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A Study on the Volatility and Return Patterns of Sectoral Mutual Funds in the Indian Market

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ABSTRACT :

This research explores the volatility and returns dynamics of sectoral mutual funds in the Indian market from 2019 to 2024. Mutual funds have become increasingly important for both novice and experienced investors as they seek to diversify their portfolios and achieve financial goals. The study focuses on six sectoral mutual fund schemes—two each from large-cap, mid-cap, and small-cap categories—assessed using key financial performance indicators such as Compound Annual Growth Rate (CAGR), Standard Deviation, Beta, and Sharpe Ratio. These tools offer a comprehensive understanding of both the returns generated and the risks undertaken by each fund.

The research employs a combination of primary and secondary data. Primary data were collected through a structured questionnaire from 52 investors of various age groups, experience levels, and occupations. This provided insights into investor awareness, risk appetite, and preferences in fund selection. Secondary data was sourced from reliable platforms like AMFI, NSE, BSE, and Money control, ensuring accurate NAVs and market benchmarks.

Findings indicate that small-cap funds like SBI Small Cap delivered the highest raw returns, boasting a CAGR of 22.11%, but also exhibited the greatest volatility (Standard Deviation: 25.04%, Beta: 1.3). On the other hand, large-cap funds such as Axis Blue Chip provided lower returns (CAGR: 13%) but offered greater stability and lower market sensitivity. Mid-cap funds, especially HDFC Midcap Opportunities Fund, achieved an optimal balance between risk and return, earning the highest Sharpe Ratio of 1.00, indicating efficient risk-adjusted performance.

The study concludes that while high returns can be attractive, they often come with increased risk. Investors must align fund selection with their financial goals, investment horizon, and risk tolerance. Tools like Sharpe Ratio and Beta can greatly assist in making rational decisions. This paper not only contributes academically but also offers practical insights for retail investors, fund analysts, and financial planners.

In summary, the research underscores the necessity of balancing risk and reward, encourages the use of quantitative metrics in fund selection, and promotes informed, long-term investment behavior. The insights drawn aim to support investors in maximizing returns while managing associated risks in a dynamically evolving financial landscape.

Key words : Mutual Funds, Risk-Return Analysis, CAGR (Compound Annual Growth Rate), Standard Deviation, Sharpe Ratio, Beta, NAV (Net Asset Value), Sectoral Funds, Large Cap, Mid Cap, Small Cap, Systematic Investment Plan (SIP), Lump Sum Investment, Investor Behavior, Risk Appetite, Volatility, Investment Objective, Financial Literacy, Portfolio Diversification, Investment Horizon.

Introduction

In today's dynamic financial environment, investors are presented with a broad spectrum of investment options, each carrying unique risk and return profiles. Some prefer traditional avenues like fixed deposits, government bonds, and Public Provident Funds, which offer stability and predictable returns. Others seek higher returns through more aggressive investment vehicles like stocks, real estate, or mutual funds, particularly equity-based or sectoral mutual funds. The key challenge remains the same: balancing risk and return effectively to meet long-term financial goals.

Mutual funds have emerged as one of the most popular investment instruments among retail investors due to their accessibility, professional management, and diversification benefits. Managed by seasoned fund managers, mutual funds pool money from various investors and allocate it across diversified financial instruments such as equities, bonds, and money market tools. Among these, sectoral mutual funds focus on specific sectors (like banking, IT, infrastructure), making them highly sensitive to the performance of that sector but also potentially more rewarding.

This research focuses on evaluating volatility and return patterns among large-cap, mid-cap, and small-cap mutual funds in India. Each category comes with a different risk-reward profile. Large-cap funds are considered more stable but offer relatively lower returns, while small-cap funds are volatile but have the potential for higher returns. Mid-cap funds often strike a balance between the two.

The key question this study seeks to answer is: Which category provides the best return for the level of risk assumed?

This study also acknowledges the increasing participation of young investors and students in financial markets. Many new investors lack the experience or tools to evaluate fund performance effectively.

Therefore, using statistical tools such as CAGR, Standard Deviation, Beta, and Sharpe Ratio, this study aims to assess the actual performance of selected mutual fund schemes over a five-year period (2019–2024).

In addition, the research incorporates primary data from a structured survey of 52 investors to understand their risk tolerance, fund preference, investment method, and knowledge of mutual fund metrics. This dual approach—combining data analysis with behavioral insight—offers a holistic perspective.

The outcome of this study will be relevant not only for investors but also for academicians, financial advisors, and policymakers, as it underscores the importance of aligning investment choices with individual risk profiles and long-term objectives.

Literature review

The performance of mutual funds has long been evaluated through a combination of risk and return metrics. Foundational theories have emphasized that an investment's effectiveness should not be judged solely by the returns it generates, but also by the level of risk undertaken to achieve those returns. The Sharpe Ratio emerged as a pivotal tool in this context, enabling investors to assess how much excess return is earned per unit of total risk. Another important concept, Jensen's Alpha, measures the additional returns a fund generates beyond what would be expected based on market performance, offering insights into fund management efficiency.

Empirical studies on mutual funds in India have shown that performance often varies significantly across categories and market conditions. Some research pointed out that Indian mutual funds, especially in their early phases, were inconsistent and lacked diversification. Other studies supported the use of risk-return tools like the Sharpe and Treynor Ratios in evaluating fund performance and emphasized the impact of fund strategy, market timing, and category selection on returns.

Further research suggested that mid-cap funds, in particular, often outperformed both large- and small-cap funds when evaluated through risk-adjusted metrics. The risk-return relationship is especially important in emerging markets like India, where macroeconomic volatility can heavily influence fund outcomes.

Behavioral studies found that investors often select mutual funds based on past performance, dividend history, and brand familiarity. These preferences underline the need for investor education and financial literacy, particularly regarding advanced tools like Beta, Standard Deviation, and NAV trends.

Overall, the literature supports the view that while high returns are attractive, a sustainable investment strategy should focus on consistency, risk management, and alignment with investor goals. Modern research also highlights the growing relevance of investor behavior and multi-factor analysis in mutual fund performance evaluation.

Research methodology

This study follows a combination of descriptive and analytical research methods to understand how different mutual funds perform in terms of return and risk. The purpose is to evaluate mutual funds from three categories—Large Cap, Mid Cap, and Small Cap—and compare their performance over five years, from 2019 to 2024.

Descriptive research was used to collect basic information about the mutual funds, like their Net Asset Values (NAVs), types, and fund strategies. This helped create a profile for each fund. Analytical research was used to go a step further and apply formulas and tools to find out how much return each fund gave and how much risk was involved.

To measure the performance of each fund, the study used tools like:

- CAGR (Compound Annual Growth Rate): To know how much the fund grew each year on average.
- Standard Deviation: To find out how much the fund's returns went up and down (volatility).
- Beta: To see how much the fund's performance changed with the market.
- Sharpe Ratio: To understand how much return the fund gave compared to the risk taken.

Primary data was collected from a survey of 52 investors to understand their awareness, investment habits, and risk-taking capacity. Secondary data was taken from reliable sources like AMFI, Money control, and official fund websites.

The selected funds included two from each category—SBI and Axis Blue Chip (Large Cap), Kotak and HDFC Midcap (Mid Cap), and SBI and Axis Small Cap (Small Cap).

These were chosen because they are popular, have consistent records, and their data is easily available.

By mixing numbers with investor opinions, the study gives a well-rounded view of how these mutual funds perform and what investors think about them.

Data Analysis and Interpretation

The data analysis section looks at how well each of the six selected mutual funds performed over five years. We studied their returns and risks using simple financial tools like CAGR, Standard Deviation, Beta, and Sharpe Ratio.

In the Large Cap category, Axis Blue Chip performed better in terms of risk-adjusted returns. It gave a return of 13% and had the lowest risk, making it suitable for investors who want stable and safe investments. SBI Blue Chip was also good but slightly more volatile.

For Mid Cap funds, both Kotak and HDFC performed well. Kotak gave slightly higher returns (19.25%) but HDFC had better risk-adjusted performance with the highest Sharpe Ratio of 1.00. This means it provided good returns with less risk. So, HDFC Midcap is a good choice for medium-risk investors.

In the Small Cap category, SBI Small Cap gave the highest return (22.11%) but also had the highest volatility and market sensitivity. Axis Small Cap gave slightly lower returns but was a bit less risky. These funds are ideal for aggressive investors who can handle ups and downs in the market.

The survey also gave interesting insights. Most investors (68%) wanted a balance between risk and return. Around 75% preferred Mid Cap funds, and

more than half knew about financial tools like Beta and Sharpe Ratio. Many also said they always check past performance before investing.
In conclusion, small-cap funds give high returns but with high risk. Large-cap funds are safer but offer moderate returns. Mid-cap funds, especially HDFC Midcap, offer the best mix of return and risk. The analysis helps investors choose funds that match their risk appetite and financial goals.

Conclusions

The research aimed to examine the risk and return characteristics of sectoral mutual funds in India over a five-year period (2019–2024), using six well-known schemes from the Large Cap, Mid Cap, and Small Cap categories. The performance of these funds was evaluated using key financial metrics such as Compound Annual Growth Rate (CAGR), Standard Deviation, Beta, and Sharpe Ratio. The findings provide a detailed comparison of each category's investment potential and volatility, along with insights from a primary survey of 52 investors.
The results highlight a clear distinction in performance across categories. The SBI Small Cap Fund achieved the highest return with a CAGR of 22.11%, indicating strong growth potential. However,
this was accompanied by the highest Standard Deviation (25.04%) and Beta (1.3), making it suitable primarily for aggressive investors who can tolerate high market volatility.
On the opposite end, Axis Blue Chip Fund, a large-cap fund, demonstrated the lowest risk with a Standard Deviation of 14.5% and Beta of 0.8, but also delivered relatively lower returns (CAGR: 13%). This fund is ideal for risk-averse investors prioritizing capital preservation over high growth.
Among the mid-cap category, HDFC Midcap Opportunities Fund delivered the best risk-adjusted performance with a Sharpe Ratio of 1.00, indicating it offered the most efficient return per unit of risk. With a CAGR of 18.75% and moderate volatility (Standard Deviation: 18.5%), it appears to be the most balanced option for investors with a medium risk appetite.
The primary survey further validated these conclusions by revealing that a majority of investors (67.9%) seek a balance between risk and return, and 75% prefer mid-cap funds. This demonstrates a growing inclination toward investments that provide steady growth without extreme volatility.

Suggestions

The findings of this study highlight the importance of understanding the relationship between risk and return when investing in mutual funds. It was observed that different categories of funds behave differently under similar market conditions. Small-cap funds, while offering the highest returns, also come with the highest levels of risk and volatility. For instance, the SBI Small Cap Fund delivered the best CAGR but also had the highest beta and standard deviation, making it suitable only for investors with high-risk tolerance and long-term investment horizons. On the other hand, large-cap funds like Axis Blue Chip Fund offered stability and lower risk, making them ideal for conservative investors seeking capital preservation.
Mid-cap funds, especially the HDFC Midcap Opportunities Fund, stood out as a balanced option. They showed strong returns with moderate volatility and the highest Sharpe Ratio, indicating good performance per unit of risk taken. This supports the idea that mid-cap funds are well-suited for investors who want to grow their wealth steadily without exposing themselves to extreme market fluctuations.
Investor responses collected through the survey added valuable behavioral insights. Most participants preferred a balance between risk and return, showing awareness of the importance of aligning investments with personal goals and risk appetite. The fact that a majority favored mid-cap funds supports the analytical findings. Additionally, the level of awareness regarding tools like Sharpe Ratio and Beta was relatively high among the respondents, indicating growing financial literacy, especially among young investors.
The discussion clearly shows that no single fund type fits all investors. Selection must be based on individual goals, risk preferences, and investment timeframes. Using financial tools to compare mutual funds can significantly improve decision-making. The study emphasizes that a welldiversified, risk-aligned, and informed investment approach is key to achieving long-term financial success.

Limitations

While this study provides useful insights into the performance and risk of mutual funds, it also has some limitations that need to be considered. First, the sample size of mutual funds in this study is small. Only six mutual funds were chosen—two each from large-cap, mid-cap, and small-cap categories. While these are popular and well-performing schemes, they may not fully represent the entire mutual fund market in India. Other funds might perform differently and could give a broader picture
Secondly, this research heavily relies on past performance data, including Net Asset Values (NAVs) from 2019 to 2024. While past data is helpful for understanding trends, it cannot accurately predict future results. Market conditions, economic changes, and global factors can affect mutual fund performance in unexpected ways. Therefore, relying only on historical returns can be risky.
Another limitation is the volatility of the financial market itself. Mutual fund performance can be influenced by many external factors such as interest rate changes, inflation, political instability, and global economic trends. These events are unpredictable and may impact fund performance during or after the study period
The study also depends on secondary data sources like AMFI, Money control, and fund house websites. While these are considered reliable, there could be minor errors, delays in updates, or changes in reported figures that may affect the accuracy of the analysis.
Additionally, the study mainly used basic statistical tools such as CAGR, Standard Deviation, Beta, and Sharpe Ratio. Though effective, these tools don’t capture complex financial behaviors or advanced risk models like Alpha or multi-factor analysis. More detailed tools could have added deeper insights.

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