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Active Vs Passive: Comparative Analysis Of Investment Strategies In Mutual Funds In India

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ABSTRACT

This research analyses the ongoing discourse regarding active and passive investment strategies within the Indian stock market. Through an analysis of key performance metrics (Sharpe ratio, Treynor ratio, standard deviation, tracking error) and consideration of cost factors (expense ratios, fees), the study compares the performance, risk, and cost implications of these two approaches. While active management presents the potential for outperformance, particularly in less efficient market segments, it is associated with higher risks and costs. Conversely, passive management, implemented through index funds, offers stable, predictable returns with lower risk and cost, rendering it appropriate for risk-averse investors and efficient market segments. The selection between active and passive strategies ultimately depends on individual investor characteristics such as risk tolerance, investment horizon, and financial objectives.

Keywords: Active Mutual Funds, Passive Mutual Funds, Index Funds, Benchmark Index, NIFTY 50, MIDCAP 150, SMALLCAP 250, NEXT NIFTY 50, BSE SENSEX .

INTRODUCTION OF THE STUDY

In the finance community, there is significant debate regarding Active and Passive management of investment funds. In contemporary society, investors are presented with numerous investment options. This industry affects not only those pursuing finance careers but all individuals. With the proliferation of investment vehicles available to the public, it is imperative for working professionals to understand their options when investing earned capital. Broadly, investors must choose between two fundamental investment strategies: active and passive mutual funds, each with its own advantages and disadvantages. Some individuals opt for actively managed mutual funds, while others invest in passively managed index funds. These strategies differ in their perspectives on market efficiency.

Active management typically occurs when an individual entrusts their capital to a professional, such as a portfolio manager or financial advisor, who charges a fee to invest and manage the funds. Investors utilizing this strategy should perceive markets as inefficient, as they compensate managers to identify alpha, or excess return compared to the expected market return for securities with equivalent risk. Individuals who passively invest in index funds view markets as efficient and do not believe there is excess return to be found. Consequently, they invest in index funds that mirror specific market indexes. This study will analyse the existing literature by providing additional insights to assist investors in making informed decisions based on their risk tolerance and return expectations of active and passive investment strategies in the Indian Stock Exchanges in India.

STATEMENT OF THE PROBLEM

This study contributes to the existing literature by providing additional insights that can assist the Investors to encounter the challenge of selecting an optimal investment strategy that aligns with their financial objectives, risk tolerance, and return expectations. The discourse between active and passive investment strategies is particularly pertinent, as active mutual funds typically entail higher costs and risks, while passive index funds offer lower costs but may restrict opportunities for excess returns.

This research addresses critical issues, such as the efficiency of Indian markets and its influence on investment strategy selection, the justification for higher fees in active fund management, and the comparative performance of active and passive funds in terms of metrics including the Sharpe ratio, Treynor ratio, tracking error, risk, diversification, and cost-effectiveness.

The study aims to provide insights into the trade-offs among risk, returns, and costs, assisting investors in making informed decisions regarding the choice between active and passive investment strategies in the Indian stock market.

OBJECTIVES OF THE STUDY

1. To analyse the performance of active and passive mutual funds utilizing metrics such as tracking error, Sharpe ratio, Treynor ratio, and standard deviation.

2. To determine which category of mutual fund (active or passive) exhibits higher risk and greater diversification.

3. To assess the cost differentials between active and passive mutual funds through an examination of expense ratios and other associated costs.

4. To furnish investors with a comparative framework for making informed decisions regarding investment strategies in active and passive mutual funds. Provide a concise synopsis.

REVIEW OF LITERATURE

Performance Comparison

1. Barua, Raghunathan, and Varma (1991) and Deb et al. (2003) have historically shown that active fund managers in India could generate alpha due to market inefficiencies and limited information dissemination.
2. Krishnan and Sahoo (2020), indicates that with increasing market efficiency, the ability of active funds to consistently outperform benchmarks has declined.
3. Bhalla (2019) highlights that passive funds, particularly ETFs, have gained traction due to their cost advantage and simplicity.

Market Conditions and Efficiency

1. Indian markets are characterized by relatively higher volatility and lower efficiency compared to developed markets. Active managers often exploit these inefficiencies to generate excess returns, particularly in mid-cap and small-cap segments, as shown by Choudhary and Gupta (2018).

Costs and Expense Ratios

1. Research by SEBI (2019) shows that actively managed equity funds in India have higher expense ratios compared to global averages. In contrast, passive funds have introduced a low-cost alternative for cost-conscious investors. The Total Expense Ratio (TER) reforms implemented by SEBI in 2018 have further narrowed the cost gap between active and passive funds.

RESEARCH METHODOLOGY

This study employs quantitative research methodology. It systematically quantifies variables and analyses numerical data to uncover patterns, relationships, or trends. The primary objective is to provide concrete, data-driven insights that guide investors and fund managers in selecting the most effective investment strategy for mutual funds.

Research Design

The research design provides the framework for the study, incorporating the following approaches:

1. Descriptive Design

   This design focuses on describing the performance of active and passive mutual funds using predefined financial metrics such as returns, standard deviation (SD), beta, and alpha.
2. Comparative Design

   This aspect compares active and passive funds to evaluate differences in returns, risk levels, and risk-adjusted performance.

Area of study

The study is confined to mutual funds managed by Top 5 Asset Management Companies (AMCs) operating in India by Ranking based on AUM (asset under management) as on .

Data Collection

The study relies exclusively on secondary data sources.

Secondary Data: Data is collected from publicly available fund performance reports and financial databases. Metrics such as mutual fund returns

Sources of Data

1. Mutual fund factsheets
2. Securities and Exchange Board of India (SEBI) manuals
3. Association of Mutual Funds in India (AMFI) reports
4. Financial platforms such as NSEIndia.com and Moneycontrol.com

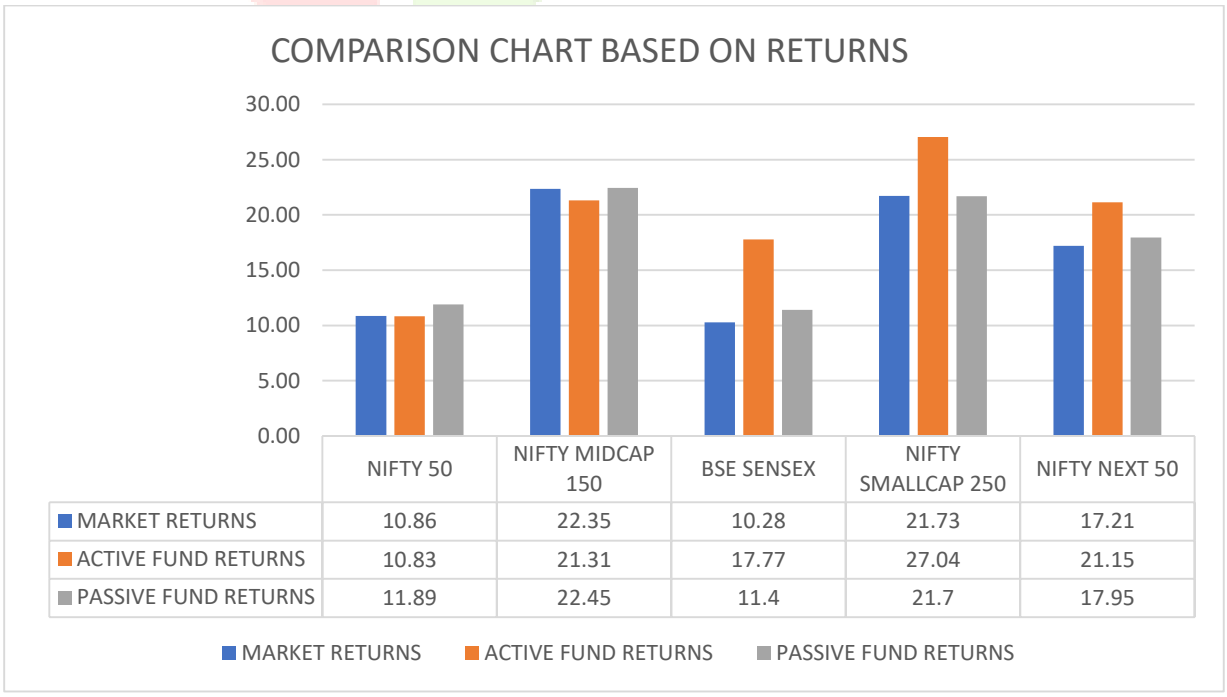
Sample Size

The study examines 5 active and 5 passive mutual funds offered by top 5 AMCs operating in India.

Sampling Technique

1. Stratified Sampling: The mutual funds are grouped into strata based on categories such as large-cap, mid-cap, and small-cap funds for enhanced analysis.
2. Judgmental Sampling: Funds are selected based on criteria such as availability of consistent performance data and alignment with the study objectives.

ANALYSIS AND INTERPRETATION



	NIFTY 50	NIFTY MIDCAP 150	BSE SENSEX	NIFTY SMALLCAP 250	NIFTY NEXT 50
MARKET RETURNS	10.86	22.35	10.28	21.73	17.21
ACTIVE FUND RETURNS	10.83	21.31	17.77	27.04	21.15
PASSIVE FUND RETURNS	11.89	22.45	11.4	21.7	17.95

PERFORMANCE ANALYSIS

1. Nifty 50 Benchmark: The performance of passive funds exceeded that of active funds by 1.06%, with an average return of 11.89% compared to 10.83% for active funds.
2. Nifty Midcap 150 Benchmark : Passive funds outperformed active funds by 1.14%, delivering an average return of 22.45% against the 21.31% generated by active funds.
3. BSE Sensex Benchmark : Active funds demonstrated superior performance compared to passive funds, surpassing them by 6.37% with returns of 17.77% versus 11.4% for passive funds.
4. Nifty Smallcap 250 Benchmark : Active funds achieved higher returns than passive funds, outperforming by 5.34%, with returns of 27.04% compared to 21.7% for passive funds.
5. Nifty Next 50 Benchmark : Active funds outperformed passive funds by 3.20%, achieving returns of 21.15% against 17.95% from passive funds.

RISK ANALYSIS

Risk Metrics

- **Standard Deviation (SD):** This metric measures the volatility of returns. Higher SD indicates greater risk. Active funds generally have higher SD than passive funds.
- **Beta (β)**: This metric measures the systematic risk of a fund relative to the market. A beta greater than 1 suggests the fund is more volatile than the market. Active funds tend to have higher betas.
- **Alpha(α)**: Measures a portfolio's excess returns relative to its benchmark and Risk Free Rate, with positive values indicating outperformance and negative values indicating underperformance.
- **Sharpe Ratio:** This metric measures risk-adjusted return. Higher Sharpe ratios are preferable. Active funds generally have lower Sharpe ratios than passive funds.
- **Treynor Ratio**: This metric measures the excess return of a fund relative to the risk-free rate per unit of systematic risk. Similar to Sharpe Ratio, higher Treynor ratios are preferable. Active funds generally have lower Treynor ratios.

Risk Free Rate = 7.365 (indicated by RBI as 2022)

Calculation of Risk in Active Funds

S. NO	Active Mutual funds	FUND RETURNS	MARKET RETURNS (BENCHMARK)	SD	β	α	SHARPE RATIO	TREYNOR RATIO
1.	SBI Equity Savings Fund	10.83	10.86 **[NIFTY 50]**	0.02	1.56	-1.99	164.86	2.22
2.	ICICI Prudential Midcap Fund	21.31	22.35 **[NIFTY MIDCAP 150]**	0.73	0.29	9.62	19.05	48.33
3.	HDFC Large Cap Fund	17.77	10.28 **[BSE SENSEX]**	5.29	0.30	9.53	1.97	34.89
4.	Nippon India Small Cap Fund	27.04	21.73 **[NIFTY SMALLCAP 250]**	3.75	1.41	-0.64	5.24	13.91
5.	Kotak Equity Opportunities Fund	21.15	17.21 **[NIFTY NEXT 50]**	2.78	2.11	-6.96	4.95	6.54
	AVERAGE	19.62	16.49					

1. SBI Equity Savings Fund: This fund exhibits stability with low volatility (SD: 0.02), but demonstrates underperformance relative to its benchmark (Alpha: -1.99). The high Sharpe Ratio (164.86) indicates superior risk-adjusted returns despite elevated market sensitivity (Beta: 1.56).
2. ICICI Prudential Midcap Fund: This fund has generated substantial returns (21.31%) with low market sensitivity (Beta: 0.29). It displays significant outperformance (Alpha: 9.62) and a high Treynor Ratio (48.33), suggesting effective risk management.
3. HDFC Large Cap Fund: This fund has outperformed its benchmark (Alpha: 9.53) with low market sensitivity (Beta: 0.30). It exhibits high volatility (SD: 5.29) but robust returns (17.77%).
4. Nippon India Small Cap Fund: This fund has yielded the highest returns (27.04%) but marginally underperformed its benchmark (Alpha: -0.64). It demonstrates moderate volatility (SD: 3.75) with high market sensitivity (Beta: 1.41).
5. Kotak Equity Opportunities Fund: This fund shows moderate returns (21.15%) but significant underperformance (Alpha: -6.96). It exhibits very high market sensitivity (Beta: 2.78) with a moderate Sharpe Ratio (4.95).

The active funds generally outperform the market (as indicated by the positive alpha values). However, they also exhibit higher standard deviations (SD) and betas, implying greater risk.

Calculation of Risk in Passive Funds

S. NO	Passive Mutual funds	FUND RETURNS	MARKET RETURNS (BENCHMARK)	SD	β	α	SHARPE RATIO	TREYNOR RATIO
1.	SBI Nifty Index Fund	11.89	10.86 **[NIFTY 50]**	0.73	0.92	1.31	6.21	4.91
2.	ICICI Prudential Nifty Midcap 150 index Fund	22.45	22.35 **[NIFTY MIDCAP 150]**	0.07	0.92	1.36	204.14	16.46
3.	HDFC BSE Sensex Index Fund	11.40	10.28 **[BSE SENSEX]**	0.79	0.91	1.37	5.11	4.42
4.	Nippon India Nifty Smallcap 250 Index Fund	21.70	21.73 **[NIFTY SMALLCAP 250]**	0.02	0.88	1.67	601.21	16.26
5.	Kotak Nifty Next 50 Index Fund	17.95	17.21 **[NIFTY NEXT 50]**	0.52	1.20	-1.23	20.29	8.82
	AVERAGE	17.08	16.49					

1. SBI Nifty Index Fund: Marginally surpassed the NIFTY 50 benchmark with low volatility (SD = 0.73), positive alpha (1.31), and robust risk-adjusted performance (Sharpe Ratio = 6.21, Treynor Ratio = 4.91).
2. ICICI Prudential Nifty Midcap 150 Index Fund: Accurately tracked the NIFTY Midcap 150 with superior risk-adjusted returns (Sharpe = 204.14, Treynor = 16.46) and consistent performance (Alpha = 1.35, Beta = 0.92).
3. HDFC BSE Sensex Index Fund: Exceeded the Sensex with moderate volatility (SD = 0.79), substantial alpha (1.37), and favorable risk-adjusted returns (Sharpe = 5.11, Treynor = 4.42).
4. Nippon India Nifty Smallcap 250 Index Fund: Demonstrated exceptional risk-adjusted returns (Sharpe = 601.21, Treynor = 16.26) with minimal volatility (SD = 0.02) and positive alpha (1.67).
5. Kotak Nifty Next 50 Index Fund: Surpassed the NIFTY Next 50 benchmark but exhibited a negative alpha (-1.23), higher market sensitivity (Beta = 1.20), and moderate risk-adjusted performance (Sharpe = 20.29, Treynor = 8.82).

The passive funds (index funds) tend to have lower returns than their active counterparts but also demonstrate lower risk (lower SD and beta).

COST ANALYSIS

To perform a cost analysis these are following parameters:

1. **Expense Ratio Impact**: The effect of the expense ratio on the returns for both active and passive funds.
2. **Tracking Error Analysis**: How closely passive funds mirror the market returns, calculated as the difference between fund returns and market returns.

Calculation of Cost Analysis in Active Fund

Fund Name	3-Year Return (%)	Expense Ratio (%)	Net Return (%)
SBI Equity Savings Fund	10.83	0.88	9.95
ICICI Prudential Midcap Fund	21.31	1.06	20.25
HDFC Large Cap	17.77	0.76	17.01
Nippon India Small Cap-G	27.04	0.68	26.36
Kotak Equity Opportunities	21.15	0.5	20.65

1. **SBI Equity Savings Fund:** Net return of 9.95%, underperforms the market due to a high expense ratio (0.88%).
2. **ICICI Prudential Midcap Fund:** Delivers 20.25% net return, outperforming the market by 0.94% despite the highest expense ratio (1.06%).
3. **HDFC Large Cap:** Offers a 17.01% net return, beating the market by 6.73%, showing strong active management.
4. **Nippon India Small Cap-G:** Highest performer among active funds with a 26.36% net return, outperforming the market by 4.63%, aided by a relatively low expense ratio (0.68%).
5. **Kotak Equity Opportunities:** Competitive net return of 20.65%, outperforming the market by 3.44%, with the lowest expense ratio (0.50%) among active funds.

Calculation of Cost Analysis in Passive Fund

Fund Name	3-Year Return (%)	Market Return (%)	Expense Ratio (%)	Net Return (%)	Tracking Error (%)
SBI Nifty Index Fund	11.89	10.86	0.2	11.69	1.03
ICICI Prudential Nifty Midcap 150 Index Fund	22.45	22.35	0.3	22.15	0.1
HDFC BSE Sensex Index	11.7	10.28	0.3	11.4	1.42
Nippon India Nifty Smallcap 250 Index	21.7	21.73	0.35	21.35	0.03
Kotak Nifty Next 50 Index	17.95	17.21	0.25	17.7	0.74

1. **SBI Nifty Index Fund:** Tracks the market well with a net return of 11.69%, despite a tracking error of 1.03%.
2. **ICICI Prudential Nifty Midcap 150 Index Fund:** Best-performing passive fund with a 22.15% net return and an excellent tracking error of 0.10%.
3. **HDFC BSE Sensex Index:** Provides an 11.40% net return but has the highest tracking error (1.42%) among passive funds.
4. **Nippon India Nifty Smallcap 250 Index:** Most accurate tracker with a 0.03% tracking error and a 21.35% net return, ensuring market alignment.
5. **Kotak Nifty Next 50 Index:** Offers a 17.70% net return with a moderate tracking error (0.74%) and low expense ratio.

INTERPRETATION

Active Fund

1. SBI Equity Savings Fund: High active returns but also high risk (SD and beta).
2. ICICI Prudential Midcap Fund: Moderate active returns with relatively low risk.
3. HDFC Large Cap Fund: Moderate active returns with moderate risk.
4. Nippon India Small Cap Fund: High active returns but also very high risk.
5. Kotak Equity Opportunities Fund: Moderate active returns with moderate risk.
6. High potential returns but higher costs; best performer: **Nippon India Small Cap-G** (26.36% net return).
7. Active funds lose 0.50%-1.06% of returns due to high costs.

Passive fund

1. SBI Nifty Index Fund: Slightly outperforms NIFTY 50 with low volatility, positive alpha, and high risk-adjusted ratios.
2. ICICI Prudential Nifty Midcap 150 Index Fund: Tracks NIFTY Midcap 150, delivering exceptional risk-adjusted returns and stable performance.
3. HDFC BSE Sensex Index Fund: Follows BSE Sensex with strong alpha, moderate volatility, and good but lower risk-adjusted returns.
4. Nippon India Nifty Smallcap 250 Index Fund: Outperforms its benchmark with minimal volatility, high alpha, and outstanding risk-adjusted ratios.
5. Kotak Nifty Next 50 Index Fund: Slightly above benchmark returns but underperforms with negative alpha, higher beta, and moderate risk-adjusted ratios.
6. Cost-efficient with lower tracking errors; best performer: **ICICI Prudential Nifty Midcap 150 Index Fund** (22.15% net return).
7. Passive funds lose only 0.11%-0.35%, enhancing their cost efficiency.

FINDINGS

Key Results From Active Funds

1. Active Funds Outperformed the market in 3 out of 5 segments (BSE Sensex, Nifty Smallcap 250, Nifty Next 50) and Exhibited variable performance across different market segments.
2. Active Funds Elevated market exposure and volatility resulting from strategic stock selection and market timing, rendering them appropriate for risk-tolerant investors seeking potential high returns.
3. Risk Variability in Active Funds: Risk levels fluctuate based on investment strategy, sector focus, and management approach, necessitating thorough evaluation of risk-return trade-offs.

Key Results From Passive Funds

1. Passive Funds Outperformed the market in 4 out of 5 segments and Demonstrated consistent outperformance across the majority of segments.
2. Passive Funds Endeavor to replicate an index, offering reduced market exposure, diminished volatility, and enhanced stability, rendering them suitable for risk-averse investors.
3. Consistent Returns in Passive Funds: Passive funds yield steady, benchmark-aligned returns with superior risk-adjusted performance, presenting a more conservative option for long-term growth.

In all five periods, **Active Returns** and **Market Returns** are closely aligned, while **Passive Returns** tend to differ slightly, either outperforming or underperforming the other two.

Expense Ratios Impact active funds more significantly (0.50%-1.06%) than passive funds (0.11%-0.35%), favoring cost-conscious investors.

SUGGESTIONS

1. Performance Analysis: Elucidate the factors contributing to the superior performance of active funds in certain market segments (e.g., small-cap) and their underperformance in more efficient segments (e.g., large-cap). Emphasize the superior risk-adjusted returns exhibited by passive funds such as the Nippon India Nifty Smallcap 250 Index Fund.
2. Risk Metrics: Examine the implications of elevated beta and standard deviation values (e.g., Kotak Equity Opportunities Fund) on risk exposure and elucidate the significance of the risk-free rate in Treynor ratio comparisons.
3. Cost Insights: Underscore the substantial impact of expense ratios on net returns, with active funds incurring losses of 0.50%–1.06% compared to 0.11%–0.35% for passive funds. Highlight the minimal tracking error in passive funds, which contributes to enhanced cost efficiency.
4. Market Efficiency: Investigate how the relatively lower efficiency and higher volatility of the Indian market enable active managers to outperform in mid-cap and small-cap segments, while passive funds demonstrate superior performance in efficient large-cap segments.
5. Benchmark Trends: Conduct a comprehensive analysis of benchmark-specific performance and explore the underlying reasons for active funds outperforming in BSE Sensex and Nifty Smallcap 250 indices while underperforming in Nifty 50 and Nifty Midcap 150 indices.
6. Investor Recommendations: Correlate findings with investor profiles. Recommend active funds for investors seeking high-risk, high-return opportunities and passive funds for risk-averse, cost-conscious investors.
7. Future Research: Propose further investigation into economic factors (e.g., inflation, interest rates) and sector-specific funds to gain more comprehensive insights.

CONCLUSION

This research elucidates the distinctions between active and passive mutual funds in India, focusing on their performance, risk, and costs. Active mutual funds exhibit the potential for higher returns, particularly in small-cap and mid-cap segments, although with concomitant elevated risks. Conversely, passive funds offer more stable and predictable returns with lower risk, positioning them as a suitable option for risk-averse investors. In highly efficient markets, such as large-cap indices, passive strategies excel due to their cost-effectiveness, while active funds demonstrate advantages in less efficient markets by capitalizing on market opportunities. The selection between active and passive funds ultimately depends on an investor's risk tolerance, financial objectives, and investment horizon.

For those considering active funds, meticulous selection is imperative. Prioritizing funds with higher active returns and lower risk metrics, in conjunction with diversifying across asset classes and investment styles, can effectively mitigate risks. This analysis concludes that while active funds may offer greater

returns, they entail substantially higher risks, whereas passive funds, offering lower but more consistent returns, are better aligned with risk-averse investment strategies.

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