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# A Study On The Impact Of Macroeconomic Variables On The Performance Of Selected Mutual Funds In Cholamandalam Investment And Finance Company Limited

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***Abstract*—** This study explores the impact of macroeconomic variables such as inflation, interest rates, and exchange rates on the performance of selected mutual funds in India. By analyzing Net Asset Value (NAV) data using regression and correlation techniques, the research identifies how economic fluctuations influence fund returns. The findings provide useful insights for investors and fund managers in making informed decisions.This study examines the impact of key macroeconomic variables such as inflation, interest rates, GDP growth, and unemployment on the performance of selected mutual funds. It aims to understand how these factors influence NAV, AUM, risk, return, and investor behavior. The findings provide valuable insights for investors and fund managers to make informed decisions. However, the study is limited by its reliance on historical data and the scope of selected variables and funds. This study investigates the impact of key macroeconomic variables such as interest rates, inflation, and exchange rates on the performance of selected mutual funds in India over a five-year period (2020–2025). Using secondary data and a combination of descriptive and analytical research designs, the study employs tools like Net Asset Value (NAV), Asset Under Management (AUM), ratio analysis (Sharpe Ratio, Beta, Treynor's Ratio, etc.), and regression techniques including ANOVA and regression coefficients. The analysis aims to understand how economic conditions influence mutual fund returns, offering insights for investors and financial analysts in making informed investment decisions.

***KEY WORDS*—** Asset Under Management (AUM), Mutual Funds, Macroeconomic Variables

## I. INTRODUCTION :

Mutual funds have become an integral part of the investment portfolios of millions of investors in India and globally. They serve as an effective vehicle for channeling savings into the financial markets while offering the advantage of professional fund management and risk diversification. Mutual funds, by design, pool resources from a large number of investors and invest the corpus in a wide array of financial instruments such as equities, bonds, government securities, and money market instruments. The pooled nature of investment allows even small-scale investors to access and benefit from a diversified portfolio, which would be difficult to achieve individually. Over the years, the mutual fund industry in India has experienced substantial growth, driven by favorable regulatory support, digitalization, growing financial literacy, and increased participation from retail and institutional investors. However, mutual fund performance is not determined solely by the quality of fund management or the intrinsic strength of portfolio companies. It is significantly influenced by broader macroeconomic factors that shape the financial ecosystem and determine the direction of markets.

## II. NEED OF THE STUDY :

III. Understanding how macroeconomic variables like inflation, interest rates, and GDP growth impact mutual fund performance is crucial for investors.

IV. This study addresses the limited research on the direct relationship between macroeconomic factors and mutual fund returns.

V. The findings can help investors and fund managers develop strategies to optimize returns and manage risks based on economic conditions.

VI. In today's volatile economic environment, this research is vital for making informed investment decisions amid changing macroeconomic factors.

## VII. OBJECTIVES OF THE STUDY :

**Primary Objective :**

To study on the impact of macroeconomic variables on the performance of selected mutual funds

**Secondary Objectives :**

- To study the relationship between macroeconomic variables and mutual fund performance.
- To analyze the impact of macroeconomic changes on NAV and AUM.
- To evaluate mutual fund risk and return using ratio analysis.
- To assess how macroeconomic factors influence investor decisions.

## VIII. SCOPE OF THE STUDY :

IX. The study will analyze the impact of inflation, interest rates, GDP growth, and unemployment on the performance of selected mutual funds.

X. The research will focus on a specific set of mutual funds to provide in-depth analysis and insights into their performance under varying macroeconomic conditions.

XI. The study will cover a defined time period to observe how the relationship between macroeconomic variables and mutual fund performance evolves over time.

XII. The research will focus on mutual funds from a specific market or region, providing context-specific insights into the impact of macroeconomic conditions.

## XIII. LIMITATIONS OF THE STUDY :

**XIV.** The study relies on historical data of macroeconomic variables and mutual fund performance, which may have inconsistencies or gaps, affecting the reliability of findings.

**XV.** The research focuses on selected macroeconomic variables, but other factors like political events, global crises, and market sentiment could also influence mutual fund performance.

**XVI.** The analysis is conducted within a specific time frame, which may not capture long-term trends or cyclical effects of macroeconomic fluctuations on mutual funds.

**XVII.** This study Different mutual funds company have varying investment strategies, risk appetites, and asset allocations, making it challenging to generalize findings across all fund categories.

## XVIII. REVIEW OF LITERATURE :

- **Nguyen, H., & Patel, S. (2024)** investigated the relationship between cryptocurrency trends and mutual fund performance. They found that funds with indirect exposure to cryptocurrencies, such as through blockchain technology companies, tend to experience higher returns and increases in Net Asset Value (NAV) and Assets Under Management (AUM) during cryptocurrency bull markets. Their study highlights the growing relevance of digital asset ecosystems in traditional investment vehicles.
- **Baker, R., & Wilson, K. (2024)** analyzed the impact of central bank policies on mutual fund performance, NAV, and AUM. They discovered that quantitative easing measures positively affect equity funds by boosting liquidity, which in turn raises NAV and AUM. However, these policies can adversely affect bond funds due to the resulting lower yields, thereby reducing their NAV and AUM. The study emphasizes how monetary policies have differentiated effects on various asset classes within mutual funds.
- **Clark, D., & Evans, R. (2024)** explored the effects of natural disasters on mutual fund performance, NAV, and AUM. They found that funds located in disaster-affected regions tend to underperform and suffer declines in NAV and AUM due to economic disruptions. Conversely, funds focusing on insurance or reconstruction sectors often benefit, showing increases in value and assets. This duality underscores the importance of sectoral focus and geographic exposure in fund performance during crisis events.

## XIX. RESEARCH METHODOLOGY :

Research methodology refers to the overall strategy and approach adopted to conduct a research study. It includes the methods and techniques used for collecting data, analyzing results, and drawing conclusions. The methodology outlines whether the research is qualitative, quantitative, or a mix of both, and provides justification for the tools and procedures chosen. For example, in a study examining the impact of macroeconomic variables on mutual fund performance, the methodology may involve statistical tools like regression analysis, data from financial reports, and variables such as interest rate, inflation, and exchange rate.

### DESCRIPTIVE AND ANALYTICAL RESEARCH

The present study employs both descriptive and analytical research design to examine the impact of macroeconomic variables on mutual fund performance. The descriptive research design is used to systematically present the trends and patterns in Net Asset Value (NAV), Asset Under Management (AUM), and macroeconomic indicators such as interest rate, inflation rate, and exchange rate over a defined period.

**DATA COLLECTION METHOD**

**SECONDARY DATA**

Secondary data refers to data that has already been collected, processed, and published by someone else for a purpose different from the current research. It is obtained from existing sources such as government reports, company records, newspapers, journals, and online databases. Researchers use secondary data to save time, effort, and resources. Although it is convenient and cost-effective, it may not always perfectly fit the specific needs of a study. It is commonly used for background research, trend analysis, and comparison with primary data.

**PERIOD OF THE STUDY**

The study is conducted on 5 years from 2020 to 2025

**TOOLS USED IN THE ANALYSIS**

- Asset under management (AUM)
- Net asset value (NAV)
- Ratio analysis

**XX. DATA ANALYSIS AND INTERPRETATION :**

**TABLE SHOWING THE AUM ANALYSIS IN THE YEAR OF 2020 TO 2025 (R.S CR)**

| YEAR | Edelweiss | HDFC | Invesco India | Kotak |
|---|---|---|---|---|
| **2020** | 1,056.70 | 28,176.10 | 1,389.34 | 2,376.32 |
| **2021** | 1864.78 | 40,023.91 | 2,261.71 | 3,154.76 |
| **2022** | 4623.64 | 55,623.16 | 2,632.63 | 4,718.13 |
| **2023** | 8,280.00 | 65,545.01 | 4,280.22 | 5,123.92 |
| **2024** | 8,666.49 | 77,967.21 | 5,568.82 | 5,648.82 |
| **2025** | 8,633.85 | 72,610.08 | 5,479.32 | 5,779.32 |

**INTERPRETATION:**

The table shows the presents the **Asset Under Management (AUM)** values in **Rs. Crore**, which represent the total AUM across all schemes operated by the respective firms during the selected time period. The values are aggregated under the attribute **"grand AUM"**, reflecting the combined AUM for each firm. The data corresponds to the selected **quarter** in each year. These figures provide insights into the total market value of assets managed by the firms during the sample period. The table highlights how each firm's AUM has evolved over the years.

**CHART SHOWING THE AUM ANALYSIS FOR THE YEAR OF 2020 TO 2025**

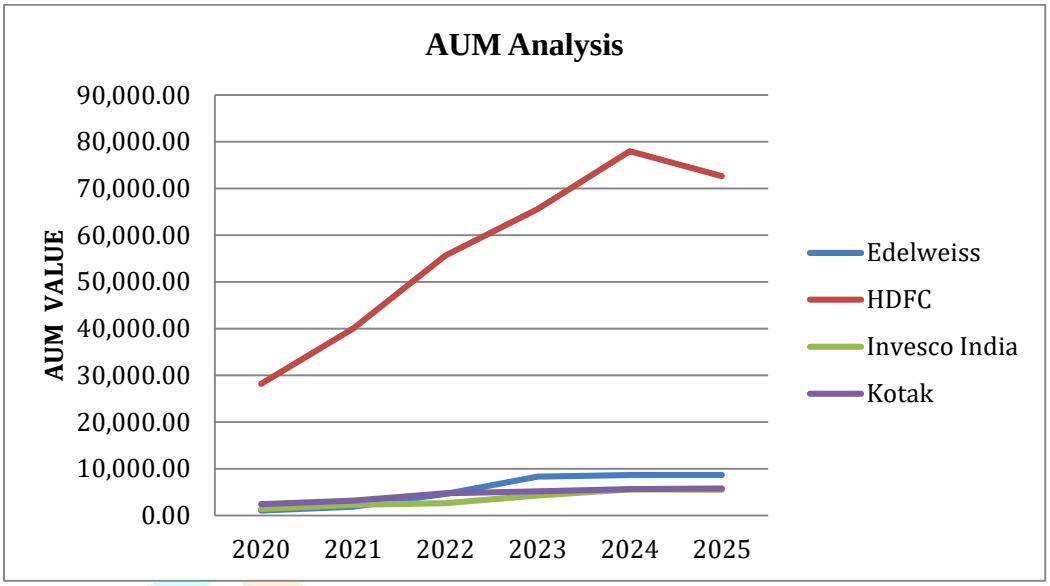


**TABLE SHOWING THE NAV FOR THE YEAR OF 2020 TO 2025**

| YEAR | Edelweiss (₹) | HDFC (₹) | Invesco India (₹) | Kotak (₹) |
|---|---|---|---|---|
| **2020** | 22.31 | 43.05 | 43.03 | 43.56 |
| **2021** | 43.86 | 56.1 | 56.2 | 38.73 |
| **2022** | 43.06 | 65.21 | 65.08 | 54.39 |
| **2023** | 60.47 | 72.64 | 72.91 | 72.52 |
| **2024** | 71.04 | 79.89 | 76.82 | 81.21 |
| **2025** | 77.30 | 72.25 | 69.41 | 81.39 |

**INTERPRETATION:**

Table shows the values (in ₹) for a sample of 5 years. The values are taken for each year, considering two periods within the year. The schemes in consideration for the calculation of the above values are Edelweiss, HDFC, Invesco India, and Kotak. The table presents the NAV values for these funds across the years 2020 to 2025.

**CHART SHOWING THE NAV ANALYSIS**

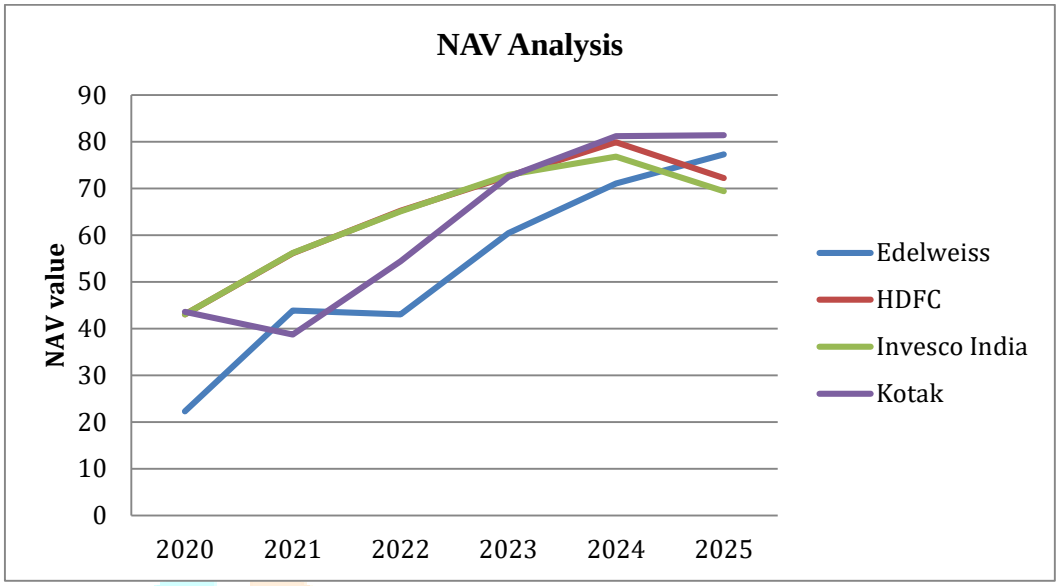


**TABLE SHOWING THE RATIO ANALYSIS**

| Scheme name | Standard Deviation | Beta | Sharpe Ratio | Treynor's Ratio | Jensen's Alpha |
|---|---|---|---|---|---|
| **Edelweiss** | 15.83vs15.1 | 0.94vs0.89 | 0.88vs0.72 | 0.88vs0.72 | 1.87vs0.02 |
| **HDFC** | 14.69vs15.1 | 0.87vs0.89 | 1.06vs0.72 | 0.18vs0.12 | 4.33vs0.02 |
| **Invesco India** | 15.07vs15.1 | 0.87vs0.89 | 0.88vs0.72 | 0.15vs0.12 | 2.24vs0.02 |
| **Kotak** | 14.3vs15.1 | 0.84vs0.89 | 0.75vs0.72 | 0.13vs0.12 | -0.17vs0.02 |

**INTERPRETATION:**

The Table shows the presents the performance ratios of various mutual fund schemes over a 5-year period, comparing each scheme's values with the category average. Among the funds, Edelweiss and Invesco India showed higher standard deviations, indicating greater return volatility, while Kotak exhibited the least, reflecting more stable performance. HDFC and Kotak had lower beta values than the category average, suggesting slightly reduced market risk exposure. HDFC stood out with the highest Sharpe Ratio (1.06 vs 0.72), indicating superior risk-adjusted returns, followed by Edelweiss and Invesco India. Edelweiss also recorded the highest Treynor's Ratio (0.88 vs 0.72), highlighting better returns for the level of systematic risk taken. Jensen's Alpha was most favorable for HDFC (4.33 vs 0.02), signaling strong fund management and notable excess returns over market expectations. Overall, HDFC and Edelweiss outperformed their peers, while Kotak showed relatively weaker performance in terms of risk-adjusted metrics and alpha.

**Regression Statistics for Edelweiss Mid Cap Fund (IDCW)-Direct Plan for the period of 2020 to 2025**

| Regression Statistics | |
|---|---|
| Multiple R | 0.985268987 |
| R Square | 0.970754978 |
| Adjusted R Square | 0.926887444 |
| Standard Error | 5.53632702 |
| Observations | 6 |

**INFERENCE:** The table shows a strong relationship between the **Edelweiss** mutual fund's NAV and macroeconomic variables, with an R Square of 97.08%, indicating that most of the variation in NAV is explained by interest rate, inflation, and exchange rate. The Adjusted R Square of 92.69% confirms the model's reliability, and the standard error of 5.54 suggests moderate prediction accuracy. The analysis is based on six observations, providing a solid foundation for evaluating the impact of macroeconomic factors on mutual fund performance..

**ANOVA Statistics**

| | Df | SS | MS | F | Significance F |
|---|---|---|---|---|---|
| Regression | 3 | 2034.84406 | 678.2814 | 22.12924 | 0.043545226 |
| Residual | 2 | 61.30183375 | 30.65092 | | |
| Total | 5 | 2096.145893 | | | |

**INFERENCE:** The table evaluates the overall significance of the regression model used to study the impact of macroeconomic variables on the performance of the **Edelweiss** mutual fund. The regression model, with 3 degrees of freedom, explains a large portion of the total variation in NAV, as indicated by the regression sum of squares (2034.84) compared to the residual sum of squares (61.30). The resulting F-statistic value of 22.13 and a significance level (p-value) of 0.0435 confirm that the model is statistically significant at the 95% confidence level. This implies that there is a meaningful relationship between the **Edelweiss** mutual fund's NAV and the macroeconomic variables: interest rate, inflation rate, and exchange rate.

**Regression Coefficients**

| | Coefficients | Standard Error |
|---|---|---|
| Intercept | -60.23664344 | 273.6589566 |
| Interest rate | 4.857893886 | 11.73681462 |
| Inflation rate | -9.41867611 | 5.248051093 |
| Exchange rate | 1.736947969 | 3.925773793 |

**INFERENCE:** The table shows the regression coefficients and standard errors for the macroeconomic variables affecting the NAV of the **Edelweiss** mutual fund. The **intercept** of -60.24 is the baseline NAV when all variables are zero. The **interest rate** has a positive coefficient of 4.86, indicating a rise in NAV with higher rates, but with a high standard error of 11.74. The **inflation rate** has a negative coefficient of -9.42, suggesting a decrease in NAV with higher inflation, with a moderate standard error of 5.25. The **exchange rate** shows a positive relationship with NAV (coefficient of 1.74), with a moderate standard error of 3.93. These results reflect the relationships between the macroeconomic factors and the NAV of the **Edelweiss** mutual fund, with varying uncertainty in the estimate

**FINDINGS**

• The study aimed to analyze the impact of key macroeconomic variables—inflation rate, interest rate, and exchange rate—on the performance (measured by NAV) of selected mutual funds.
• The regression analysis for Edelweiss Mutual Fund indicated a strong relationship between its NAV and the selected macroeconomic variables, with a high R-squared value of 97.08%, suggesting that most of the variation in NAV can be explained by these factors.
• The regression model for Edelweiss was statistically significant at the 95% confidence level (p-value = 0.0435), confirming the reliability of the relationship.
• Interest rate showed a positive impact on NAV, while the inflation rate had a negative impact, and the exchange rate showed a moderate positive impact.
• The AUM (Assets Under Management) of all selected funds increased steadily from 2020 to 2025, with HDFC recording the highest growth.

• NAV values for Edelweiss, HDFC, Invesco India, and Kotak also rose during the study period, indicating overall positive performance.
• Ratio analysis showed:

- Edelweiss and Invesco India had higher volatility (standard deviation).
- Kotak had the lowest beta, indicating lower market risk.
- HDFC had the highest Sharpe Ratio (1.06) and Jensen's Alpha (4.33), indicating strong risk-adjusted and excess returns.
- Edelweiss had the highest Treynor's Ratio (0.88), showing the best returns per unit of systematic risk.

**SUGGESTIONS**

- Fund managers should consider adjusting asset allocations based on macroeconomic trends to minimize risk and optimize returns.
- Investors and fund managers should closely track inflation, interest rates, and exchange rates as they significantly impact mutual fund performance.
- Funds with high volatility, such as Edelweiss and Invesco India, should adopt more robust risk management frameworks to safeguard investor interests.
- Investors should prioritize funds with high Sharpe and Treynor's Ratios (like HDFC and Edelweiss) for better risk-adjusted performance.
- Conduct educational programs to help retail investors understand how macroeconomic variables influence mutual fund returns.
- Mutual funds should periodically assess their performance using ratio analysis and regression tools to stay aligned with market dynamics.
- Future studies should include additional variables such as GDP growth, unemployment, and geopolitical events to provide a more comprehensive understanding of fund performance.
- Incorporating predictive models and real-time economic indicators may enhance decision-making and performance forecasting.

**Conclusion**

The study concludes that macroeconomic variables such as interest rates, inflation, and exchange rates have a significant impact on the performance of selected mutual funds in India. The regression analysis, particularly for the Edelweiss Mutual Fund, revealed a strong and statistically significant relationship, with an R-squared value of 97.08%, indicating that a substantial portion of the variation in NAV can be explained by these macroeconomic factors. Interest rates were found to have a positive influence on NAV, while inflation had a negative impact, and exchange rates showed a moderate positive effect. Furthermore, the analysis of Assets Under Management (AUM) and NAV trends from 2020 to 2025 demonstrated consistent growth across all funds, with HDFC showing the highest increase. Ratio analysis highlighted that HDFC and Edelweiss delivered superior risk-adjusted returns, whereas Kotak displayed greater stability with lower market risk. Overall, the findings emphasize the need for investors and fund managers to consider macroeconomic conditions in their decision-making processes to achieve optimal fund performance and manage investment risks effectively.

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