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# Passive vs Active Investing: A Comparative Study on Risk-Adjusted Returns of Mutual Funds in the Indian Market

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**Abstract**

This study presents a comparative analysis of active and passive investment strategies in the Indian mutual fund market with emphasis on risk-adjusted returns. Using secondary data from selected actively managed equity mutual funds and passive index funds tracking benchmark indices, the research evaluates performance through key metrics such as Sharpe ratio, Treynor ratio, Jensen's alpha, standard deviation, beta, and compound annual growth rate (CAGR). Cost factors including expense ratios are also examined to assess their impact on fund performance. The analysis indicates that while actively managed funds demonstrate the potential to generate excess returns, they are associated with higher costs and greater volatility. In contrast, passive funds provide market-linked returns with lower expenses and relatively stable risk profiles. The study highlights the trade-off between return generation and cost efficiency and concludes that the choice between active and passive investing should align with an investor's risk tolerance, investment horizon, and financial objectives. The findings offer valuable insights for investors, portfolio managers, and financial analysts operating in the Indian capital market.

**Keywords:** Active Mutual Funds, Passive Mutual Funds, Risk-Adjusted Returns, Sharpe Ratio, Index Funds, NIFTY 50, Investment Strategy, Indian Capital Market

## 1. Introduction:

Mutual funds have emerged as one of the most popular investment avenues for investors due to diversification and professional management **(Morningstar Research, 2025)** and access to financial markets. In the Indian capital market, the mutual fund industry has experienced significant growth over the past decade, supported by increasing investor awareness, digital investment platforms, and regulatory initiatives. Mutual fund schemes are broadly classified into actively managed funds and passively managed funds, each following a distinct investment strategy to generate returns for investors.

Actively managed mutual funds aim to outperform market benchmarks through active security selection and portfolio management based on the fund manager's expertise **(Fama, 1972).** These funds seek to generate excess returns, commonly referred to as alpha, but usually involve higher costs and management fees. In contrast, passively managed funds, such as index funds and exchange-traded funds (ETFs), are

designed to replicate the performance of a specific market index like the NIFTY 50 **(S&P Dow Jones Indices, 2024)**. Passive funds offer market-linked returns with lower expenses and reduced portfolio turnover, making them an increasingly preferred choice among cost-conscious and long-term investors.

Although active funds offer the potential for superior returns, their ability to consistently outperform market indices remains uncertain, especially after adjusting for risk and expenses. This has increased the importance of evaluating investment strategies based on risk-adjusted performance rather than absolute returns alone. In this context, this study presents a comparative analysis of active and passive investment strategies in the Indian mutual fund market with emphasis on risk-adjusted returns measures such as Sharpe ratio, Treynor ratio, standard deviation, and beta **(Arunachalam & Amudha, 2025)**. The study aims to provide meaningful insights for investors, portfolio managers, and financial analysts in selecting appropriate investment strategies aligned with their risk tolerance and financial objectives.

### 1.2 Research Objective:

1. To evaluate the performance of selected active and passive mutual funds using key risk and return indicators such as **Sharpe ratio**, Treynor ratio, Standard deviation, and tracking error.
2. To compare the risk profile and **diversification characteristics** of active and passive mutual funds in the Indian market.
3. To analyze the cost structure of active and passive mutual funds, with specific reference to expenses ratios and related costs.
4. To develop a comparative framework that helps investors, portfolio managers, and financial analysts choose between active and passive investment strategies based on risk tolerance and investment objectives.

## 2. Literature Review:

Kaur and Singh (2022) analyzed the performance of Indian equity mutual funds during the post-COVID period and found that passive funds exhibited lower volatility and more stable risk-adjusted returns compared to actively managed funds.

Sharma and Verma (2022) examined large-cap mutual funds in India and reported that most active funds failed to consistently outperform benchmark indices after accounting for expense ratios and risk factors.

Patel and Shah (2023) studied the impact of cost structures on mutual fund performance and concluded that lower expense ratios significantly improve long-term risk-adjusted returns, favoring passive investment strategies.

Gupta and Malhotra (2023) evaluated actively and passively managed funds using Sharpe and Treynor ratios and found no significant difference in performance between the two categories over a five-year period.

Mehta and Joshi (2023) analyzed mutual fund behavior during periods of market volatility and observed that passive funds provided better downside protection than actively managed funds.

The **Reserve Bank of India Financial Stability Report (2023)** highlighted the increasing participation of retail investors in passive investment products and emphasized their role in improving market efficiency and reducing investment costs **(Reserve Bank of India, 2023)**.

Sharma and Mehta (2023) compared risk-adjusted returns of selected Indian mutual funds and concluded that consistent alpha generation by active fund managers remains difficult in competitive market conditions.

Kumar and Yadav (2024) studied index funds and ETFs in India and found that passive funds closely tracked benchmark indices with minimal tracking error and lower portfolio turnover.

Chatterjee and Banerjee (2024) examined mutual fund performance across different market cycles and reported that passive funds delivered more predictable returns during both bullish and bearish phases.

Sinha and Agarwal (2024) analyzed expense ratios and fund size in relation to performance and found that large, low-cost funds tend to outperform smaller, high-cost funds.

SPIVA India Scorecard (2024) reported that more than 70% of actively managed equity funds underperformed their respective benchmarks over a five-year period.

Morningstar India Report (2024) indicated that passive funds showed higher survival rates and lower fund closures compared to actively managed funds.

Patel and Desai (2024) observed that increasing investor awareness and digital platforms have accelerated the adoption of passive investing in India (Association of Mutual Funds in India, 2024).

Verma and Kulkarni (2024) studied investor preferences and found that long-term investors increasingly favor index funds due to transparency and cost efficiency.

Sharma and Rao (2025) evaluated mutual fund performance in rising interest rate environments and found that passive funds adjusted better to macroeconomic changes than active funds.

Singh and Khandelwal (2025) analyzed ESG-oriented active and passive funds and concluded that passive ESG funds performed competitively with lower management costs.

SSRN Research Paper (2025) reported that although some active funds achieved short-term outperformance, their long-term risk-adjusted returns were weakened by higher expenses.

Iyer and Nair (2025) examined tracking error and portfolio stability and found that index funds maintained closer alignment with benchmark indices compared to active funds.

Bansal and Khurana (2025) studied fund manager skill persistence and concluded that sustained outperformance among active managers is rare in the Indian market.

Patwardhan and Kulkarni (2025) analyzed recent mutual fund trends and found that passive investing continues to gain market share due to simplicity, reliability, and lower costs.

## 3. Research Methodology

This study aims to compare the performance of actively managed mutual funds and passively managed mutual funds in the Indian market. The focus of the analysis is on risk-adjusted returns, which help in understanding how much return a fund generates relative to the level of risk taken.

The research is descriptive and analytical in nature. The study relies on secondary data collected from publicly available financial sources. No primary survey has been conducted for this research, as the analysis is based on historical performance data of mutual funds.

The data required for the study was collected from reliable financial platforms such as **Value Research Online, Moneycontrol, AMFI (Association of Mutual Funds in India), and mutual fund fact sheets**. These sources provide detailed information regarding fund performance, expense ratios, volatility, and other financial indicators.

The study covers a **five-year period from 2019 to 2024**, which includes different market conditions such as the COVID-19 market crash and the subsequent recovery. This time period helps in analyzing the consistency and stability of mutual fund performance.

To evaluate the performance of mutual funds, several financial tools were used, including **Compound Annual Growth Rate (CAGR), Standard Deviation, Sharpe Ratio, Beta, and Expense Ratio (Morningstar Research, 2025)**. These indicators help measure return, volatility, and risk-adjusted performance of the selected funds.

The collected data was organized and analyzed using **Microsoft Excel**, where the financial ratios were compared between active and passive funds.

### 3.1 Sample Taken for Study

For the purpose of analysis, a total of **ten mutual funds** were selected. The sample includes **five actively managed mutual funds and five passively managed index funds**. The funds were selected based on their popularity, availability of historical data, and consistency in the Indian mutual fund market.

**Active Mutual Funds**

1. ICICI Prudential Bluechip Fund
2. Nippon India Large Cap Fund
3. SBI Large & Mid Cap Fund
4. Kotak Emerging Equity Fund
5. Bandhan Small Cap Fund

**Passive Mutual Funds**

1. UTI Nifty 50 Index Fund
2. HDFC Nifty 50 Index Fund
3. SBI Nifty Index Fund
4. ICICI Prudential Nifty Index Fund
5. Nippon India Nifty 50 Index Fund

These funds were chosen because they represent well-known investment products in the Indian mutual fund industry and track or compete with the **NIFTY 50 benchmark index**

## 4. Data Analysis and Interpretation

**Table 4.1: Back Calculation of Selected Active and Passive Mutual Funds:**

| Sr. No. | Fund Name | CAGR (%) | Std Dev | Formula Used | Sharpe (Calculated) | Sharpe (Given) |
|---|---|---|---|---|---|---|
| 1 | ICICI Prudential Bluechip | 19.22 | 13.85 | (19.22-6)/13.85 | 0.95 | 0.68 |
| 2 | Nippon India Large Cap | 20.15 | 12.66 | (20.15-6)/12.66 | 1.12 | 0.71 |
| 3 | SBI Large & Mid Cap | 21.3 | 14.2 | (21.3-6)/14.2 | 1.08 | 0.73 |
| 4 | Kotak Emerging Equity | 30.57 | 16.45 | (30.57-6)/16.45 | 1.49 | 1.03 |
| 5 | Bandhan Small Cap | 22.73 | 15.96 | (22.73-6)/15.96 | 1.05 | 0.47 |
| 6 | UTI Nifty 50 Index | 11.69 | 13.1 | (11.69-6)/13.1 | 0.43 | 0.27 |
| 7 | HDFC Nifty 50 Index | 11.72 | 13.1 | (11.72-6)/13.1 | 0.44 | 0.27 |
| 8 | SBI Nifty Index | 11.65 | 13.1 | (11.65-6)/13.1 | 0.43 | 0.25 |
| 9 | ICICI Prudential Nifty Index | 11.7 | 13.1 | (11.7-6)/13.1 | 0.44 | 0.25 |
| 10 | Nippon India Nifty 50 Index | 11.73 | 13.1 | (11.73-6)/13.1 | 0.44 | 0.27 |

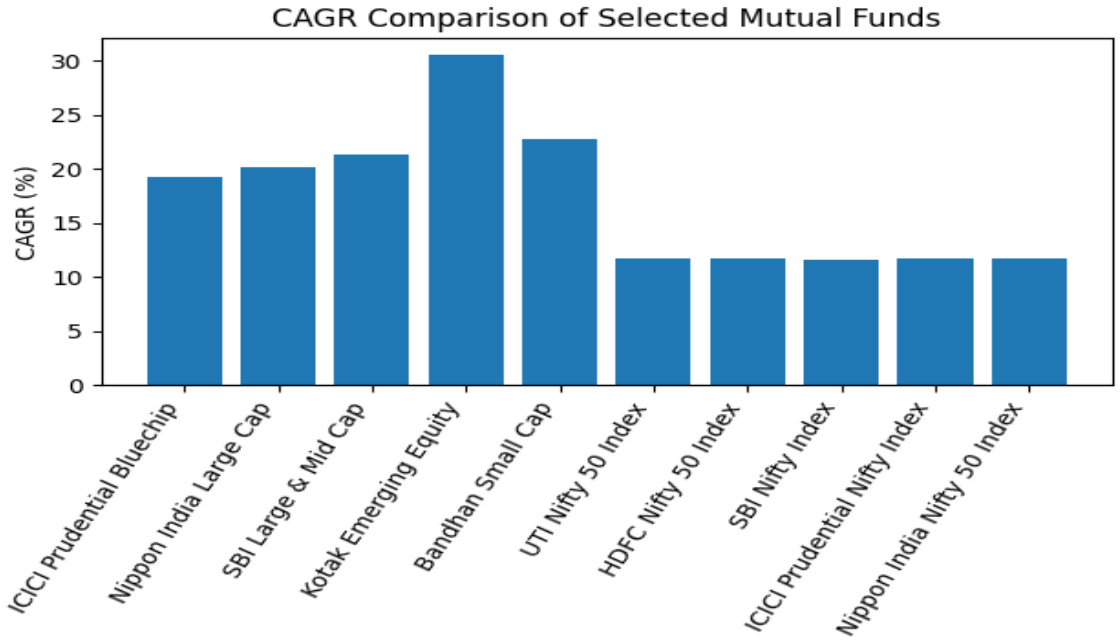
***Legend:*** *Blue = Active Fund, Green = Passive Fund*

**Table 4.2: Performance Comparison of Selected Active and Passive Mutual Funds:**

| Sr. No. | Fund Name | Type | CAGR (5Y %) | Std. Dev | Sharpe Ratio | Beta | Expense Ratio (%) |
|---|---|---|---|---|---|---|---|
| 1 | ICICI Prudential Bluechip Fund | Active | 19.22% | 13.85 | 0.68 | 0.92 | 1.40% |
| 2 | Nippon India Large Cap Fund | Active | 20.15% | 12.66 | 0.71 | 0.94 | 1.47% |
| 3 | SBI Large & Mid Cap Fund | Active | 21.30% | 14.20 | 0.73 | 0.88 | 1.57% |
| 4 | Kotak Emerging Equity Fund | Active | 30.57% | 16.45 | 1.03 | 0.87 | 1.42% |
| 5 | Bandhan Small Cap Fund | Active | 22.73% | 15.96 | 0.47 | 0.72 | 1.62% |
| 6 | UTI Nifty 50 Index Fund | Passive | 11.69% | 13.10 | 0.27 | 1.00 | 0.20% |
| 7 | HDFC Nifty 50 Index Fund | Passive | 11.72% | 13.10 | 0.27 | 1.00 | 0.20% |
| 8 | SBI Nifty Index Fund | Passive | 11.65% | 13.10 | 0.25 | 1.00 | 0.50% |
| 9 | ICICI Prudential Nifty Index Fund | Passive | 11.70% | 13.10 | 0.25 | 1.00 | 0.17% |
| 10 | Nippon India Nifty 50 Index Fund | Passive | 11.73% | 13.10 | 0.27 | 1.00 | 0.20% |

***Source:*** *Value Research Online, Tickertape, Bajaj Finserv, and INDmoney*
***Period:*** *2019-2024 (Regular Plan unless noted).*
***Legend:*** *Blue = Active Fund, Green = Passive Fund*

## 4.1 Return Analysis (CAGR)



The Compound Annual Growth Rate (CAGR) indicates the annualized return generated by the selected mutual funds over the five-year study period. Based on the data, actively managed mutual funds show higher returns compared to passively managed index funds.

Among the active funds, Kotak Emerging Equity Fund recorded the highest CAGR of 30.57%, followed by Bandhan Small Cap Fund with 22.73% and SBI Large & Mid Cap Fund with 21.30%. These results suggest that active fund managers were able to generate higher returns through active portfolio management and stock selection strategies.

In contrast, passive funds such as UTI Nifty 50 Index Fund, HDFC Nifty 50 Index Fund, and ICICI Prudential Nifty Index Fund recorded CAGR values between 11.65% and 11.73%. Since passive funds track the NIFTY 50 benchmark index, their returns remain close to the market performance.

Overall, the analysis indicates that active funds delivered higher average returns than passive funds during the study period.

**4.2 Risk Analysis (Standard Deviation)**

Standard deviation is used to measure the volatility or variability of fund returns. Higher standard deviation values indicate greater fluctuations in fund performance.

From the data, active funds show higher volatility compared to passive funds. For example, Kotak Emerging Equity Fund has a standard deviation of 16.45, while Bandhan Small Cap Fund shows 15.96, indicating relatively higher risk levels associated with actively managed funds.

On the other hand, passive funds such as UTI Nifty 50 Index Fund, HDFC Nifty 50 Index Fund, and ICICI Prudential Nifty Index Fund show standard deviation values of 13.10, indicating relatively stable performance. This stability occurs because passive funds simply replicate the benchmark index rather than actively adjusting their portfolios.

Thus, the results suggest that active funds involve higher risk compared to passive funds.

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

The Sharpe Ratio measures how much return a fund generates for each unit of risk taken by the investor. A higher Sharpe ratio indicates better risk-adjusted performance.

Based on the data, Kotak Emerging Equity Fund recorded the highest Sharpe Ratio of 1.03, which suggests that this fund generated strong returns relative to the level of risk taken.

Other active funds such as SBI Large & Mid Cap Fund (0.73) and Nippon India Large Cap Fund (0.71) also demonstrate relatively better risk-adjusted performance compared to passive funds.

Passive funds, however, show lower Sharpe ratios ranging from 0.25 to 0.27, reflecting more moderate returns relative to risk. Although passive funds provide stable returns, their risk-adjusted performance appears lower compared to some actively managed funds in the sample.

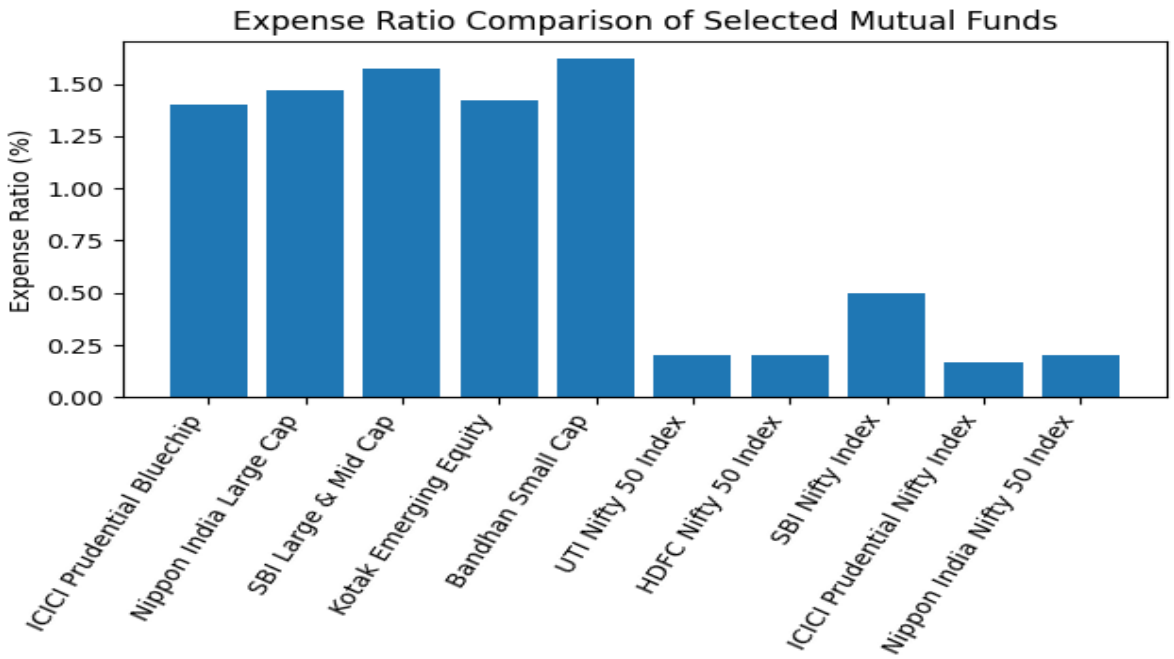
### 4.4 Market Risk (Beta)

Beta measures the sensitivity of a mutual fund to overall market movements. A beta value close to 1 indicates that the fund moves in line with the market.

In this study, passive funds have a beta value of 1.00, which is expected since index funds are designed to replicate the benchmark index performance.

Active funds show slightly lower beta values ranging between 0.72 and 0.94, indicating that their performance does not perfectly mirror the benchmark index. For example, Bandhan Small Cap Fund has the lowest beta value of 0.72, suggesting lower sensitivity to overall market movements.

### 4.5 Expense Ratio Analysis




Expense ratio represents the annual cost charged by the fund house for managing the mutual fund.

The analysis clearly shows that passive funds have significantly lower expense ratios compared to active funds. Passive funds such as UTI Nifty 50 Index Fund and HDFC Nifty 50 Index Fund charge around 0.20%, whereas active funds charge between 1.40% and 1.62%.

This difference highlights one of the key advantages of passive investing — lower management costs, which can improve long-term investor returns **(Morningstar Research, 2024)**.

**Overall Interpretation**

The comparative analysis of the selected mutual funds suggests that actively managed funds tend to deliver higher returns but also involve higher risk and higher costs. On the other hand, passive funds provide stable returns and lower expenses compared to active funds **(S&P Dow Jones Indices, 2025)**, although their returns closely follow market benchmarks.

Therefore, investors must consider factors such as risk tolerance, investment horizon, and cost sensitivity when choosing between active and passive investment strategies.

## 5. Findings, recommendation & conclusion

**5.1** Based on the analysis of selected active and passive mutual funds over the five-year period, the following findings were observed:

**5.1.1 Active mutual funds generated higher returns.**
The CAGR values of actively managed funds were significantly higher than those of passive index funds. Among the selected funds, Kotak Emerging Equity Fund recorded the highest return, followed by Bandhan Small Cap Fund and SBI Large & Mid Cap Fund.

**5.1.2 Passive funds delivered returns close to the benchmark index.**
All passive funds that track the NIFTY 50 index showed similar CAGR values ranging between approximately 11.65% and 11.73%, indicating that their performance closely follows the market benchmark.

**5.1.3 Active funds showed higher volatility.**
The standard deviation values of actively managed funds were generally higher than those of passive funds, which indicates that active funds carry relatively higher risk due to active portfolio management and stock selection.

**5.1.4 Some active funds demonstrated better risk-adjusted performance.**
The Sharpe ratio analysis showed that certain active funds, particularly Kotak Emerging Equity Fund, provided better risk-adjusted returns compared to passive funds.

**5.1.5 Passive funds showed more stable performance.**
Passive funds exhibited similar volatility and beta values across the sample, indicating consistent and predictable performance due to their index-tracking strategy.

**5.1.6 Expense ratios were significantly lower for passive funds.**
Passive funds had expense ratios ranging between 0.17% and 0.50%, whereas active funds charged much higher **expenses ranging from 1.40% to 1.62%**.

**5.1.7 Market sensitivity differed between active and passive funds.**
Passive funds had beta values close to 1.00, reflecting their close relationship with the benchmark index, while active funds showed slightly lower beta values, indicating less direct correlation with overall market movements.

**5.1.8 Cost efficiency favors passive investing.**
The significantly lower expense ratios of passive funds suggest that they may offer better long-term cost efficiency for investors.

### 5.2 Conclusion

The objective of this study was to compare the performance of active and passive mutual funds in the Indian market by analyzing their risk-adjusted returns. Based on the analysis of the selected mutual funds during the study period, it was observed that both investment strategies offer different advantages depending on the investor's objectives and risk preferences.

The analysis indicates that actively managed mutual funds generally generated higher returns compared to passive index funds during the study period. This is mainly because fund managers actively select securities and adjust portfolios to take advantage of market opportunities. However, active funds also involve higher expense ratios and slightly higher volatility.

On the other hand, passive mutual funds aim to replicate the performance of a market index such as the NIFTY 50. These funds typically have much lower expense ratios and more stable performance since they follow a predefined investment strategy without active stock selection.

The results suggest that although active funds may generate higher returns, passive funds provide cost efficiency and consistent market-linked returns. Therefore, passive investing can be attractive for long-term investors who prefer lower costs and stable performance.

Overall, the study indicates that the choice between active and passive investing should depend on factors such as investment horizon, risk tolerance, and cost considerations. Investors seeking higher return potential may consider actively managed funds, whereas investors who prioritize lower costs and market consistency may prefer passive index funds.

### 5.3 Recommendations of the Study

Based on the analysis and findings of the study, the following recommendations are suggested for investors and financial advisors.

**5.3.1 Investors with higher risk appetite may consider actively managed funds.**
The analysis shows that actively managed funds such as Kotak Emerging Equity Fund and SBI Large & Mid Cap Fund generated higher returns compared to passive funds during the study period. Investors who are willing to accept higher volatility in pursuit of better returns may consider investing in actively managed mutual funds.

**5.3.2 Passive funds are suitable for cost-conscious investors.**
Passive funds demonstrated significantly lower expense ratios compared to active funds. Since high expense ratios can reduce net returns over time, investors who prefer low-cost investment options may consider passive index funds.

**5.3.3 Long-term investors may benefit from passive investing strategies.**
Passive funds closely track the performance of benchmark indices such as the NIFTY 50 and provide stable returns with relatively lower risk. Therefore, investors with a long-term investment horizon may find passive funds suitable for building a stable portfolio.

**5.3.4 Diversification between active and passive funds can be beneficial.**
Instead of relying solely on one investment strategy, investors may consider diversifying their portfolio by combining both active and passive mutual funds. This approach can help balance potential return opportunities with cost efficiency.

**5.3.5 Investors should consider expense ratios before selecting funds.**
The study clearly shows that expense ratios are significantly higher for active funds compared to passive funds. Investors should carefully evaluate management costs as they can affect long-term investment returns.

**5.3.6 Financial advisors should guide investors based on individual financial goals.**
Investment decisions should not rely only on historical returns. Advisors should consider factors such as risk tolerance, investment horizon, and financial objectives when recommending active or passive mutual funds.

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