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AN ANALYTICAL COMPARISON OF SELECTED LARGE-CAP AND MID-CAP MUTUAL FUND PORTFOLIO PERFORMANCE

A study based on selected Indian equity mutual fund schemes

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Abstract: This research paper evaluates and compares the portfolio performance of selected large-cap and mid-cap mutual fund schemes in India. The study uses secondary data for the period 2021-2025 and compares five large-cap schemes with five mid-cap schemes. Performance is examined through return measures, risk measures and risk-adjusted measures such as portfolio return, compound annual growth rate, average return, standard deviation, coefficient of variation, beta, Sharpe ratio, Treynor ratio, Jensen alpha, Sortino ratio, correlation, regression, CAPM and the Fama-French three factor model. The results indicate that mid-cap schemes generally generated higher returns than large-cap schemes, but they were also exposed to higher volatility. Invesco India Mid Cap Fund, Quant Mid Cap Fund and Motilal Oswal Midcap Fund showed strong performance on several risk-adjusted indicators. Among large-cap schemes, Nippon India Large Cap Fund and HDFC Large Cap Fund performed better than the other selected large-cap funds. The study concludes that investors should not select funds only on the basis of return, but should also consider risk, market sensitivity and downside protection before making investment decisions.

Key words - Mutual Funds, Large-Cap Funds, Mid-Cap Funds, Portfolio Performance, Risk-Return Analysis, Sharpe Ratio, Jensen Alpha, CAPM, Fama-French Model.

I. INTRODUCTION

Investment is an important part of financial planning because investors expect future income, capital appreciation and long-term wealth creation. Mutual funds have become a preferred investment avenue in India as they pool money from many investors and invest it in a diversified portfolio of securities. They provide professional management, liquidity, transparency and accessibility to small and large investors. Large-cap mutual funds invest mainly in well-established companies with comparatively stable earnings and lower volatility. Mid-cap mutual funds invest in medium-sized companies that have higher growth potential but also higher risk. The present paper focuses on comparing selected large-cap and mid-cap mutual fund schemes to understand which category provides better performance during the study period.

II. NEED OF THE STUDY

A large number of mutual fund schemes are available in the Indian market, and this makes fund selection difficult for investors. Many investors compare funds only through return, but return alone does not explain the quality of performance. A fund with high return may also carry high risk. Therefore, a complete evaluation requires return analysis, risk analysis and risk-adjusted performance measures. This study is useful because it compares selected large-cap and mid-cap mutual funds through multiple analytical tools and provides a clearer basis for investment decision-making.

III. OBJECTIVES OF THE STUDY

The objectives of the study are to analyse and compare the portfolio performance of selected large-cap and mid-cap mutual fund schemes; to evaluate returns using portfolio return, CAGR and average return; to assess risk using standard deviation, coefficient of variation and beta; to examine risk-adjusted performance through Sharpe ratio, Treynor ratio, Jensen alpha, Sortino ratio, CAPM and Fama-French model; and to analyse the relationship between fund returns and market returns using correlation and regression analysis.

IV. LITERATURE REVIEW

Previous studies on mutual fund performance show that risk and return must be considered together while evaluating mutual fund schemes. Chaudhari and Meman (2025) reviewed selected mutual fund schemes in India and found that only a few schemes performed strongly after risk adjustment. Siddhartha Naga Bouddha and Manjunath (2024) compared large-cap mutual funds and observed that funds in the same segment may differ because of strategy and market behaviour. Thomas and Wilson (2025) used beta, Sharpe ratio, Treynor ratio and Jensen alpha and emphasized that investors should not depend only on return. Pal and Bhattacharya (2024) stated that combining several indicators gives a more dependable evaluation of mutual fund performance. The research gap identified is that many studies use traditional tools, while limited studies combine traditional measures with advanced methods such as CAPM, Sortino ratio and Fama-French model for comparing selected large-cap and mid-cap schemes.

V. RESEARCH METHODOLOGY

The study follows an analytical research design and is based entirely on secondary data. The data were collected from AMFI and NSE for the period 2021-2025. Five large-cap mutual fund schemes and five mid-cap mutual fund schemes were selected based on category, availability of continuous NAV data and complete information required for performance evaluation. The large-cap schemes selected are ICICI Prudential Large Cap Fund, SBI Large Cap Fund, Nippon India Large Cap Fund, Axis Bluechip Fund and HDFC Large Cap Fund. The mid-cap schemes selected are PGIM India Midcap Opportunities Fund, Quant Mid Cap Fund, Motilal Oswal Midcap Fund, Invesco India Mid Cap Fund and Kotak Emerging Equity Fund. The tools used include portfolio return, CAGR, average return, standard deviation, coefficient of variation, beta, Sharpe ratio, Treynor ratio, Jensen alpha, correlation, regression, CAPM, Sortino ratio and Fama-French three factor model.

Table 1: analytical tools used in the study

Tool	Formula / Purpose
Portfolio Return	((Ending NAV - Beginning NAV) / Beginning NAV) x 100
CAGR	[(Ending Value / Beginning Value)^(1/n) - 1] x 100
Standard Deviation	Measures volatility of fund returns
Beta	Covariance of fund and market return / Variance of market return
Sharpe Ratio	(Portfolio Return - Risk-Free Rate) / Standard Deviation
Treynor Ratio	(Portfolio Return - Risk-Free Rate) / Beta
Jensen Alpha	Rp - [Rf + Beta (Rm - Rf)]
Sortino Ratio	(Portfolio Return - Risk-Free Rate) / Downside Deviation
CAPM	E(Rp) = Rf + Beta (Rm - Rf)

V.A. Equations Used in the Study

In the present study, the main financial formulas are included below to support the methodology and maintain proper research paper structure.

Formula
Portfolio Return = [(Ending NAV - Beginning NAV) / Beginning NAV] x 100
CAGR = [(Ending Value / Beginning Value)^(1/n) - 1] x 100
Average Return = (Sum of Daily Returns / Number of Observations) x 252 x 100
Standard Deviation = STDEV(daily returns) x sqrt(252) x 100
Coefficient of Variation = (Standard Deviation / Average Return) x 100
Beta = Covariance(Fund Return, Market Return) / Variance(Market Return)
Sharpe Ratio = (Rp - Rf) / sigma
Treynor Ratio = (Rp - Rf) / beta
Jensen Alpha = Rp - [Rf + beta(Rm - Rf)]
Correlation = Cov(X,Y) / (sigmaX x sigmaY)
Regression Model = Y = a + bX + e
CAPM Expected Return = Rf + beta(Rm - Rf)
Sortino Ratio = (Rp - Rf) / Downside Deviation
Fama-French Model = Rp - Rf = alpha + betaMKT(MKT-Rf) + betaSMB(SMB) + betaHML(HML) + e

V.B. Conceptual Background of Mutual Fund Categories

Large-cap funds generally invest in the top 100 companies by market capitalization. These companies usually have established brands, wider market presence, better liquidity and relatively stable earnings. Because of this, large-cap funds are commonly preferred by investors who expect steady long-term growth with moderate volatility. Mid-cap funds invest in companies ranked from 101 to 250 by market capitalization. These companies may be in an expansion stage and may provide better growth opportunities, but their prices can fluctuate more during uncertain market conditions. Thus, comparison of large-cap and mid-cap schemes is important because both categories serve different investor profiles.

V.C. Variables and Measurement

The study uses Net Asset Value movement of selected schemes to calculate return. Market index returns are used for beta, correlation, regression and CAPM-related measures. The risk-free rate is taken as 7 percent for risk-adjusted calculations. The selected tools are grouped into three categories. Return measures include CAGR, portfolio return and average return. Risk measures include standard deviation, coefficient of variation and beta. Risk-adjusted measures include Sharpe ratio, Treynor ratio, Jensen alpha, Sortino ratio, CAPM and Fama-French alpha. This grouping helps in understanding whether a fund has performed well because of return strength, risk control or fund management efficiency.

VI. RESULTS AND DISCUSSION

The results of the study are discussed by comparing return performance, total risk, systematic risk and risk-adjusted indicators of selected large-cap and mid-cap mutual fund schemes. The discussion shows that mid-cap funds created stronger growth during the study period, while large-cap funds offered comparatively steadier performance. The interpretation of each table is presented along with investment meaning so that the findings can be understood from an investor's point of view.

The following tables summarize the major results obtained from the selected schemes. Higher values of portfolio return, CAGR, average return, Sharpe ratio, Treynor ratio, Jensen alpha and Sortino ratio indicate better performance, while lower standard deviation and coefficient of variation indicate better stability and risk efficiency.

Table 2: return and risk summary of selected mutual funds

Scheme	CAGR %	Portfolio Return %	Average Return %	SD %	Sharpe
ICICI Prudential Large Cap Fund	12.38	59.50	13.14	13.74	0.45
SBI Large Cap Fund	14.19	70.04	14.74	13.06	0.59
Nippon India Large Cap Fund	19.36	102.94	19.67	14.45	0.88
Axis Bluechip Fund	11.09	52.27	11.94	13.42	0.37
HDFC Large Cap Fund	17.37	89.78	17.83	13.92	0.78
PGIM India Midcap	18.06	94.27	18.67	15.44	0.76

Opportunities Fund					
Quant Mid Cap Fund	23.81	134.99	24.25	18.96	0.91
Motilal Oswal Midcap Fund	22.39	124.37	22.91	18.06	0.88
Invesco India Mid Cap Fund	23.39	131.78	23.40	15.98	1.03
Kotak Emerging Equity Fund	20.94	113.90	21.15	15.06	0.94

Table 2 provides a combined view of CAGR, portfolio return, average return, standard deviation and Sharpe ratio. CAGR shows the compounded yearly growth, while portfolio return shows the total growth over the selected period. Standard deviation shows the spread of returns and Sharpe ratio explains excess return per unit of total risk. The return analysis shows that mid-cap funds recorded stronger growth than large-cap funds during the period. Quant Mid Cap Fund recorded the highest CAGR of 23.81 percent and portfolio return of 134.99 percent. Invesco India Mid Cap Fund and Motilal Oswal Midcap Fund also showed strong return performance. Among large-cap funds, Nippon India Large Cap Fund performed better with a CAGR of 19.36 percent and portfolio return of 102.94 percent. The standard deviation results show that mid-cap schemes had higher volatility, especially Quant Mid Cap Fund and Motilal Oswal Midcap Fun. Therefore, mid-cap funds offered higher return but with greater risk.

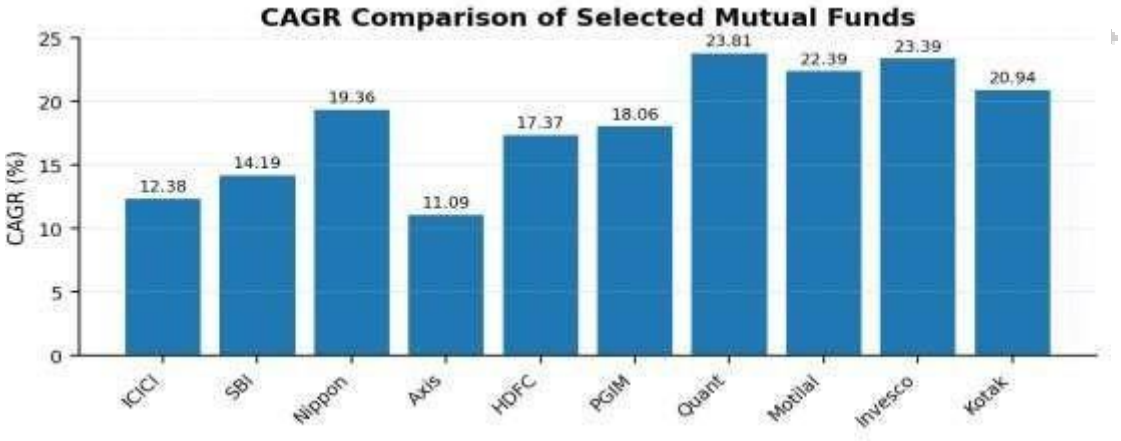

Fig. 1. CAGR comparison of selected mutual funds

Table 3: risk-adjusted performance summary of selected mutual funds

Scheme	CV %	Beta	Treynor	Jensen Alpha	Sortino	CAPM Expected Return
ICICI Prudential Large Cap Fund	104.54	0.8966	6.93	1.16	0.59	11.98
SBI Large Cap Fund	88.61	0.8951	8.64	2.61	0.81	12.12
Nippon India Large Cap Fund	73.47	0.9833	12.87	7.58	1.20	12.09
Axis Bluechip Fund	112.34	0.9156	5.45	0.25	0.50	11.68
HDFC Large Cap Fund	78.05	0.9567	11.39	5.91	1.07	11.91
PGIM India Midcap Opportunities Fund	82.68	0.7788	14.85	4.33	1.02	14.34
Quant Mid Cap Fund	78.22	0.9541	18.40	8.58	1.23	15.66
Motilal Oswal Midcap Fund	78.82	0.7697	20.35	8.60	1.17	14.30
Invesco India Mid Cap Fund	68.29	0.8112	19.88	8.69	1.40	14.70
Kotak Emerging Equity Fund	71.21	0.7613	18.16	6.87	1.26	14.28

Table 3 presents the comparison of coefficient of variation, beta, Treynor ratio, Jensen alpha, Sortino ratio and CAPM expected return. Coefficient of variation helps in identifying the risk taken for each unit of return. Beta explains market sensitivity. Treynor ratio shows reward for systematic risk, while Jensen alpha shows excess return over expected market-based return. The risk-adjusted results show that Invesco India Mid Cap Fund achieved the highest Sharpe ratio of 1.03 and the highest Sortino ratio of 1.40, indicating better return for total risk and downside risk. Motilal Oswal Midcap Fund recorded the highest Treynor ratio of 20.35, showing strong return for systematic risk. Invesco India Mid Cap Fund also recorded the highest Jensen alpha of 8.69, followed by Motilal Oswal Midcap Fund and Quant Mid Cap Fund. In the large-cap category, Nippon India Large Cap Fund showed strong Jensen alpha and Sortino ratio, indicating better fund management performance compared with other selected large-cap

schemes.

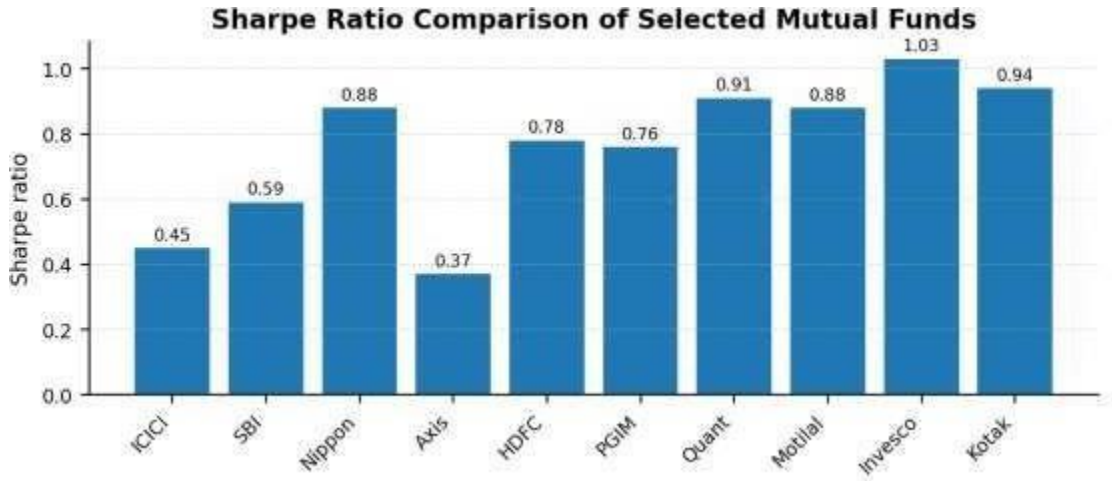

Fig. 2. Sharpe ratio comparison of selected mutual funds

Table 4: Fama-French alpha summary

Scheme	**Fama-French Alpha %**
ICICI Prudential Large Cap Fund	5.00
SBI Large Cap Fund	3.07
Nippon India Large Cap Fund	7.38
Axis Bluechip Fund	0.68
HDFC Large Cap Fund	5.32
PGIM India Midcap Opportunities Fund	2.59
Quant Mid Cap Fund	8.31
Motilal Oswal Midcap Fund	8.23
Invesco India Mid Cap Fund	8.76
Kotak Emerging Equity Fund	6.75

The Fama-French model provides a broader evaluation by considering market, size and value factors. This is useful because mutual fund performance may be affected not only by market movement but also by the nature of companies held in the portfolio. The Fama-French alpha result supports the earlier findings. Invesco India Mid Cap Fund recorded the highest alpha of 8.76 percent, followed by Quant Mid Cap Fund and Motilal Oswal Midcap Fund. This indicates that these funds generated excess return even after considering market, size and value factors. Axis Bluechip Fund recorded the lowest Fama-French alpha among the selected schemes.

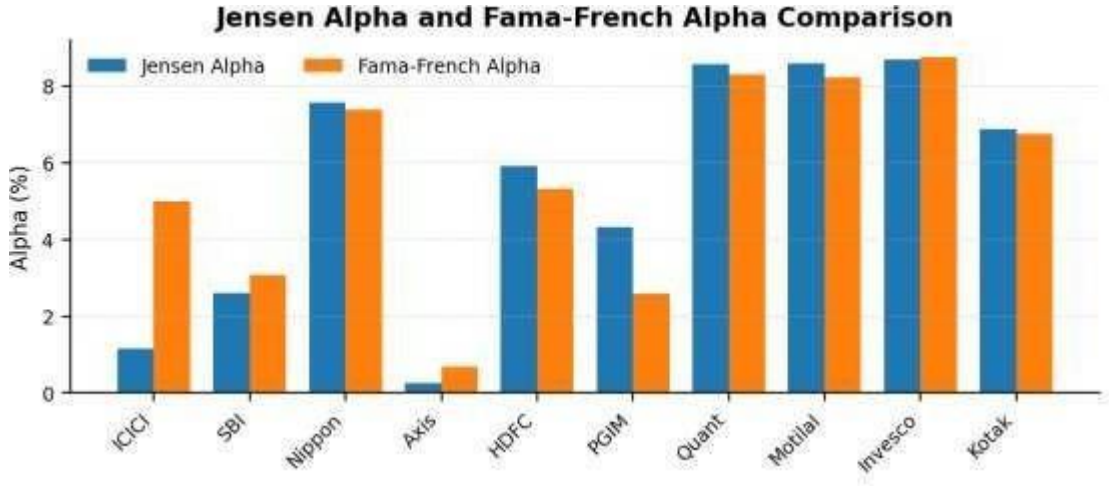

Fig. 3. Jensen alpha and Fama-French alpha comparison of selected mutual funds

VII. FINDINGS

The study found that mid-cap mutual funds generated higher returns than large-cap mutual funds during the study period. Quant Mid Cap Fund recorded the highest CAGR and portfolio return. Invesco India Mid Cap Fund performed strongly on Sharpe ratio, Sortino ratio, Jensen alpha and Fama-French alpha. Motilal Oswal Midcap Fund showed the highest Treynor ratio. Among large-cap schemes, Nippon India Large Cap Fund showed better return and risk-adjusted performance, followed by HDFC Large Cap Fund. Axis Bluechip Fund recorded comparatively lower performance across many indicators. The analysis also shows that higher return in mid-cap funds was accompanied by higher volatility, which means investors should balance return expectations with risk tolerance.

VIII. SUGGESTIONS

Conservative investors may prefer large-cap funds because they provide comparatively stable performance and lower volatility. Investors with higher risk appetite and a longer investment horizon may consider mid-cap funds because they provide better growth opportunities. Investors should compare funds using both return and risk-adjusted measures instead of selecting a fund only on the basis of past return. A diversified portfolio containing both large-cap and mid-cap schemes can help balance stability and growth. Investors should also review market conditions, fund consistency and portfolio quality before investing.

IX. LIMITATIONS OF THE STUDY

The study is based only on secondary data and is limited to selected large-cap and mid-cap mutual fund schemes. The analysis is restricted to the period 2021-2025. Historical performance may not guarantee future returns. The results may change if a different time period, different benchmark or different mutual fund schemes are selected.

X. CONCLUSION

The study concludes that mid-cap mutual funds outperformed large-cap mutual funds in terms of return and several risk-adjusted measures during the selected period. However, mid-cap funds also carried higher risk and volatility. Invesco India Mid Cap Fund, Quant Mid Cap Fund and Motilal Oswal Midcap Fund emerged as strong performers among the selected mid-cap schemes, while Nippon India Large Cap Fund and HDFC Large Cap Fund performed better among large-cap schemes. The study clearly shows that proper mutual fund evaluation should include both risk and return measures. Investors should select schemes according to their financial goals, investment horizon and risk-taking capacity.

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