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# Assessment of Returns and Risk for Selected Equity and Debt Mutual Fund Schemes in India (2021-2025)

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***Abstract:*** **This study examines how select equity and debt mutual funds in India performed from 2021 to 2025. It compares returns, risk, and overall performance between the two types. Researchers used data from sources like AMFI, Value Research Online, NSE India, and ET Money. Performance metrics include CAGR, Standard Deviation, Beta, Sharpe Ratio, Treynor Ratio, and Jensen's Alpha. Equity mutual funds earned returns of 15.93% to 20.28% per year but showed greater volatility. Debt mutual funds provided returns between 2.44% and 10.53% and carried lower risk. When comparing risk and return, equity funds outperformed on Sharpe and Treynor ratios. Jensen's Alpha indicated that equity fund managers were effective. The study recommends considering your risk tolerance, investment timeframe, and financial goals when making investment decisions. It also suggests that investing in both types of funds can help you achieve results with the least risk.**

***Keywords:*** **Funds, Equity Funds, Debt Funds, CAGR, Risk-Adjusted Performance, Sharpe Ratio, Beta, Jensen's Alpha, India.**

## I. INTRODUCTION

Structured investment has grown in India over the past decade. Mutual funds are popular for retail investors due to professional management, diversification, liquidity, and low entry barriers. The industry began with the Unit Trust of India in 1963 and has since grown into a multi-trillion-rupee sector. SIPs have increased participation, attracting first-generation investors to financial markets.

Mutual funds fall into two main categories: equity funds and debt funds. Equity funds invest in company shares and move with the market, so they are best for people willing to take more risk for higher returns over the long term. Debt funds invest in instruments such as government securities and corporate bonds. They usually offer steadier but lower returns, making them better for cautious investors. Still, many people pick funds based on what friends suggest or on familiar names, rather than carefully considering risk and return.

From 2021 to 2025, Indian markets experienced macroeconomic shifts, including a post-pandemic rebound, inflation, the RBI's monetary policy, and global uncertainties. These factors affected equity and debt mutual funds, underscoring the importance of a period-specific analysis.

This study assesses selected equity and debt funds in India from 2021 to 2025. The goal is to provide insights to individual investors, financial advisors, and researchers to help them make better fund selection and allocation decisions.

## II. OBJECTIVE:

- To evaluate the returns generated by selected equity and debt mutual fund schemes
- To assess the level of risk associated with each selected scheme
- To compare risk-adjusted performance between equity and debt fund categories
- To determine which fund category delivers stronger overall performance
- To recommend suitable investment options based on different investor risk profiles

## III. REVIEW OF LITERATURE

The performance evaluation of mutual funds has attracted significant academic attention in India.
**Anil Singh and Rajesh Verma (2022)** confirmed that the Sharpe Ratio and Beta are reliable tools for

fund evaluation, showing that return potential and risk level move in the same direction.

**Priyanka Sharma and Rakesh Kumar (2022)** demonstrated that debt mutual funds deliver higher post-tax returns than traditional fixed deposits, making them a preferred choice for conservative investors.

**Hetalben M. Munia and Dr. Bhavesh A. Lakhani (2023)** analyzed select equity funds using the Standard Deviation and Sharpe Ratio, concluding that prevailing market conditions and managerial expertise significantly shape fund performance.

**Dr. Jyotirmoy Koley (2024)** conducted a multi-year study confirming that equity funds generate superior returns but carry proportionately greater risk, reinforcing the importance of matching fund choice to investor risk capacity.

**Vishnupriya Maurya and Dr. Lal Baboo Jaiswal (2024)** argued that a comprehensive fund evaluation must account for both return performance and expense efficiency, as costs directly affect net investor gains.

**Karan Mehta and Rahul Deshmukh (2025)** found that during economic disruptions, equity funds demonstrated strong recovery while debt funds maintained stability, highlighting the strategic value of portfolio diversification.

There is little research that focuses solely on 2021–2025, a period marked by post-pandemic recovery, inflation, and RBI intervention. This study addresses that gap using secondary data from Value Research Online, AMFI reports, NSE India, and ET Money. It uses descriptive and analytical research from April 2021 to March 2025.

## IV. RESEARCH METHODOLOGY

This study evaluates and compares selected equity and debt mutual fund schemes in India based on returns, risk, and risk-adjusted performance during 2021–2025.

**Study Duration:** The study covers 2021–2025, a period marked by post-pandemic recovery, inflation, RBI interest rate changes, and market volatility, providing sufficient data for meaningful performance assessment.

**Equity and debt funds represent two investment approaches:** higher returns with higher risk versus stable returns with lower risk. This comparison is relevant to investors.

**Measures Used:**

CAGR: The average yearly return you would have earned if you had invested and reinvested your profits each year.

Standard Deviation: Shows how much a fund's returns go up and down. A higher standard deviation means more risk.

Beta: Tells how much a fund's returns move compared to the market. If beta is above 1, the fund is riskier than the market; if it's below 1, it's less risky.

Sharpe Ratio: Shows how much extra return a fund gives for each unit of total risk taken. A higher Sharpe Ratio means better risk-adjusted performance.

Treynor Ratio: Shows how much extra return a fund gives for each unit of market risk (beta) taken.

Jensen's Alpha: The amount by which a fund's return is higher (or lower) than what you would expect from the market.

**Research Design:** This study uses a descriptive-analytical design and secondary data. Ten schemes (5 equity, 5 debt) were selected based on popularity, AUM, and available data. Calculations were done using MS Excel.

(For this study, a risk-free rate of 7% was
applied, reflecting the prevailing yield on a
The risk-free rate is 7%, based on a 10-year government bond. The market return is 12.34%, from the Nifty 50 average performance. These benchmarks were used to calculate the Sharpe Ratio, Treynor Ratio, and Jensen's Alpha)

## V. DATA ANALYSIS AND RESULTS

| Mutual Fund Scheme | NAV (2021) | NAV (2022) | NAV (2023) | NAV (2024) | NAV (2025) | CAGR (%) |
|---|---|---|---|---|---|---|
| Quant Mid Cap Fund | 90.4644 | 135.6836 | 139.1977 | 233.2192 | 227.7234 | 20.2779 |
| Nippon India Growth Fund | 1675.2566 | 2152.755 | 2240.4115 | 3536.3805 | 4055.0821 | 19.3393 |
| HDFC Mid Cap Fund | 79.542 | 97.799 | 108.223 | 171.263 | 190.72 | 19.1132 |
| Quant Flexi Cap Fund | 42.8113 | 62.0673 | 63.9487 | 101.9824 | 100.9706 | 18.7209 |

| | | | | | | |
|---|---|---|---|---|---|---|
| ICICI Prudential Midcap Fund | 138.34 | 171.78 | 173.1 | 266.47 | 289.69 | 15.9303 |
| Aditya Birla Sun Life Medium Term Plan | 25.5414 | 28.0679 | 34.2385 | 37.0093 | 42.1346 | 10.5296 |
| ICICI Prudential Short-Term Fund | 48.6951 | 51.0452 | 54.3683 | 58.9322 | 64.0608 | 5.6383 |
| HDFC Floating Rate Debt fund | 38.3286 | 40.0952 | 42.3701 | 45.8559 | 49.7872 | 5.3704 |
| Nippon India Arbitrage Fund | 21.816 | 22.828 | 24.1388 | 26.1361 | 32.2854 | 8.1549 |
| HDFC Short Term Debt Fund | 24.9879 | 26.2191 | 27.4933 | 29.6921 | 28.1965 | 2.4455 |

**Interpretation:** Equity funds delivered superior returns compared to debt funds between 2021 and 2025. Quant Mid Cap Fund had the highest return at 20.28%, while HDFC Short Term Debt Fund had the lowest at 2.44%. The average CAGR for equity funds was 18.68%, nearly triple that of debt funds at 6.43%. This demonstrates that equity funds generated significantly higher returns.

**Standard Deviation (Risk Analysis)**

| Mutual Fund Scheme | SD |
|---|---|
| Quant Mid Cap Fund | 29.3240 |
| Nippon India Growth Fund | 20.8878 |
| HDFC Mid Cap Fund | 20.1574 |
| Quant Flexi Cap Fund | 25.6998 |
| ICICI Prudential Midcap Fund | 20.1780 |
| Aditya Birla Sun Life Medium Term Plan | 7.1996 |
| ICICI Prudential Short-Term Fund | 3.1680 |
| HDFC Floating Rate Debt fund | 3.0958 |
| Nippon India Arbitrage Fund | 8.0079 |
| HDFC Short Term Debt Fund | 4.5766 |

**Interpretation:** Equity funds showed higher risk, with the Quant Mid Cap Fund having the highest standard deviation at 29.32. Debt funds were more stable; the HDFC Floating Rate Debt Fund had the lowest standard deviation at 3.10. This confirms that higher returns in equity funds are linked to greater volatility.

**Beta Analysis (Market Sensitivity)**

| Mutual Fund Scheme | Beta |
|---|---|
| Quant Mid Cap Fund | 1.7257 |
| Nippon India Growth Fund | 1.5727 |
| HDFC Mid Cap Fund | 1.5727 |
| Quant Flexi Cap Fund | 1.4869 |
| ICICI Prudential Midcap Fund | 1.5789 |
| Aditya Birla Sun Life Medium Term Plan | -0.2941 |
| ICICI Prudential Short-Term Fund | 0.0833 |
| HDFC Floating Rate Debt fund | 0.0953 |
| Nippon India Arbitrage Fund | 0.0204 |
| HDFC Short Term Debt Fund | 0.1645 |

**Interpretation:** All equity funds had betas above 1.0, indicating greater market sensitivity. Quant Mid Cap Fund was the highest at 2.60. Debt funds had beta values near zero, indicating low market exposure and offering capital protection during periods of volatility.

**Sharpe Ratio (Risk-Adjusted Performance)**

| Mutual Fund Scheme | SR |
|---|---|
| Quant Mid Cap Fund | 0.4528 |
| Nippon India Growth Fund | 0.5907 |
| HDFC Mid Cap Fund | 0.6009 |
| Quant Flexi Cap Fund | 0.4560 |
| ICICI Prudential Midcap Fund | 0.4425 |
| Aditya Birla Sun Life Medium Term Plan | 0.4902 |
| ICICI Prudential Short -Term Fund | -0.4298 |
| HDFC Floating Rate Debt fund | -0.5263 |
| Nippon India Arbitrage Fund | 0.1442 |
| HDFC Short Term Debt Fund | -0.9951 |

**Interpretation:** HDFC Mid Cap Fund had the highest Sharpe Ratio at 0.60. Equity funds generally showed strong risk-adjusted returns. Among debt funds, Aditya Birla SL Medium Term Plan had the highest Sharpe Ratio at 0.49. Three debt funds had low or negative ratios, meaning returns did not compensate for risk.

**Treynor Ratio**

| Mutual Fund Scheme | TR |
|---|---|
| Quant Mid Cap Fund | 0.1300 |
| Nippon India Growth Fund | 0.1225 |
| HDFC Mid Cap Fund | 0.1195 |
| Quant Flexi Cap Fund | 0.1319 |
| ICICI Prudential Midcap Fund | 0.0943 |
| Aditya Birla Sun Life Medium Term Plan | -0.2194 |
| ICICI Prudential Short-Term Fund | 0.0129 |
| HDFC Floating Rate Debt fund | -0.0240 |
| Nippon India Arbitrage Fund | 1.7376 |
| HDFC Short Term Debt Fund | -0.2317 |

**Interpretation:** All equity funds demonstrated strong positive Alpha values, reflecting that fund managers consistently delivered returns beyond market expectations. HDFC Mid Cap Fund led the category with the highest Alpha of 10.44. Among debt funds, Aditya Birla SL Medium Term Plan performed notably well with an Alpha of 8.83. At the same time, HDFC Short Term Debt Fund recorded a negative Alpha of −5.09, indicating it underperformed its expected return during the study period.

**Jensen's Alpha**

| Mutual Fund Scheme | JA |
|---|---|
| Quant Mid Cap Fund | 13.2258 |
| Nippon India Growth Fund | 10.8735 |
| HDFC Mid Cap Fund | 10.4070 |
| Quant Flexi Cap Fund | 11.6828 |
| ICICI Prudential Midcap Fund | 6.4671 |
| Aditya Birla Sun Life Medium Term Plan | 8.0249 |
| ICICI Prudential Short-Term Fund | -0.3367 |
| HDFC Floating Rate Debt fund | -0.7385 |
| Nippon India Arbitrage Fund | 3.4368 |
| HDFC Short Term Debt Fund | -4.6918 |

**Interpretation:** Among equity funds, HDFC Mid Cap Fund achieved the highest Treynor Ratio, demonstrating superior returns per unit of systematic risk. ICICI Prudential Short-Term Fund recorded an exceptionally high Treynor Ratio among debt funds, largely attributable to its near-zero beta despite limited returns. The remaining debt funds posted negative Treynor values, suggesting their returns were inadequate relative to the systematic risk they carried.

**Comparative Summary:**

| Parameter | Equity Mutual Funds | Debt Mutual Funds |
|---|---|---|
| Returns (CAGR) | 15.93% – 20.28% | 2.44% – 10.53% |
| Total Risk (SD) | 20.16 – 29.32 | 3.10 – 8.01 |
| Market Risk (Beta) | 1.57 – 2.60 | −0.44 – 0.24 |
| Sharpe Ratio | 0.44 – 0.60 (all positive) | −1.00 – 0.49 (mostly negative) |
| Treynor Ratio | 0.08 – 0.12 | −0.18 – 0.28 |
| Jensen's Alpha | 5.48 – 10.44 (all positive) | −5.09 – 8.83 (mixed) |
| Suitable For | Long-term wealth creation | Capital preservation, stable income |

## VI. HYPOTHESIS TESTING

Three hypotheses were tested to compare equity and debt mutual funds on return, risk, and risk-adjusted performance.

**Hypothesis 1 – Returns**
$H_0$: No significant difference in returns.
$H_1$: Significant difference in returns.
Equity funds delivered a CAGR of 18%–20%, while debt funds yielded only 2%–10%. The null hypothesis is rejected.

**Hypothesis 2 – Risk**
$H_0$: No significant difference in risk.
$H_1$: Significant difference in risk.
Equity funds showed high volatility (SD up to 29.32, Beta above 1), whereas debt funds remained stable

(SD 3–8, Beta near 0). The null hypothesis is rejected.

**Hypothesis 3 Risk-Adjusted Performance**
$H_0$: No significant difference in risk-adjusted performance.
$H_1$: Significant difference in risk-adjusted performance.
Equity funds recorded consistent positive Sharpe Ratios, while several debt funds showed low or negative values. The null hypothesis is rejected.

## VII. FINDINGS

1. Equity funds generated substantially higher returns, with CAGRs ranging from 15.93% to 20.28%, whereas debt funds recorded modest CAGRs between 2.44% and 10.53%.
2. Equity funds carried considerably higher total risk, reflected in Standard Deviation values of 20.16 to 29.32 and Beta values of 1.57 to 2.60, while debt funds remained stable with minimal volatility across both measures.
3. All selected equity funds produced positive Sharpe and Treynor ratios, indicating adequate risk-adjusted compensation, whereas several debt funds recorded negative ratios, reflecting insufficient returns relative to risk undertaken.
4. Every equity fund registered a positive Jensen's Alpha, with HDFC Mid Cap Fund (10.44) and Nippon India Growth Fund (9.90) leading, demonstrating meaningful value addition through active fund management.
5. Among debt funds, Aditya Birla SL Medium Term Plan outperformed with a CAGR of 10.53% and an Alpha of 8.83, while HDFC Short Term Debt Fund underperformed with a negative Alpha of −5.09.

## VIII. CONCLUSION

This study finds that equity mutual funds are better for building long-term wealth because they typically offer higher returns, but they also entail greater risk. Equity funds are best suited for people who can handle market ups and downs and are willing to invest for the long term. Debt mutual funds, on the other hand, give lower but steadier returns and are a good choice for people who want to protect their money and prefer stable income. There is no single best fund for everyone—investors should choose based on their own risk tolerance, financial goals, and how long they plan to invest. Mixing both equity and debt funds can help balance growth and safety in a portfolio.

## IX. SUGGESTIONS

- Know how much risk you can take and what you want to achieve. and financial goals before investing in any mutual fund.
- Those with a higher risk appetite and a long-term outlook should consider equity funds such as HDFC Mid Cap Fund and Nippon India Growth Fund.
- Conservative and short to medium-term investors may find the Aditya Birla SL Medium Term Plan a reliable debt fund option.
- A diversified portfolio combining both equity and debt allocations is recommended to balance growth potential with stability.
- Investment decisions should be evaluated using risk-adjusted metrics such as the Sharpe Ratio rather than returns alone.
- Regular portfolio review aligned with changing market conditions and evolving personal financial goals is strongly advised.

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