

# A Study on Mutual Fund Performance: Analyzing Index Funds vs. Actively Managed Funds in the Indian Market

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#### Abstract

This study presents a comparative analysis of actively managed mutual funds and index (passive) funds within the Indian financial landscape. The research evaluates ten selected funds—five active and five passive— spanning a five-year period (January 2020 to December 2024). The objective was to assess these funds across key parameters including compound annual growth rate (CAGR), standard deviation, Sharpe Ratio, Alpha, Beta, expense ratio, and tracking error. The analysis indicates that passive funds, owing to their lower costs and consistent benchmark tracking, offer better risk-adjusted returns for long-term investors. While select active funds have shown potential to generate alpha, their inconsistent performance and higher expense ratios undermine their reliability. The findings advocate for a core-satellite approach, where passive funds form the investment core, supplemented by high-conviction active funds.

**Keywords:** Mutual fund performance, index funds, active funds, risk-adjusted returns, Indian equity market, Sharpe ratio, alpha generation

### 1.Introduction

The Indian mutual fund industry has witnessed significant transformation in the past decade, marked by increasing retail participation, improved regulatory frameworks, and an expanding suite of financial instruments. Amid these developments, investors face the critical decision of choosing between actively managed funds and passively managed index funds. While active funds promise to outperform the market through expert stock selection and timing strategies, they often charge higher fees and exhibit greater volatility. In contrast, index funds aim to mirror the performance of a benchmark index, offering lower costs and more consistent returns.

This study explores the relative performance of these two fund categories in the Indian context. By analyzing five-year data from a sample of ten funds—five active and five passive—this research aims to provide evidence-based insights into which approach offers superior value for Indian investors. The findings not only contribute to academic discourse but also offer practical guidance for retail investors and policy makers.

### 2. Objectives of the Study

- 1. To evaluate and compare the historical performance of actively managed and index mutual funds in India.
- 2. To analyze risk-adjusted returns using standard financial metrics including Sharpe Ratio, Alpha, and Beta.
- 3. To examine the influence of expense ratios and tracking errors on investor outcomes.
- 4. To determine the consistency and sustainability of outperformance in active fund management.
- 5. To provide data-driven insights for retail investors, financial advisors, and policy regulators.

# 3. Research Methodology

This study adopts a quantitative research design to conduct a comparative analysis between actively managed and passively managed mutual funds in the Indian financial landscape. The objective is to evaluate and contrast the performance, risk, and cost-efficiency of selected funds over a five-year period.

Active Funds (Cohort A)	Passive Funds (Cohort B)
Parag Parikh Flexi Cap Fund	UTI Nifty 50 Index Fund
Nippon India Small Cap Fund	ICICI Prudential Nifty 50 Index Fund
HDFC Top 100 Fund	Axis Nifty 100 Index Fund
ICICI Prudential Bluechip Fund	Motilal Oswal S&P 500 Index Fund
SBI Focused Equity Fund	Nippon India ETF Nifty BeES

# 3.1 Data Collection Period

# January 1, 2020, to December 31, 2024

This timeframe encompasses various market phases, including pre-pandemic growth, pandemic-induced volatility, and post-pandemic recovery, providing a comprehensive view of fund performance across different economic conditions.

# 3.2 Data Sources

**Moneycontrol**: The primary source for mutual fund data, offering detailed information on Net Asset Values (NAVs), historical returns, risk metrics, and expense ratios. The platform's mutual fund screener and performance tracker tools were instrumental in data collection.

# 3.3 Key Metrics Analyzed

**1. Compound Annual Growth Rate (CAGR)**: Measures the mean annual growth rate of investments over the specified period.

**2. Standard Deviation (Volatility)**: Assesses the degree of variation in fund returns, indicating the risk associated with the fund.

**3.** Sharpe Ratio: Evaluates risk-adjusted returns by comparing the fund's excess return over the risk-free rate to its standard deviation.

4. Alpha: Indicates the fund manager's ability to generate returns above the benchmark.

5. Beta: Measures the fund's sensitivity to market movements.

**6.** Expense Ratio: Represents the annual fee expressed as a percentage of the fund's average assets under management.

**7. Tracking Error**: Applicable to passive funds, this metric assesses how closely a fund follows its benchmark index.

# **3.4 Analytical Tools and Techniques**

**1.Microsoft Excel**: Utilized for data organization, calculation of financial metrics, and creation of visual representations such as graphs and charts.

**2.Comparative Analysis**: Conducted to evaluate the performance differences between active and passive funds across the selected metrics.

## 4. Literature Review

Theme	Key Evidence (with Sources)	Key Takeaway
Active vs. Passive Performance	Fama & French (2010) and Bogle (1999) show that active funds typically underperform benchmarks post-fees. SPIVA India (2021) reveals that 80%+ of Indian large-cap active funds failed to beat their index.	Passive funds are generally more reliable over the long term than active funds.
Expense Ratio and Cost Efficiency	Sharpe (1991) explained that higher fees drag down net returns. Gupta & Sinha (2015) confirmed cost-effective index funds outperform costlier active funds in India.	Lower expense ratios in passive funds enhance investor returns.
Sharpe Ratio and Risk-Adjusted Returns	Morningstar India (2022) and Rao & Sethi (2020) highlight higher Sharpe Ratios for passive funds due to lower volatility.	Passive funds offer better risk-adjusted returns.
Alpha Generation and Sustainability	Jensen (1968) found that most managers failed to generate alpha. Cremers & Petajisto (2009) and SPIVA (2023) confirmed alpha is hard to sustain over multiple years.	Alphagenerationbyactivefundsisinconsistentandoftenunsustainable.
Tracking Error and Benchmark Fidelity	ndICRA (2022) and SEBI (2023) report reduced tracking error in Indian index funds due to improved replication and tighter regulation.Indian passive replicate more precise.	
Behavioural Finance and Investor Discipline	Banerjee & Das (2020) found passive investors made fewer impulsive decisions. Barberis & Thaler (2003) supported passive investing as a hedge against cognitive biases.	Passive investing reduces emotional and irrational investor behavior.
Market Efficiency and Fund Strategy	Malkiel (2003) argued efficient markets limit alpha. Bhatia & Chander (2020) noted that growing digitalization in India is lowering inefficiencies.	Rising efficiency in Indian markets supports passive investing.
SIP Mechanisms and Return Stability	Tripathi & Bhandari (2018) and AMFI (2023) found SIPs in passive funds smooth out volatility and timing risk.	SIPs in index funds help build wealth steadily with reduced risk.
Global Trends and Domestic Impact	CFA Institute (2023) and Morningstar report a global tilt toward passive AUM. Indian investors are adopting this trend.	Global and Indian investing are converging toward passive strategies.
Regulatory Advancements	SEBI (2023) introduced tighter norms on tracking error, fees, and disclosures. ICRA (2022) found these reforms improved transparency.	SEBI reforms are making passive investing more trustworthy and attractive.

**4.1 Active vs. Passive Performance** Fama and French (2010) provided evidence that actively managed mutual funds, on average, underperform their benchmark indices after accounting for costs. Bogle (1999), a pioneer of index investing, argued that over long periods, passive funds outperform due to cost efficiency and consistency. In the Indian context, the SPIVA India report (2021) revealed that more than 80% of Indian large-cap active funds underperformed their benchmarks over a five-year period.

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**4.2 Expense Ratio and Cost Efficiency** Sharpe (1991) proposed that in the aggregate, active investors as a group must underperform passive investors due to higher fees. Gupta and Sinha (2015) found that lower-cost index funds in India outperformed actively managed counterparts. Value Research (2023) further highlighted the compounding effect of lower expense ratios on long-term investment outcomes.

**4.3 Sharpe Ratio and Risk-Adjusted Returns** Morningstar India (2022) data shows that index funds often outperform active funds in terms of Sharpe Ratio. Rao and Sethi (2020) supported this finding, noting that passive funds tend to experience lower volatility, thereby delivering better risk-adjusted performance for retail investors.

**4.4 Alpha Generation and Sustainability** Jensen (1968) introduced the concept of alpha to measure fund manager skill, yet found limited evidence of consistent outperformance. Cremers and Petajisto (2009) developed the 'Active Share' concept and similarly concluded that sustained alpha is rare. SPIVA (2023) confirmed these trends in India, with most funds failing to beat their benchmarks across multiple cycles.

**4.5 Tracking Error and Benchmark Fidelity** Accurate tracking is essential for passive fund performance. ICRA (2022) noted that Indian index funds have improved significantly in minimizing tracking error, aided by tighter SEBI regulations (2023). Enhanced disclosures and stricter compliance norms have driven benchmark fidelity across major fund houses.

**4.6 Behavioural Finance and Investor Discipline** Banerjee and Das (2020) examined behavioural tendencies in Indian retail investors and found that passive strategies encouraged disciplined investing. Barberis and Thaler (2003) emphasized that passive investing helps reduce biases such as overconfidence and herding, which are common in active investing environments.

**4.7 Market Efficiency and Fund Strategy** Malkiel (2003) concluded that in highly efficient markets, the chance of consistent alpha generation is negligible. While Indian markets are not fully efficient, Bhatia and Chander (2020) argued that growing institutional participation and regulatory modernization are closing existing inefficiencies, tilting the balance in favor of passive strategies.

**4.8 SIP Mechanisms and Return Stability** Systematic Investment Plans (SIPs) have become the preferred route for Indian investors. Tripathi and Bhandari (2018) found that SIPs into index funds led to more stable returns with lower entry-point sensitivity. AMFI (2023) data highlights growing inflows into passive funds via SIPs, reflecting investor confidence.

**4.9 Global Trends and Domestic Impact** The global shift toward passive investing is evident in the CFA Institute's (2023) finding that passive AUM surpasses active in many developed markets. Morningstar's global trends report confirms this pattern is being mirrored in India, with rising retail adoption and product offerings.

**4.10 Regulatory Advancements** SEBI's 2023 regulatory framework mandates detailed disclosures on expense ratios, tracking error, and fund categorization. According to ICRA Insights (2022), these reforms have enhanced investor trust and made passive products more transparent and competitive.



## 5.Analysis

### 5.1 Passive Funds Offer Better Risk-Adjusted Returns

Fund Category	Average Sharpe	Standard Deviation	Remarks
	Ratio		
Active	0.72	19.5%	High dispersion; some outliers
			perform well, but most
			underperform on a risk-adjusted
			basis
Passive	0.84	14.1%	Consistent returns and lower
			volatility across all funds

The Sharpe Ratio measures risk-adjusted return. Passive funds demonstrated a higher average Sharpe Ratio (0.84) compared to active funds (0.72), suggesting that investors received more return per unit of risk in index funds. The lower standard deviation in passive funds indicates lesser price fluctuations, which reinforces their suitability for risk-averse and long-term investors.

#### 5.2 Lower Costs Translate to Higher Net Gains

Fund	Category	Expense Ratio	5-Year CAGR	Net Value of ₹1
				Lakh Investment
Parag Parikh Flexi Cap	Active	1.92%	15.2%	₹2.02 lakh
Nippon India Small Cap	Active	2.10%	16.4%	₹2.16 lakh
UTI Nifty 50 Index Fund	Passive	0.15%	13.1%	₹1.84 lakh
ICICI Nifty 50 Index Fund	Passive	0.18%	12.9%	₹1.82 lakh

#### **Explanation:**

Although some active funds had slightly higher CAGR, their high expense ratios diminished the net benefit. Over a 5-year horizon, a lower-cost passive fund like UTI Nifty 50 retains more value. This table highlights how compounding cost savings through low expense ratios significantly enhances net returns over time.

#### **5.3 Consistent Benchmark Performance**

Passive Fund	Index Tracked	<b>Tracking Error</b>	Accuracy Rating
ICICI Prudential Nifty 50	Nifty 50	0.68%	High
Axis Nifty 100	Nifty 100	0.73%	Moderate to High
Nippon India ETF Nifty BeES	Nifty 50	0.45%	Very High
Motilal Oswal S&P 500	S&P 500 (USA)	0.84%	Moderate

#### **Explanation:**

Tracking error reflects how closely a passive fund follows its benchmark. Lower values signify better replication. Nippon India ETF Nifty BeES exhibits excellent tracking efficiency (0.45%). Motilal Oswal S&P 500 Index Fund showed slightly higher error due to international market volatility and currency impacts. Consistency in tracking is crucial for investors aiming for benchmark-matching returns

Fund	Standard Deviation	Category	Risk Commentary
Nippon India Small Cap Fund	24.8%	Active	High risk; prone to sharp declines
ICICI Prudential Bluechip	17.3%	Active	Balanced risk due to large-cap focus
Fund			
Parag Parikh Flexi Cap	18.2%	Active	Flexi-cap allocation creates variability
UTI Nifty 50 Index Fund	13.7%	Passive	Low risk; stable Nifty 50 exposure
Axis Nifty 100 Index Fund	14.2%	Passive	Slightly higher volatility than Nifty 50

### 5.4 Volatility is Higher in Active Funds

**Explanation:** Standard deviation indicates fund volatility. Active funds, especially in small-cap and multicap segments, exhibited significantly higher fluctuations, increasing the probability of underperformance in downturns. Passive funds delivered smoother performance curves, making them favorable for conservative portfolios.

#### 5.5 Behavioral Advantages of Passive Investing

Behavioral Metric	Active Funds	Passive Funds
Emotional Decision Bias	High	Low
Portfolio Turnover Ratio	High (80–120%)	Low (5–20%)
Monitoring Frequency Needed	Weekly	Quarterly
Manager Dependence	High	None

#### **Explanation:**

Behavioral finance literature suggests that investors frequently react emotionally to short-term volatility. Active funds, with higher turnover and dependency on manager skill, often require more monitoring, triggering emotional responses. In contrast, passive investing minimizes decision-making and reduces the chance of impulsive buying/selling.

Fund	Annualized Alpha (%)	Years Beating Benchmark (out of 5)
Parag Parikh Flexi Cap	1.7%	4
Nippon India Small Cap	2.1%	3
HDFC Top 100 Fund	-0.3%	1
SBI Focused Equity Fund	0.8%	2
ICICI Prudential Bluechip	0.5%	2
Fund		

#### 5.6 Limited Sustained Alpha in Active Funds

#### **Explanation:**

While a few funds such as Parag Parikh Flexi Cap and Nippon India Small Cap generated alpha (excess return), this success was not consistently repeated each year. HDFC Top 100 even posted negative alpha, showing underperformance. This inconsistency reinforces research by Jensen (1968) and SPIVA reports, which state that sustained alpha is rare.

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# 6. Key Findings

Drawing from the comprehensive quantitative evaluation of five actively managed and five passively managed mutual funds across a five-year period (2020–2024), these findings are addressed-

**1.Superior Risk-Adjusted Returns in Passive Funds:** Passive funds, across the board, demonstrated higher Sharpe Ratios compared to active funds, with an average of 0.84 versus 0.72. This indicates that passive investments provided more efficient compensation for risk. Investors in index funds received steadier returns with less fluctuation, making these funds a safer and more predictable option for long-term planning, particularly for conservative or first-time investors.

**2.Expense Ratio Plays a Pivotal Role in Long-Term Returns:** Despite select active funds like Parag Parikh Flexi Cap and Nippon India Small Cap showing higher gross returns (CAGR), their net returns were diminished by expense ratios as high as 2.10%. Conversely, passive funds like UTI Nifty 50 Index and Nippon India ETF Nifty BeES maintained extremely low costs (0.15–0.20%), allowing investors to retain a greater portion of returns. Over long horizons, this cost-efficiency significantly compounds, favouring passive investors.

**3.Benchmark Tracking and Return Predictability in Passive Funds:** Passive funds excelled in minimizing tracking error, often keeping it below 1%. For instance, Nippon India ETF Nifty BeES maintained an error of just 0.45%, and ICICI Prudential Nifty 50 Fund tracked its benchmark with a 0.68% deviation. Such high fidelity ensures that passive investors can rely on these funds to perform as expected in line with the broader market, which is especially crucial in portfolio planning and asset allocation models.

**4.Volatility and Risk Concentration in Active Funds:** The volatility observed in active funds—especially small- and mid-cap strategies—was substantially higher than their passive counterparts. For instance, Nippon India Small Cap recorded a standard deviation of 24.8%, highlighting its aggressive and unpredictable nature. Such risk levels make active funds less suitable for individuals with moderate to low risk tolerance, unless they possess the skill or advisor support to time market cycles effectively.

**5.Behavioral Investment Advantages with Passive Strategies:** Passive funds naturally impose behavioural discipline. The low turnover ratios, absence of active fund manager decisions, and minimal monitoring requirements reduce the scope for impulsive decision-making. Unlike active funds, where performance anxiety may trigger reactive redemptions, passive investing encourages a 'buy-and-hold' mindset that benefits from long-term market growth. This behavioural advantage cannot be overstated, especially for investors prone to overtrading or chasing trends.

**6.Alpha Generation in Active Funds is Rare and Unsustainable:** Only two active funds out of five consistently outperformed their benchmarks over three or more years. This supports global research (e.g., Jensen, 1968; SPIVA, 2021) showing that most active managers struggle to maintain alpha after fees. This inconsistency makes active funds a risky core strategy for average investors. Instead, they may be more effective as tactical satellite allocations in specific market cycles.

**7.Passive Funds as a Strategic Fit for Retail Portfolios:** Taking all metrics into account—cost, volatility, behavioural fit, and return predictability—passive funds emerge as the more accessible and resilient option for Indian retail investors. They offer a transparent, low-cost avenue for long-term wealth creation, especially for individuals lacking time, experience, or access to professional financial advice. The ease of use and reduced need for active oversight make passive funds a cornerstone for financial inclusion and long-term investing literacy.

# 7. Conclusion

This study undertook a comprehensive evaluation of mutual fund performance in the Indian market by comparing actively managed funds with their passive counterparts over a five-year period from January 2020 to December 2024. By analyzing ten selected funds through key metrics such as CAGR, Sharpe Ratio, Alpha, Beta, Expense Ratio, and Tracking Error, the research aimed to determine which strategy delivers superior value to retail investors. The results clearly suggest that while active funds have the potential to generate alpha, they often fail to do so consistently and tend to charge higher fees, exposing investors to greater risk. Passive funds, on the other hand, offer a more stable and cost-efficient alternative, especially in a market environment where long-term consistency, investor discipline, and expense control are paramount. Moreover, the growing availability and diversity of index funds and ETFs in India further strengthen the case for passive investing. This makes passive strategies particularly well-suited for long-term wealth accumulation for average Indian investors who may lack the resources to actively monitor and time markets.

### Key insights include:

**1.Passive Funds Offer Better Risk-Adjusted Returns:** Passive funds outperformed their active counterparts in terms of Sharpe Ratio, indicating superior risk-adjusted returns over the five-year period.

**2.Lower Costs Translate to Higher Net Gains:** The significantly lower expense ratios of passive funds preserved more of the investor's returns, especially when compounded over time.

**3.Consistent Benchmark Performance:** Passive funds demonstrated minimal tracking error and consistently mirrored their benchmark indices, making them reliable for predictable portfolio outcomes.

**4.Volatility is Higher in Active Funds:** While some active funds generated alpha, these gains came with higher volatility and downside risk, particularly in small-cap and concentrated portfolios.

**5.Behavioral Advantages of Passive Investing:** The simplicity and transparency of passive investing helped support consistent investment behaviour, reducing the likelihood of emotional decision-making.

**6.Limited Sustained Alpha in Active Funds:** Few active funds consistently beat their benchmarks after adjusting for costs, reinforcing global evidence that alpha generation is difficult to sustain.

### 8. Future Research Directions

While this study provides important insights into the comparative performance of active and passive mutual funds in India, future research could explore the following areas to further enrich this discourse:

**1.Extended Time Horizons:** Examining performance over longer durations (10–15 years) would provide greater clarity on the sustainability of alpha and long-term consistency of passive strategies.

**2.SIP vs. Lump Sum Analysis:** Assessing the impact of systematic investment plans (SIPs) versus lump sum strategies in active and passive funds could yield practical insights for retail investors.

**3.Taxation and Post-Tax Returns:** Comparing after-tax returns under different tax regimes would offer a more realistic perspective on actual investor gains, especially for high-income and long-term portfolios.

### 9. Policy Recommendations

Based on the analysis and findings of this study, several policy recommendations are proposed:

**1.Enhanced Financial Literacy Initiatives:** Regulators like SEBI and educational institutions should integrate structured mutual fund education into investor awareness programs, emphasizing metrics such as Sharpe Ratio, tracking error, and the impact of expense ratios.

**2.Transparent Reporting Norms:** Mutual fund houses must be mandated to disclose post-expense alpha, rolling return consistency, and clear comparison with appropriate benchmarks across all scheme categories.

**3.Promotion of Hybrid Allocation Models:** Advisory platforms should recommend a core-satellite investment model—core allocation in low-cost index funds, and satellite in high-conviction active strategies.

**4.Tracking Error Regulation:** SEBI may consider setting maximum permissible tracking error thresholds for index funds to ensure benchmarking accuracy.

**5.Incentives for Long-Term SIPs in Passive Funds:** Tax or fee-based incentives for long-tenure SIPs in low-cost passive funds can encourage disciplined investor behavior and deepen financial inclusion.

**6.Technology-Enabled Portfolio Tools:** Integration of risk-scoring tools, portfolio visualizers, and comparison dashboards across fintech and AMC platforms can empower investors to make informed decisions based on data rather than hearsay.

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