-return performance during the study period.

Table 2: Performance of UTI Mutual fund scheme for 1 year

Year	Return	Risk	Standard deviation	Sharpe's Ratio	Beta	Treynor's Ratio
(2024-2025)	9.4528	6.6878	3.033782	0.9116	1.00	2.76
(2024-2025)	0.7154	6.6878	5.573027	-1.0716	1.56	-3.82
(2024-2025)	-4.18	6.6878	6.140466	-1.7698	1.60	-6.79
(2024-2025)	1.7071	6.6878	3.286728	-1.5153	0.89	-5.596
(2024-2025)	12.4208	6.6878	2.541099	2.2561	0.73	7.853

Interpretation: The selected mutual fund schemes showed varying performance during **2024–2025**. The **fifth scheme** performed the best with the highest return and positive risk-adjusted ratios, while the **second, third, and fourth schemes** showed poor performance due to low or negative returns. Overall, the fifth scheme outperformed the other selected schemes.

Table 3: performance of SBI Mutual fund 5 years

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SBI Mutual fund	Return	Risk	Standard deviation	Sharpe's performance index	Beta	Treynor's ratio
(2020-2025)	15.87	5.6861	3.5040	2.90	0.92	11.06
(2020-2025)	23.11	5.6861	4.01055026	4.34	0.82	21.24
(2020-2025)	22.62	5.6861	4.008044	4.22	0.766	22.10
(2020-2025)	15.8161	5.6861	3.422919	2.9594	0.42	24.11
(2020-2025)	15.9686	5.6861	1.977688	5.1992	0.425	24.194

Interpretation : The selected **SBI Mutual Fund schemes** performed well during **2020–2025**. The **second and third schemes** generated the highest returns, while the **fifth scheme** showed the best risk-adjusted performance with the highest Sharpe and Treynor Ratios. Overall, the selected schemes delivered good long-term performance.

Table 4: Performance of UTI mutual fund scheme

Year	Return	Risk	Standard Deviation	Sharpe's Ratio	Beta	Treynor's Ratio
(2020-2025	14.6685	5.6861	3.755144	2.392	0.98	9.165
(2020-2025	18.8203	5.6861	4.345909	3.0222	0.91	14.43
(2020-2025	24.23	5.6861	4.562743	4.0642	0.8	23.17
(2020-2025	10.8581	5.6861	3.918676	1.3198	0.92	5.621
(2020-2025	16.5117	5.6861	2.318475	4.6692	0.55	19.68

Interpretation: The selected mutual fund schemes showed good performance during **2020–2025**. The **third scheme** recorded the highest return, while the **fifth scheme** achieved the highest Sharpe Ratio, indicating the best risk-adjusted performance. Overall, the selected schemes delivered satisfactory long-term returns with efficient risk management.

Hypothesis Result

The analysis reveals a significant positive relationship between risk and return in the selected SBI and UTI mutual fund schemes. Funds with relatively higher risk generated higher long-term returns, and the improvement in the Sharpe Ratio and Treynor Ratio indicates better risk-adjusted performance. Therefore, the analysis supports the existence of a positive relationship between risk and return.

Decision:

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- **Null Hypothesis (H_0): Rejected**
- **Alternative Hypothesis (H_1): Accepted**

Conclusion

It concludes that the funds performance is decided not only on the return the scheme It is equally important that the risk taken to achieve the return. As the SBI and UTI mutual fund are in the long run they offer higher risk and higher return. Invesment should be made based with regard to risk and earnings match their fianacial objectives and to ability take the risk. Among the selected categories, small-cap funds provided the highest long-term returns, followed by mid-cap funds, while large-cap funds offered stable and consistent performance with lower risk. However, short-term findings reflect on the market fluctuation can negatively affect returns, especially in higher-risk fund categories.

Risk-adjusted performance through the Evaluation parameter such as shrpe & Treynor ratio proved effective in evaluating fund efficiency and should be considered alongside traditional return measures.

As a result the investor should invest in mutual funds which match their risk taking , financial objectives, no of years of investment by improving the chances of financial goals.

References

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- Value Research Online – Mutual fund performance, risk ratios, portfolio details, and comparative analysis.
- Morningstar India – Mutual fund ratings, portfolio analytics, and research reports.
- Moneycontrol Mutual Funds – Historical NAVs, returns, fund comparisons, and market updates.
- Investing.com India – Mutual Funds – Market performance and financial data.
- ResearchGate – Access to research papers related to risk-return analysis and mutual fund performance.
- Google Scholar – Search engine for scholarly articles, theses, and conference papers.
- SSRN (Social Science Research Network) – Working papers and finance research studies.
- Journal of Management and Science – Source for studies on risk and return evaluation of mutual fund schemes.
- SAGE Journals – Peer-reviewed research articles on mutual fund performance evaluation.