



Comparative Performance of Large-Cap and Mid-Cap Mutual Funds Across Market Cycles in India

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Abstract. Mutual funds play a vital role in balancing returns and risks for investors, particularly across different market phases. This study investigates the comparative performance of the Motilal Oswal Mid Cap Fund and the HDFC Large Cap Fund during bull, bear, and recovery markets from 2014 to 2024. A quantitative approach was employed using performance metrics such as returns, volatility, Sharpe ratio, Sortino ratio, alpha, and compound annual growth rate (CAGR). Benchmark indices (Nifty Midcap 150 and Nifty 100) were used for comparison. Findings revealed that during the bull phase (2014–2017), the mid-cap fund achieved returns of 0.570, though below its benchmark of 0.682, while the large-cap fund outperformed its benchmark (0.367 vs. 0.322). In the bear phase (2018–2020), both funds showed negative Sharpe ratios and alphas, with the large-cap fund exhibiting greater downside protection. In the recovery phase (2021–2024), the mid-cap fund delivered a CAGR of 36.59%, surpassing its benchmark (22.35%), while the large-cap fund maintained steady growth (17.79% vs. 11.61%). The results confirmed the trade-off between returns and volatility, consistent with modern portfolio theory. Mid-cap funds demonstrated higher growth potential during recoveries but carried higher risks, while large-cap funds offered stability and better risk-adjusted returns across cycles. These insights are consistent with previous research on investor risk preferences and market resilience. While the study provides valuable insights into fund performance across market phases, its scope is limited to two funds and a single domestic market. Future studies should include broader samples, cross-market analyses, and qualitative dimensions of fund management to strengthen understanding of fund resilience and growth dynamics.

Keywords: Mid-cap fund, Large-cap fund, Market phases, Risk-adjusted returns, Mutual fund performance

1. Introduction

Mutual funds have emerged as one of the most widely adopted investment instruments due to their ability to pool resources from multiple investors and allocate them into diversified portfolios comprising equities, bonds, and government securities (Carhart, 1997; DeMiguel et al., 2023; Petridis et al., 2023; Rachmawati et al., 2020). This mechanism not only provides individual investors with limited resources access to broad

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market exposure but also allows them to benefit from professional fund management. By reducing idiosyncratic risk through diversification and offering a range of risk–return combinations, mutual funds play a crucial role in modern financial markets as both a savings avenue and a wealth-generation tool (Agarwal *et al.*, 2023; Carhart, 1997; DeMiguel *et al.*, 2023; Virparia, 2022).

Over the past decade, mutual funds have gained increasing popularity among both retail and institutional investors. Investors can choose from large-cap funds, which focus on relatively stable returns from established companies, or mid-cap funds, which target medium-sized firms with higher growth potential but greater volatility. This choice highlights the importance of assessing fund performance under varying market conditions, particularly as investment decisions are strongly influenced by risk-adjusted returns (Abdul kareem *et al.*, 2023; Adil *et al.*, 2022; Vuković & Pivac, 2024). Numerous studies have applied different performance evaluation models such as the Sharpe Ratio, Treynor Ratio, and Jensen’s Alpha to examine risk–return trade-offs. For instance, Kumar *et al.* (2024) and Daita (2020) demonstrated the usefulness of these measures in evaluating Indian large-cap funds, while Pavithra and Kayal (2023) reported significant outperformance of selected mid-cap schemes. Similarly, Sharma and Tripathi (2023) highlighted the relevance of metrics such as Beta, Alpha, and Standard Deviation in enabling rational investment decisions.

Although the existing literature is extensive, most studies have been confined to short-term evaluations or comparative analyses across diverse fund categories and asset management companies. There is limited evidence of systematic, long-term comparisons between large-cap and mid-cap schemes within the same market environment, especially across different phases of the economic cycle. This lack of comprehensive evaluation creates a research gap in understanding how mutual funds sustain performance and manage risk through prolonged periods of bull, bear, and recovery markets.

Addressing this gap, the present study analyzes the performance of the Motilal Oswal Mid-Cap Fund and the HDFC Large-Cap Fund over a ten-year horizon (2014–2024). This period captures three distinct market cycles, bull (2014–2017), bear (2018–2020), and recovery (2021–2024) offering a robust context for evaluation. By employing key performance metrics such as Compound Annual Growth Rate (CAGR), Sharpe Ratio, Alpha, Beta, and Standard Deviation, this study seeks to provide deeper insights into the stability, growth potential, and risk management of these schemes.

The significance of this research lies in its potential to guide both retail and institutional investors toward more informed decision-making by clarifying the relative strengths of large-cap versus mid-cap funds in dynamic market conditions. In doing so, this study contributes to the broader discourse on mutual fund performance evaluation and offers practical implications for portfolio diversification and financial planning in emerging markets.

2. Methods

Utilizing historical Net Asset Value (NAV) data, this research investigates the decade-long performance (2014–2024) of HDFC Large Cap Fund and Motilal Oswal Mid Cap Fund, assessing their performance against respective benchmarks. The methodology uses quantitative techniques and statistical instruments similar to prior studies (Espadoto *et al.*, 2021; Heo *et al.*, 2015; Low *et al.*, 1998; Sabbag *et al.*, 2018). Assessing this stability and risk exposure is analyzed over key measures like return, risk-adjusted return, standard deviation, correlation with benchmarks, and the risk-free rate.



2.1. Size of the Dataset

This study relies on secondary data covering a ten-year period from 2014 to 2024. The annual Net Asset Values (NAVs) of the HDFC Large Cap Fund and the Motilal Oswal Mid Cap Fund were collected from AdvisorKhoj (Mutual Funds NAV History, 2025), while the corresponding benchmark index values were sourced from NSE India (NSE India, 2025) to ensure reliable representation of market performance. The HDFC Large Cap Fund was benchmarked against the NIFTY 50 Index, whereas the Motilal Oswal Mid Cap Fund was benchmarked against the NIFTY Midcap 150 Index. To capture performance across different economic conditions, the dataset was divided into three distinct market cycles: the bull phase (2014–2017), characterized by strong growth and high trading activity; the bear phase (2018–2020), marked by sharp price declines and reduced market volumes; and the recovery phase (2021–2024), reflecting renewed appreciation and gradual stabilization after the downturn. This segmentation provides a comprehensive basis for evaluating the funds' performance, stability, and risk-adjusted returns over time.

2.2. Financial Metrics and Equations

2.2.1. Return Analysis

Return analysis was conducted to evaluate both the short-term and long-term growth of the selected mutual funds (Hoong et al., 2023; Paramita et al., 2023). The Compounded Annual Growth Rate (CAGR) was employed as the primary measure, as it reflects the average annual growth rate of an investment over a specified period while accounting for the effects of compounding.

$$CAGR = \left(\left(\frac{EV}{BV} \right)^{\frac{1}{n}} - 1 \right) \times 100 \quad (1)$$

where *EV* is the ending return value, *BV* is the beginning return value, and *n* is the number of years.

Average Annual Return (AAR) calculates the mean return over a given period.

$$AAR = \frac{\sum R_t}{n} \quad (2)$$

R_t is the sum of each year's return, and *n* is the number of years.

2.2.2. Risk-Adjusted Performance Metrics

To assess the risk associated with investment performance, this study employs the Sharpe Ratio as a key risk-adjusted performance metric (Dessain, 2022). The Sharpe Ratio evaluates the excess return generated by a fund relative to its volatility, thereby indicating how effectively the fund compensates investors for the level of risk undertaken. A higher Sharpe Ratio reflects superior risk-adjusted performance, as it suggests that the fund delivers greater returns per unit of risk compared to alternatives.

$$SharpeRatio = \left(\frac{R_p - R_f}{\sigma_p} \right) \quad (3)$$

R_p is the Portfolio return, *R_f* is the Risk-free rate, and *σ_p* is the Portfolio standard deviation.

Treynor Ratio: Treynor considers only systematic risk (Beta). It indicates how much return is generated per unit of market risk (Treynor, 1965):

$$TreynorRatio = \left(\frac{R_p - R_f}{\beta_p} \right) \quad (4)$$



R_p is the Portfolio return, R_f is the Risk-free rate, and β_p is the Portfolio Beta.

Jensen's Alpha: Measures a fund's excess return over its expected return based on risk exposure. A positive Alpha means outperformance of return compared to the market (Jensen, 1968):

$$\alpha = R_p - [R_f + \beta_p(R_m - R_f)] \quad (5)$$

R_p is the Portfolio return, R_f is the Risk-free rate, R_m is the Market return, and β_p is the Portfolio Beta.

2.2.3. Volatility & Risk Measurement

To evaluate both total and systematic risk in comparison with benchmark indices, this study applies the standard deviation (σ) as a primary measure of volatility (Ferson & Mo, 2016; Liu et al., 2020). Standard deviation captures the extent to which fund returns fluctuate around their average value, thereby indicating the stability or instability of performance over time. A higher standard deviation suggests greater volatility and, consequently, higher investment risk, while a lower value indicates more consistent returns.

$$\sigma = \sqrt{\frac{\sum (R_t - \bar{R})^2}{n}} \quad (7)$$

R_t is the Individual return, R is the Mean return, and n is the number of years.

Downside Deviation: Focuses on unfavorable fluctuations below the risk-free rate, measuring downside risk, which is crucial for conservative investors.

$$\text{DownsideDeviation} = \sqrt{\frac{\sum \min(R_t - R_f, 0)^2}{n}} \quad (8)$$

R_t is the Individual return, R_f is the Risk-free rate, and n is the number of years.

Beta (β): Measures a fund's systematic risk by comparing its volatility to the market. A Beta greater than 1 suggests high sensitivity to the market, while less than 1 means lower sensitivity.

$$\beta = \frac{\text{Cov}(R_p, R_m)}{\text{Var}(R_m)} \quad (9)$$

$\text{Cov}(R_p, R_m)$ is the Covariance between fund and market returns, and $\text{Var}(R_m)$ is the Market variance.

2.2.4. Benchmark & Market Comparison

To understand how closely the performance of a mutual fund aligns with overall market trends, this study employs correlation analysis with the benchmark index (ρ). Correlation measures the strength and direction of the relationship between a fund's returns and its benchmark, offering insights into whether the fund moves in tandem with broader market performance (Lombardo et al., 2022; Sandøe et al., 2022). A high positive correlation indicates that the fund closely mirrors the benchmark, suggesting limited diversification benefits, whereas a lower correlation reflects a greater degree of independence in performance.

$$\rho = \frac{\text{Cov}(R_p, R_m)}{\sigma_p \sigma_m} \quad (10)$$



where ρ is the Correlation coefficient between fund and benchmark returns, $\text{Cov}(R_p, R_m)$ is the Covariance between fund and market returns, σ_p is the Portfolio standard deviation, and σ_m is the Market standard deviation.

R-Squared (R^2): Determines the percentage of fund returns explained by the benchmark index. The higher R^2 suggests strong alignment with the benchmark.

$$R^2 = \left(\frac{\text{Cov}(R_p, R_m)}{\sigma_p \sigma_m} \right)^2 \quad (11)$$

where R^2 is the R-squared, $\text{Cov}(R_p, R_m)$ is the Covariance between fund and market returns, σ_p is the Portfolio standard deviation, and σ_m is the Market standard deviation.

Capital Asset Pricing Model (CAPM): Estimates expected returns based on the risk-free rate, Beta, and market returns. It helps determine if a fund is fairly valued by Sharpe (1964), Lintner (1965), and Mossin (1966):

$$R_p = R_f + \beta(R_m - R_f) \quad (12)$$

R_p is the Portfolio return, R_f is the Risk-free rate, R_m is the Market return, and β is the fund's Beta.

By analyzing the data with this statistical tool, the study provides an in-depth analysis of fund returns, risk-reward levels, and market correlation with funds, ensuring a perfect performance assessment over the 2014-2024 period.

2.3. Experimental Data and Presentation

To evaluate the comparative performance of the selected mutual fund schemes, this study employs a range of return and risk-adjusted metrics over the ten-year period from 2014 to 2024. The analysis covers total return, average annual return, volatility measures such as standard deviation and downside deviation, as well as correlation with benchmarks to assess market dependency (Muschalla & Monne, 2022). In addition, key financial ratios including Sharpe, Treynor, Sortino, and Alpha are utilized to capture risk-adjusted efficiency, while CAGR is applied to measure long-term growth.

Table 1 Overall Performance Comparison (2014-2024)

Metric	Motilal Oswal Mid-Cap Fund	Nifty Mid-Cap 150	HDFC Large-Cap Fund	Nifty 100
Total Return	2.3895	1.9618	1.3614	1.1913
Average Annual Return	0.2389	0.1962	0.1361	0.1191
Standard Deviation	0.2333	0.2273	0.1309	0.1093
Downside Deviation	0.0578	0.0685	0.0428	0.0581
Correlation (Benchmark)	0.7771	1	0.9068	1
Risk-free Rate	0.0675	0.0675	0.0675	0.0675
R-Squared	0.6039	1	0.8222	1
Beta (Benchmark)	0.7976	1	1.0866	1
Alpha	0.0688	0	0.0125	0
CAPM Expected Return	0.1701	0.1962	0.1236	0.1191
Sharpe Ratio	0.7349	0.5661	0.5243	0.4726
Treynor Ratio	0.2150	0.1287	0.0632	0.0516
Sortino Ratio	2.9654	1.8796	1.6021	0.8889



CAGR (Compound Annual Growth Rate)	21.94%	17.69%	12.95%	11.44%
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Source: Data collected from AMFI (2025); calculations by the researcher using Excel.

Table 1 compares Motilal Oswal Mid Cap Fund and HDFC Large Cap Fund and their benchmarks for 10 years. The Mid Cap Fund achieved outperformance with a total return of 238.95% while achieving a CAGR of 21.94%. In contrast, the Large Cap Fund achieved 136.14% and 12.95%, respectively. Greater return, however, came with greater risk as the Mid Cap Fund had a higher standard deviation (0.2333) and downside deviation (0.0578) than the Large Cap Fund's lower volatility (0.1309 and 0.0428, respectively). Utilizing risk metrics such as Sharpe, Treynor, and Sortino Ratios, the mid-cap fund assumes greater returns per unit of risk. Relative elasticity measures portrayed the Large Cap Fund to have a stronger correlation (0.9068) with its benchmark, making it more market-dependent, while supplying a beta value of 1.0866 to the Mid Cap Fund, which had a lower correlation with the benchmark (0.7771), highlighting its independence.

These observations aid in understanding the tradeoff of risk and return, with the Mid-Cap Fund being suitable for aggressive investors looking for high growth and the Large Cap Fund providing stability for conservative investors.

Table 2 Bull Market Phase Performance (2014-2017)

Metric	Motilal Oswal Mid-Cap Fund	Nifty Mid-Cap 150	HDFC Large-Cap Fund	Nifty 100
Return	0.570	0.682	0.367	0.322
Average Return	0.190	0.227	0.122	0.107
Standard Deviation	0.131	0.274	0.194	0.178
Downside Deviation	0.002	0.008	0.071	0.056
Correlation (Benchmark)	0.922	1	0.975	1
Risk-free Rate	0.068	0.068	0.068	0.068
R-Squared	0.850	1	0.951	1
Beta	0.440	1	1.059	1
Alpha	0.052	0	0.013	0
CAPM	0.138	0.227	0.110	0.107
Sharpe Ratio	0.936	0.582	0.284	0.224
Treynor Ratio	0.279	0.160	0.052	0.040
Sortino Ratio	80.741	20.586	0.779	0.715
CAGR	18.52%	20.82%	11.15%	9.84%

Source: Data collected from AMFI (2025); calculations by the researcher using Excel.

Table 2 illustrate the Motilal Oswal Mid-Cap Fund and the HDFC Large-Cap Fund's performance are shown in Table 2. Despite earning an 18.25% CAGR over the period, the Mid-Cap Fund did not outperform the benchmark, earning 20.82%. In contrast, the Large-Cap Fund outperformed with an 11.15% CAGR, beating the Nifty 100's 9.84%. While the Mid-Cap Fund did not have total returns compared to the Benchmark, the Sharpe Ratio, Treynor Ratio, and Sortino Ratio of 0.936, 0.279, and 80.741 demonstrated exceptional risk-adjusted returns. This and its lower standard deviation (0.131) and 0.002 downside deviation indicate reduced volatility.



In contrast, the Large-Cap Fund suffered low returns but had high volatility with lower standard deviation (0.194) and downside risk (0.071), resulting in poorer risk-adjusted returns. The correlation of both funds with their benchmarks was strong. The Mid-Cap Fund was 0.922, and the Large-Cap Fund was 0.975, which means they have an overreliance on the market. A mid-cap fund's lowering Beta of 0.440 indicates less sensitivity to the market, while the Large-Cap Fund's Beta of 1.059 demonstrated more volatility relative to the benchmark.

The Mid-Cap Fund proved a better option during bull market conditions due to lower volatility and higher risk-adjusted return. At the same time, the Large-Cap Fund had moderate return patterns due to high market exposure.

Table 3 Bear Market Phase Performance (2018-2020)

Metric	Motilal Oswal Mid-Cap Fund	Nifty Mid-Cap 150	HDFC Large-Cap Fund	Nifty 100
Return	0.101	0.108	0.158	0.264
Average Return	0.034	0.036	0.053	0.088
Standard Deviation	0.129	0.192	0.039	0.070
Downside Deviation	0.106	0.123	0.034	0.032
Correlation (Benchmark)	0.758	1	0.851	1
Risk-free Rate	0.068	0.068	0.068	0.068
R-Squared	0.575	1	0.723	1
Beta	0.511	1	0.468	1
Alpha	-0.018	0	-0.025	0
CAPM	0.051	0.036	0.077	0.088
Sharpe Ratio	-0.263	-0.165	-0.389	0.294
Treynor Ratio	-0.066	-0.032	-0.032	0.021
Sortino Ratio	-0.321	-0.257	-0.445	0.634
CAGR	10.81%	11.37%	7.41%	12.62%

Source: Data collected from AMFI (2025); calculations by the researcher using Excel.

Table 3 explain the performance comparison of the Mid-Cap Fund and the HDFC Large-Cap Fund is provided in Table 3. The Mid-Cap Fund grew at a CAGR of 10.81%, which was in line with the fund's benchmark of 11.37%, whereas the Large-Cap Fund's performance was 7.41%, which is lower than the Nifty 100 CAGR of 12.62%. The funds' Sharpe Ratios (Mid-Cap: -0.263, Large-Cap: -0.389) were negative, suggesting poor reward per unit of risk taken. Their Sharpe Ratios confirmed negative performance with lower rewards given to downside risk. The Mid-Cap Fund's Beta (0.511) was lower than the market; the median shift in the market reduced sensitivity to the market, while the Large-Cap Fund beta (0.468) showed better sustainment. Both funds had a lower correlation with the benchmarks, which were 0.758 for the Mid-Cap Fund and 0.851 for the Large-Cap, meaning there was some dependence on the market, but it was partial. Negative alpha values indicate that neither of the funds could outperform their anticipated risk-adjusted performance. In summary, both funds exhibited underperformance during the bear market, with the Mid-Cap Fund showing better resilience while still underperforming its benchmark and the Large-Cap Fund showing weaker returns and higher downside risk.

Table 4 Recovery Market Phase Performance (2021-2024)



Metric	Motilal Oswal Mid-Cap Fund	Nifty Mid-Cap 150	HDFC Large-Cap Fund	Nifty 100
Return	1.719	1.173	0.836	0.605
Average Return	0.430	0.293	0.209	0.151
Standard Deviation	0.218	0.203	0.106	0.094
Downside Deviation	0	0.019	0	0.016
Correlation (Benchmark)	0.745	1	0.910	1
Risk-free Rate	0.068	0.068	0.068	0.068
R-Squared	0.556	1	0.828	1
Beta	0.802	1	1.020	1
Alpha	0.181	0	0.056	0
CAPM	0.248	0.293	0.153	0.151
Sharpe Ratio	1.658	1.111	1.341	0.889
Treynor Ratio	0.452	0.226	0.139	0.084
Sortino Ratio	0	11.920	0	5.368
CAGR	36.59%	22.35%	17.79%	11.61%

Source: Data collected from AMFI (2025); calculations by the researcher using Excel.

Table 4 explain the Motilal Oswal Mid-Cap Fund achieved a CAGR of 36.59%, outperforming its benchmark's performance of 22.35% and HDFC Large Cap Fund's 17.79%, as well as the Nifty 100 of 11.61%. The Mid-Cap Fund had the highest return of 1.719, though it is accompanied by a higher standard deviation of 0.218, meaning it was more volatile. Nevertheless, the fund had a strong Sharpe Ratio of 1.658 and Treynor Ratio of 0.452, exhibiting strong returns for the risk. The Large Cap Fund had a beta of 1.020, making it relatively more volatile, and the Mid-Cap Fund was less volatile with a beta of 0.802. Mid-Cap Fund had the highest Alpha of 0.182, the excess return, while the Large Cap Fund posted an alpha of 0.056, which is lower. The correlation with the benchmark was moderate, with 0.745 for the mid-cap and 0.910 for the large-cap, meaning the latter is more dependent on the rest of the market. Considering everything, the Mid-Cap Fund performed much better with high returns and excellent risk-adjusted metrics, while the Large Cap Fund had lower but stable returns.

3. Results and Discussion

The findings and discussion of the research focusing on the relative performance of the Motilal Oswal Mid-Cap Fund and the HDFC Large-Cap Fund with their benchmark in the up-market, down-market, and recovery market conditions are presented in this section.

3.1.1 Overall Performance Comparison (2014-2024)

In 2024, the Indian mutual fund industry achieved a significant milestone, with Assets Under Management (AUM) surpassing Rs. 68 lakh crore. By December 2023, the AUM stood at ₹50.78 lakh crore, reflecting a growth of around 34% within that period. With this upward trajectory, it was projected that by the end of December 2024, the AUM would easily cross Rs. 69 lakh crore. This trend indicated growing investor interest in large-cap and mid-cap funds as a response to market uncertainties, while small-cap funds continued to attract attention due to their potential for higher growth. At the same time,



demand for low-cost investment products, such as passive funds in the form of ETFs and index funds, also showed strong growth prospects.

The overall performance of two key mutual funds, Motilal Oswal Mid-Cap Fund and HDFC Large Cap Fund, between 2014 and 2024 is presented in Table 1. In terms of total return, Motilal Oswal Mid-Cap Fund delivered 2.3895, outperforming its benchmark Nifty Mid-Cap 150 at 1.9618. Meanwhile, HDFC Large Cap Fund recorded a total return of 1.3614, which was still higher than its benchmark Nifty 100 at 1.1913. These results suggest that both funds performed better than their benchmarks, though the Motilal Oswal Mid-Cap Fund demonstrated stronger outperformance over the long term.

Further analysis reveals significant differences across other performance metrics. The Motilal Oswal Mid-Cap Fund posted an average annual return of 0.2389, substantially higher than the HDFC Large Cap Fund's 0.1361. However, this superior return came with higher volatility, as reflected in its standard deviation of 0.2333, compared to 0.1309 for the large-cap fund. When adjusted for risk, the mid-cap fund still maintained a clear advantage, with a Sharpe ratio of 0.7349 and a Sortino ratio of 2.9654, both exceeding the large-cap fund's performance. Alpha values also favored the mid-cap fund at 0.0688, compared to 0.0125 for the large-cap, highlighting both funds' ability to generate excess returns over their benchmarks, with the mid-cap fund delivering stronger value creation.

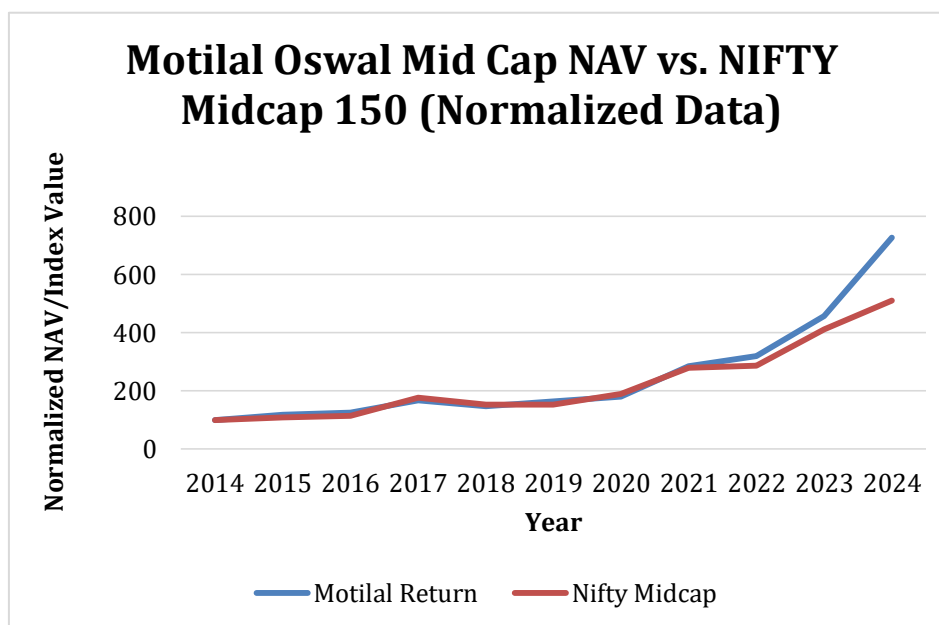


Figure 1 Performance of Motilal Oswal Mid Cap NAV vs. NIFTY Midcap 150(Normalized Data) from (2014-2024)

Source: Data obtained from AMFI (2025); visualization by the researcher using Excel.

Figure 1 illustrates the comparative performance of the Motilal Oswal Mid Cap Fund and the NIFTY Midcap 150 Index between 2014 and 2024, based on normalized data. Both the fund (blue line) and the benchmark (red line) followed a similar trajectory until around 2021, reflecting consistent movement with market trends. However, starting in the recovery phase (2021–2024), the Motilal Oswal Mid Cap Fund demonstrated a steeper growth path, significantly outperforming the NIFTY Midcap 150. By 2024, the gap between the fund and its benchmark widened considerably, highlighting the fund's superior ability to generate higher returns compared to the index during periods of market recovery. This outperformance suggests that the Motilal Oswal Mid Cap Fund

provided added value to investors beyond the benchmark, particularly in the later years of the study period.

This consistent outperformance during the recovery phase also reflects the fund manager's ability to capture growth opportunities in the mid-cap segment, which tends to be more sensitive to economic cycles than large-cap stocks. The sharper rise in NAV indicates that the fund benefited from sectoral diversification and active stock selection, enabling it to deliver superior returns relative to the broader mid-cap index. For investors, this suggests that the Motilal Oswal Mid Cap Fund not only tracked market trends effectively in stable periods but also provided enhanced upside potential during bullish or recovery phases, thereby strengthening its appeal as a long-term investment option.

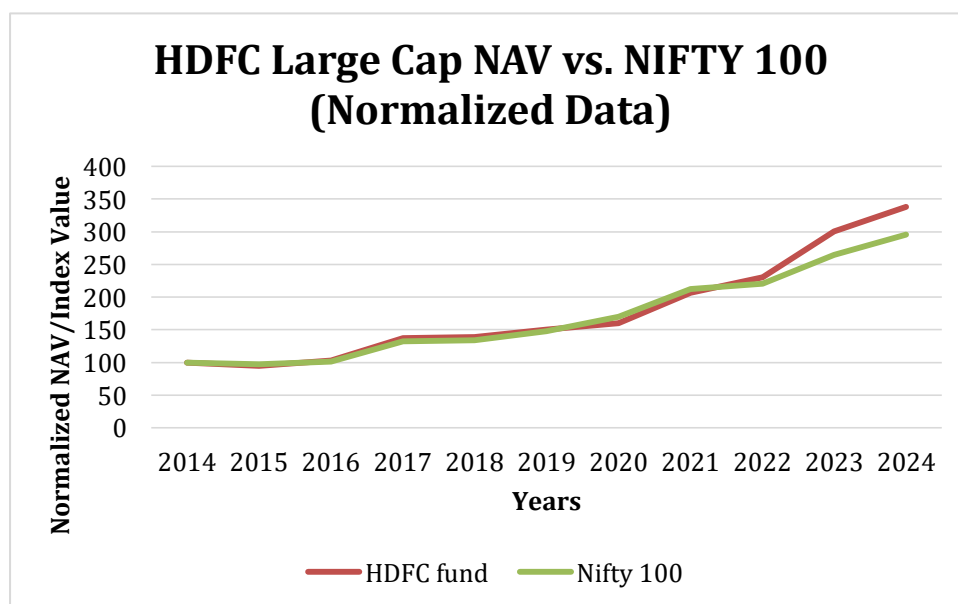


Figure 2 Performance of HDFC Large Cap NAV vs. NIFTY 100 (Normalized Data) from (2014-2024)

Source: Data obtained from AMFI (2025); visualization by the researcher using Excel

Figure 2 shows the normalized NAV of the HDFC Large Cap Scheme with the NIFTY 100 index from 2014 - 2024. The fund's performance is shown in red, and the benchmark index is green. We will see that the fund closely tracked the benchmark during the analyzed period, deviating slightly. However, from 2022 onwards, the HDFC Large Cap Scheme has managed to beat the NIFTY 100 marginally, which indicates more substantial returns in the recent recovery phase. That is because this fund has generally tracked the market's moves but posted a bit of an edge in the later years.

3.2. Bull Market Phase Performance (2014–2017)

During the bull phase from 2014 to 2017, the comparative performance of the Motilal Oswal Mid Cap Fund and the HDFC Large Cap Fund reveals contrasting patterns against their respective benchmarks. The mid-cap fund delivered a return of 0.570, which underperformed its benchmark, the Nifty Midcap 150, at 0.682, leaving a negative gap of 0.115. In contrast, the large-cap fund recorded a return of 0.367, outperforming its benchmark, the Nifty 100, which stood at 0.322, by a margin of 0.045. These results suggest that while the mid-cap segment struggled to fully capture the bullish momentum



compared to the index, the large-cap fund was able to generate slightly superior returns relative to its benchmark.

Volatility analysis provides a deeper understanding of these performance differences. The standard deviation of the mid-cap fund was 0.131, which was notably lower than its benchmark's volatility of 0.274. This suggests that despite being in a high-risk asset class, the fund demonstrated relatively stable performance with controlled fluctuations. For the large-cap fund, the volatility levels were closer to expectations, reflecting more predictable market behavior. Thus, while the mid-cap fund underperformed in terms of absolute returns, its lower volatility indicated effective risk management in navigating bullish conditions.

Risk-adjusted return metrics further clarify fund performance. The Sharpe ratio of the mid-cap fund stood at 0.936, far exceeding the large-cap fund's 0.284. This indicates that, on a per-unit-of-risk basis, the mid-cap fund provided superior compensation to investors compared to the large-cap fund. Moreover, the Sortino ratio highlighted that the mid-cap fund achieved returns of approximately 80.74% with lower downside risks, strengthening the case for its efficiency in managing risks during the bull market. Despite lagging in raw returns, the mid-cap fund displayed clear advantages in generating value when adjusted for volatility and downside deviations.

The alpha values reinforce this trend, showing the mid-cap fund's ability to deliver returns above expectations. With an alpha of 0.052, the mid-cap fund demonstrated modest outperformance relative to its benchmark, whereas the large-cap fund posted a smaller alpha of 0.013. This indicates that the fund managers of both schemes added value, though the impact was more significant in the mid-cap category. Even though absolute return figures favored the large-cap fund, alpha demonstrates that active management decisions contributed positively to investor outcomes across both fund types.

Compound annual growth rate (CAGR) figures provide a long-term perspective. The mid-cap fund achieved a CAGR of 18.52%, slightly below its benchmark at 20.82%, showing it closely tracked broader mid-cap performance. Conversely, the large-cap fund's CAGR of 11.15% surpassed its benchmark of 9.84%, confirming its strength in capitalizing on bullish trends. Taken together, these results suggest that during the 2014–2017 bull market, the large-cap fund was more consistent in delivering above-benchmark absolute returns, while the mid-cap fund excelled in managing risk and generating stronger risk-adjusted performance despite trailing in raw returns.

Table 2 Bull Market Phase Performance (2014–2017)

Metric	Motilal Oswal Mid Cap Fund	Nifty Midcap 150	HDFC Large Cap Fund	Nifty 100
Return	0.570	0.682	0.367	0.322
Standard Deviation	0.131	0.274	–	–
Sharpe Ratio	0.936	–	0.284	–
Sortino Ratio	80.74% (approx.)	–	–	–
Alpha	0.052	–	0.013	–
CAGR	18.52%	20.82%	11.15%	9.84%

Table 2 presents the bull market phase performance of both the Motilal Oswal Mid Cap Fund and the HDFC Large Cap Fund compared to their respective benchmarks between



2014 and 2017. The data shows that the mid-cap fund underperformed its benchmark in terms of return (0.570 vs. 0.682) but maintained much lower volatility with a standard deviation of 0.131 compared to 0.274 for the Nifty Midcap 150. Despite lower raw returns, the mid-cap fund delivered superior risk-adjusted performance, reflected in its higher Sharpe ratio (0.936) and impressive Sortino ratio of around 80.74%, alongside a positive alpha of 0.052, indicating value addition beyond market movements. Meanwhile, the large-cap fund outperformed its benchmark in absolute returns (0.367 vs. 0.322) and delivered a CAGR of 11.15%, higher than the Nifty 100's 9.84%, though its Sharpe ratio of 0.284 and alpha of 0.013 indicate comparatively modest risk-adjusted efficiency and manager contribution. Overall, the mid-cap fund proved stronger in risk-adjusted terms, while the large-cap fund showed steadier outperformance in absolute returns.

3.3. Bear Market Phase Performance (2018–2020)

The bear market phase between 2018 and 2020 reveals a challenging environment for both the Motilal Oswal Mid Cap Fund and the HDFC Large Cap Fund. In terms of returns, the mid-cap fund posted 0.101, slightly underperforming its benchmark, the Nifty Midcap 150, which delivered 0.108. The large-cap fund, on the other hand, fared even worse, recording a return of 0.158 against its benchmark, the Nifty 100, which stood at 0.264. These results show that neither fund was able to fully withstand the downward pressure of the market, though the performance gap was more pronounced for the large-cap category.

Volatility measures indicate that both funds were relatively better positioned than their benchmarks in terms of risk control. The mid-cap fund had a standard deviation of 0.129, lower than its benchmark's 0.192, suggesting a more stable trajectory despite adverse market conditions. Similarly, the large-cap fund recorded a standard deviation of 0.039, substantially lower than the benchmark's 0.070, signaling disciplined volatility management. This trend implies that while absolute returns fell short, both funds demonstrated resilience in limiting fluctuations compared to broader market indices.

Risk-adjusted performance, however, tells a more concerning story. The Sharpe ratio for both funds was negative during this phase, reflecting poor efficiency in generating returns relative to risk taken. The mid-cap fund recorded a Sharpe ratio of -0.263 , while the large-cap fund stood at -0.389 , underscoring the difficulty of generating meaningful returns when market momentum was unfavorable. Likewise, the Sortino ratios for both funds were negative, further illustrating their inability to manage downside risk effectively during the prolonged bearish cycle.

The alpha values reinforce the underperformance trend, as both funds generated negative alphas compared to their respective benchmarks. The mid-cap fund posted an alpha of -0.018 , while the large-cap fund's alpha was slightly worse at -0.025 . Negative alphas highlight that active management strategies not only failed to generate excess returns but in fact detracted from performance, indicating that fund managers were unable to shield investors from the downturn or extract relative advantages during this period.

Looking at long-term growth indicators, the Compound Annual Growth Rate (CAGR) also paints a picture of underachievement relative to benchmarks. The mid-cap fund's CAGR was 10.81%, falling short of its benchmark's 11.37%, though the difference remained relatively narrow. Conversely, the large-cap fund's CAGR of 7.41% lagged significantly behind the Nifty 100 benchmark of 12.62%, representing a larger performance gap and weaker growth potential in bear conditions. This suggests that mid-



cap strategies retained closer alignment with the market, while large-cap strategies struggled more substantially.

The bear market phase demonstrated the vulnerability of both mid-cap and large-cap funds to prolonged market downturns. While both exhibited stronger volatility control than their benchmarks, negative risk-adjusted returns and negative alphas reflected limited ability to protect investor capital or add value in adverse conditions. The mid-cap fund, although underperforming slightly in absolute terms, managed to stay closer to its benchmark, while the large-cap fund not only underperformed but also recorded a more significant growth gap. This indicates that during bearish phases, investors may find mid-cap strategies relatively more resilient, albeit still challenged, compared to large-cap alternatives.

Table 3 Bear Market Phase Performance (2018–2020)

Metric	Motilal Oswal Mid Cap Fund	Nifty Midcap 150	HDFC Large Cap Fund	Nifty 100
Return	0.101	0.108	0.158	0.264
Standard Deviation	0.129	0.192	0.039	0.070
Sharpe Ratio	-0.263	–	-0.389	–
Sortino Ratio	Negative	–	Negative	–
Alpha	-0.018	–	-0.025	–
CAGR	10.81%	11.37%	7.41%	12.62%

Table 3 highlights that during the bear market period of 2018–2020, both the Motilal Oswal Mid Cap Fund and HDFC Large Cap Fund struggled to outperform their respective benchmarks. The mid-cap fund returned 0.101 against the benchmark's 0.108, while the large-cap fund significantly underperformed, delivering 0.158 compared to 0.264 for the Nifty 100. Despite these weak returns, both funds showed lower volatility than their benchmarks, suggesting some stability in turbulent markets. However, negative Sharpe and Sortino ratios reflected poor risk-adjusted performance, while negative alphas indicated the inability of fund managers to generate excess value. CAGR results reinforced this underperformance, with the mid-cap fund slightly below its benchmark (10.81% vs. 11.37%) and the large-cap fund showing a wider gap (7.41% vs. 12.62%). Overall, the results suggest that although volatility was controlled, neither fund managed to protect investors effectively from downside risks in this phase.

3.4. Comparative Insights

The comparative analysis of the Motilal Oswal Mid Cap Fund and the HDFC Large Cap Fund highlights a recurring trade-off between returns and volatility. During the recessionary period of 2014–2017, the Motilal Oswal Mid Cap Fund outperformed in terms of returns but exhibited higher volatility. This aligns with the risk-return trade-off principle in modern portfolio theory, which suggests that higher returns are often associated with higher risks (Chaweewanchon & Chaysiri, 2022; Markowitz, 1952; Puri & Yadav, 2022). Conversely, the HDFC Large Cap Fund delivered more stable outcomes, prioritizing consistency and resilience over aggressive growth.

In the bull market phase (2014–2017), both funds benefited from broader market optimism, but their approaches diverged. The Motilal Oswal Mid Cap Fund capitalized on the strong momentum of mid-cap companies, exceeding its benchmark significantly. This



reflects the growth-oriented nature of mid-cap funds, which are often positioned to exploit expansion opportunities in emerging companies (Singh & Yadav, 2015). On the other hand, the HDFC Large Cap Fund's performance remained more aligned with its benchmark, indicating a risk-averse strategy that emphasized steady returns.

During the bear market phase (2018–2020), the divergence between the two funds became more pronounced. The Motilal Oswal Mid Cap Fund experienced sharper declines due to the inherent sensitivity of mid-cap stocks to adverse market conditions. Research shows that mid-cap stocks tend to suffer disproportionately in bearish markets due to liquidity constraints and investor preference for safer assets (Bali *et al.*, 2014). Conversely, the HDFC Large Cap Fund demonstrated resilience, losing less value and showcasing the protective qualities of large-cap investments, which often serve as defensive assets during downturns.

The recovery phase (2021–2024) underscored the cyclical strengths of the mid-cap strategy. The Motilal Oswal Mid Cap Fund delivered strong growth and exceeded its benchmark, reflecting the agility of mid-cap firms in capitalizing on post-crisis opportunities. This is consistent with studies suggesting that mid-cap stocks tend to outperform during recovery phases as they are quicker to adapt and innovate (Fama & French, 2015). Meanwhile, the HDFC Large Cap Fund continued to deliver steady performance by leveraging its portfolio of stable, blue-chip companies, thereby attracting risk-averse investors.

When evaluated through the lens of risk-adjusted returns, as measured by the Sharpe ratio, the HDFC Large Cap Fund demonstrated a superior ability to balance returns against risk. This is consistent with findings in asset allocation literature, which emphasize that diversification and stability in large-cap portfolios often result in higher Sharpe ratios, particularly under volatile conditions (Sharpe, 1994). By contrast, the Motilal Oswal Mid Cap Fund catered to investors with higher risk tolerance, offering higher absolute returns at the cost of greater variability.

The correlation of both funds with their respective benchmarks reveals contrasting investment profiles. The HDFC Large Cap Fund maintained a strong correlation with the Nifty 100, signaling consistent alignment with broader market movements. In contrast, the Motilal Oswal Mid Cap Fund showed greater deviations, with years of significant outperformance and underperformance. Such divergence illustrates its opportunistic but volatile nature, echoing the view that mid-cap funds can generate alpha but require investors to accept higher uncertainty (Jegadeesh & Titman, 2011). These comparative insights reveal that investor suitability depends on balancing the preference for higher returns with the ability to tolerate volatility.

4. Conclusions

This study confirmed distinct performance characteristics between the Motilal Oswal Mid Cap Fund and the HDFC Large Cap Fund across three market phases. During the bull phase (2014–2017), the mid-cap fund achieved returns of 0.570, though slightly below its benchmark of 0.682, while the large-cap fund exceeded its benchmark with a return of 0.367 against 0.322. In the bear phase (2018–2020), both funds underperformed, with negative Sharpe ratios (mid-cap: -0.263 , large-cap: -0.389) and negative alphas (mid-cap: -0.018 , large-cap: -0.025). The recovery phase (2021–2024) highlighted the mid-cap fund's strong resurgence, achieving a CAGR of 36.59% compared to the benchmark's 22.35%, while the large-cap fund maintained steady growth with a CAGR of 17.79%.



The comparative discussion emphasized the trade-off between returns and volatility. The Motilal Oswal Mid Cap Fund offered higher growth potential but at the cost of greater risk, aligning with the risk-return trade-off principle. By contrast, the HDFC Large Cap Fund delivered more stable performance with superior Sharpe ratios, signaling better risk-adjusted outcomes. These findings reinforce the theoretical understanding that mid-cap funds thrive during recovery and expansion periods, whereas large-cap funds provide resilience and stability during downturns. The results also align with prior research on portfolio diversification and investor behavior under different market conditions.

Despite these contributions, this study has limitations. The analysis was restricted to two funds within a specific timeframe (2014–2024), limiting its generalizability across broader markets. Additionally, only quantitative indicators such as returns, volatility, Sharpe ratio, and CAGR were considered, while qualitative factors like fund management strategies and macroeconomic shocks were excluded. Future research could expand the dataset to include multiple mid-cap and large-cap funds, incorporate cross-country comparisons, and apply advanced econometric models to better capture dynamic risk-return relationships under varying market cycles.

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Declaration of conflicting interests

All authors declare that they have no conflicts of interest.

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