



# **ESG-Linked Mutual Fund in India: An Empirical Analysis of Risk, Return, and Growth.**

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**ABSTRACT:** The intensification of environmental issues, social accountability, and a growing demand for transparency and ethical management have spurred the growth and development of Environmental, Social, and Governance (ESG) investing in global financial markets. Recently, investors have shifted their focus from purely financial gains to encompassing non-financial elements such as environmental sustainability, corporate governance, and social equity, which they now perceive as vital to their socially responsible investment choices. As a result, ESG investing has evolved into a significant avenue for corresponding financial strategies with long-term sustainability objectives. In this landscape, mutual funds linked to ESG criteria have become increasingly popular worldwide, serving as an investment option that combines both financial returns and socially responsible investment opportunities.

This study addresses this issue by focusing on short-term (quarterly) performance and growth analysis of selected ESG-linked mutual funds in India. The core objective is to evaluate whether ESG parameters contribute to improved risk-adjusted returns and fund growth. Using NAV, AUM, and Sharpe Ratio as key metrics. The study is based on a purposive sample of eight ESG-linked mutual funds and applies statistical tools such as descriptive analysis, ANOVA, Pearson's correlation, and multiple regression to derive meaningful insights. The results reinforce the conclusion that short-term growth in NAV and AUM does not directly determine fund performance in ESG-linked mutual funds. Overall, the findings suggest that ESG branding alone does not ensure better risk-adjusted returns and that fund-specific characteristics, investment strategies, and market responsiveness are likely more crucial in driving fund performance.

**Keywords:** ESG- Themed Mutual Funds, Green Investing, Socially Responsible Investing, AUM, NAV.

## 1. INTRODUCTION

The growing environmental concerns, social responsibility, and increasing demand for transparency and ethical governance have led to the emergence and evolution of Environmental, Social, and Governance (ESG) investing in financial markets globally. In recent years, investors are no longer solely focused on financial returns; instead, they increasingly value non-financial factors such as environmental sustainability, corporate governance, and social equity as integral parts of their socially responsible investment decisions. ESG investing, therefore, has transformed into a powerful tool for aligning financial strategies with long-term sustainability goals. Within this context, mutual funds with ESG linkages have gained momentum worldwide as an investment vehicle that offers both financial returns and socially responsible investing opportunities. India, being a rapidly developing economy with a rising awareness of sustainable practices, has also experienced a growing interest in ESG-themed mutual funds, particularly post-2018 when regulatory frameworks and market sentiments began favouring green finance and ethical investing.

Despite this progress, the Indian ESG mutual fund landscape remains relatively nascent compared to developed markets. As of the financial year 2024–25, there were around 18 mutual fund schemes in the ESG theme-based mutual fund category, which includes both active and passive funds operating in the Indian mutual fund industry. The figure is somewhere 20 to 30 times lower than in countries, including the US, UK, Japan, and China. In this context, ESG-themed mutual funds gained growing academic and regulatory interest, particularly in the Indian context. Existing studies have predominantly examined long-term trends and macro-level insights, often overlooking short-term fluctuations and fund-specific performance variations that are critical in a high-frequency trading and post-pandemic investment environment.

This study addresses this gap by focusing on short-term (quarterly) performance and growth analysis of select ESG-linked mutual funds in India. The core objective is to evaluate whether ESG parameters contribute to improved risk-adjusted returns and fund growth. Using NAV, AUM, and Sharpe Ratio as key metrics, this research investigates the dynamic relationship between fund size, net value, and performance across four quarters of the 2024–25 financial year. The study is based on a purposive sample of eight ESG-linked mutual funds and applies statistical tools such as descriptive analysis, ANOVA, Pearson's correlation, and multiple regression to derive meaningful insights.

In light of growing investor interest in socially responsible investments, this study contributes to a deeper understanding of the Indian ESG mutual fund segment by evaluating short-term empirical evidence. The findings will help investors, policy-makers, and fund managers make informed decisions about the role of ESG integration in mutual fund selection, portfolio construction, and performance assessment. It also seeks to critically analyse whether ESG tagging in mutual funds translates into meaningful performance differentiation or remains a symbolic label without substantive financial impact.

## 2. SIGNIFICANCE OF THE STUDY

Mutual fund investment is a passive type of investment decision by individual and retail investors. For better return, they, to a great extent, depend on the Assets Manager's excellence as well as the efficiency of the Assets management companies' performance. In case of mutual fund investment, selection of a fund to invest in, and analysis of the fund's performance and growth perspective, some key metrics play the most relevant role for the investor decision-making process. Which includes AUM, NAV, the Sharpe Ratio, Sortino Ratio, Treynor Ratio, Beta, and Jensen's Alpha. These metrics exhibit a macroeconomic scenario and long-term perspectives of investment avenues. Again, in the case of investment decisions, it is important to consider inflation as a critical metric. For that purpose, short-term analysis also gains importance. While mutual funds are primarily a long-term investment avenue, short-run performance analysis provides essential, real-time insights into fund behaviour, risk dynamics, investor response, and particularly ESG strategy effectiveness for ESG-themed mutual funds, especially in emerging markets like India, where ESG mutual funds are still evolving. Such analysis complements long-term studies and helps build a more complete and practical understanding of fund performance.

Moreover, the study's findings can inform strategic decision-making in portfolio management and sustainable investment planning. As ESG investments grow in regulatory importance and investor preference, this research provides timely and actionable insights into whether ESG-linked mutual funds in India live up to their promise of superior performance and sustainable growth. It ultimately contributes to the academic discourse on green finance and sustainable investing in the context of emerging markets.

## 3. REVIEW OF LITERATURE

**Sarkar, S. (2022).** The research attempted a comparison between risk-adjusted returns with traditional market portfolios, aiming to assess whether ESG funds in India have delivered superior risk-adjusted returns compared to conventional market portfolios. The 91-Day Treasury bill yield is considered the risk-free rate, and the Nifty 50 index has been used as the market benchmark. The Sharpe Ratio, Sortino Ratio, Treynor Ratio, and Jensen's Alpha have been used as performance metrics. The study concludes that ESG mutual funds in India have grown in prominence and demonstrated competitive performance compared to traditional funds.

**Gupta, S. (2022).** This research presents an empirical investigation into the performance and growth of ESG-themed mutual funds in India. The study evaluates risk-return conditions by a comprehensive framework including the Sharpe Ratio, Sortino Ratio, Treynor Ratio, and Jensen's Alpha. The findings indicate that the ESG-themed mutual fund concept is still at the nuanced stage. It has exhibited positive momentum in terms of fund launches and asset accumulation since 2018. Importantly, all sampled funds exhibited positive Jensen's Alpha, suggesting superior performance relative to the market benchmark (Nifty 50), with the Quant ESG Equity Fund emerging as the top performer despite its relatively low AUM.

**Dutta & Paul (2023)** analyse the performance of select ESG-linked mutual funds during the pandemic period. This study evaluates four ESG funds using a range of financial metrics, including CAGR, SD, Sharpe ratio, Treynor Ratio, Alpha, Beta, and the coefficient of determination. The findings suggest that ESG funds demonstrated relatively defensive characteristics and satisfactory diversification; however, most of the funds underperformed in risk-adjusted metrics, and their CAGR also lagged behind expectations. This study concludes that although ESG funds may not always deliver superior returns in the short run, their defensive nature and alignment with the green goal make them a lucrative risk-averse and socially conscious investment opportunity.

**Kumar & Mishra (2024)** this study conducts an empirical analysis to evaluate the return performance of ESG-linked mutual funds, with a special focus on whether these funds offer superior or comparable returns relative to traditional benchmarks. The scope includes both performance trends and intra-category fund comparisons over a recent three-year period. The Sharpe Ratio, Sortino Ratio, Treynor Ratio, and Jensen's Alpha have been used as performance metrics. The result exhibits a heterogeneity in performance and suggests that ESG funds in India are still evolving and that performance is fund-specific.

**Dr. S. Jayadev & Dr. Anupama R. (2024)** this research evaluates the performance of ESG-themed mutual funds in India and attempts to understand their responsiveness to the NIFTY 100 ESG Index as a benchmark index. Study concludes that ESG mutual funds in India showed a positive relationship between selected funds and the benchmark index. Out of selected funds, the Quantum ESG Best in Class Strategy Fund emerged as the most sensitive and best aligned with the benchmark, while the Axis ESG Integration Strategy Fund showed the least sensitivity. The findings also affirm that, irrespective of risk perception, ESG benchmarks can serve as reliable indicators of fund behaviour.

**Priya, & Sharma, K. (2024)**. This research adopts a cross-country approach and highlights a global comparative analysis of ESG mutual fund evolution, evaluating status and performance across both developed, developing, and underdeveloped economies. With a particular focus on India, this paper articulated that India has made considerable progress in ESG adoption. From 2019 onwards, Indian ESG-themed mutual funds have gained higher AUM compared to the rest of the world.

#### 4. RESEARCH GAP

Based on the above extensive literature review, the researcher observed that the domain of ESG-linked mutual funds has attracted growing academic and regulatory interest, particularly in the Indian context. Several studies have been conducted on mutual funds, themed under ESG. Of those, most of the studies have discussed about growth and performance of mutual funds with macro-level insights and a long- term perspective. They fail to capture the short-term performance volatility and quarterly dynamics, which are increasingly relevant for both investors and fund managers in a post-pandemic, high-frequency trading environment. Considering the existing critical gaps persist in the current body of research, researchers came to the thought of how this linkage with ESG parameters contributes to the excellence of performance, the way it impacts the quantum of assets under management, as well as net asset value in the short run. Thus, the researcher tried to explore

the uncharted area that has equal importance to mutual fund investors and the industry by conducting an exploratory and empirical study through its well-defined objectives of the study.

## 5. RESEARCH QUESTION

Based on the necessity or significance of the study, the following research questions have been raised by the researcher,

- Is the Environmental, Social, and Governance (ESG) linkage associated with thematic mutual funds, ensuring better performance?
- Do Environmental, Social, Governance (ESG) -linked mutual funds exhibit better growth in terms of Assets under Management?
- Is there any relation between Net asset value, Assets under management growth, and ESG linkage?

## 6. RESEARCH OBJECTIVE

The researcher has identified the following research objectives based on the questions raised by the researcher;

- To evaluate ESG-linked mutual funds' performance using risk-adjusted metrics.
- To examine the relationship between NAV growth, AUM growth, and performance in ESG-linked mutual funds.
- To assess the extent to which NAV returns and fund size (AUM) influence the performance of ESG mutual funds.

## 7. RESEARCH METHODOLOGY

This study adopts a quantitative and empirical research design to evaluate the growth of NAV, AUM, and performance regarding risk-adjusted returns of select ESG-linked mutual funds in the Indian financial market. To achieve the objectives, secondary data will be used, focusing on a purposive sample of thematic mutual funds, which are categorised and managed under the Environmental, Social, and Governance criteria. Considering the availability of data, a defined study period of one financial year, that is, (2024 – 25), consisting of four quarters (Q1 to Q4), has been considered for said purpose of the study. Further, due to data insufficiency, a sample of 8 funds has been selected out of 18 operating ESG-linked Mutual funds in India. The net asset value (NAV) and assets under management (AUM) have been used as variables to explore growth, and the Sharpe ratio has been used to assess the performance measure variable for this study.

## 7.1 Analytical Tools and Statistical Techniques

To address the research objectives, the following tools and statistical techniques were employed;

- **Descriptive Statistics:** Descriptive Statistics, including mean, standard deviation, skewness, and kurtosis, were computed for each variable (NAV, AUM, and Sharpe Ratio) to provide an initial overview of the data characteristics, distribution, and trends over time.
- **One-Way ANOVA:** This analysis evaluates the performance of ESG-linked mutual funds using risk-adjusted ratios, thereby determining whether significant differences exist in the mean Sharpe Ratios of the selected mutual funds across the four quarters.
- **Correlation Analysis:** Pearson's correlation coefficients were calculated to determine the strength and direction of the linear relationship between the variables. The correlation study has been conducted between the Sharpe Ratio and NAV Growth, the Sharpe Ratio and AUM Growth, and NAV Growth and AUM Growth. The significance of these correlations was tested using p-values at a significance level of  $\alpha = 0.05$ .
- **Regression:** A linear regression model was employed to explore the impact of NAV Growth and AUM Growth on the Sharpe Ratio as the dependent variable. The regression analysis aimed to test whether these growth metrics influence risk-adjusted returns (Sharpe Ratio). Model assumptions such as normality of residuals, autocorrelation, and multicollinearity were also checked through diagnostic tests.

All analyses were conducted using Microsoft Excel and JAMOVI software.

## 8. DATA PRESENTATION AND ANALYSIS

To fulfil the above research objectives, based on a well-defined research methodology, the following information is presented and analysed by applying specific tools.

## **Analysis: 1: To evaluate ESG-linked mutual funds' performance using risk-adjusted metrics with reference to the Sharpe Ratio**

1. **H01:** There is no significant difference in the mean Sharpe Ratios of ESG-linked mutual funds.
2. **H11:** There is a significant difference in the mean Sharpe Ratios of ESG-linked mutual funds

**Table 1: Sharpe Ratio of Environmental, Social, and Governance (ESG) Funds**

ESG Funds	Sharpe Ratio			
	30.06.2024	30.09.2024	31.12.2024	31.03.2025
Aditya Birla Sun Life ESG Integration Strategy Fund.	0.36	0.36	0.23	0.09
ICICI Prudential ESG Fund	0.76	0.80	0.83	0.86
Axis ESG Fund.	-0.09	-0.12	-0.10	-0.14
Quant ESG Equity Fund	2.01	2.15	1.74	1.19
Invesco India ESG Integration Strategy Fund	0.17	0.14	0.08	0.04
Quantum India ESG Equity Fund	0.64	0.71	0.42	0.39
Kotak ESG Exclusionary Strategy Fund	0.53	0.52	0.25	0.18
SBI ESG Exclusionary Strategy Fund	0.74	0.64	0.32	0.29

**Source:** Retrieved from the individual website of the Asset Management Companies

The Sharpe Ratio trends reveal heterogeneous performance across ESG mutual funds. While a few funds, like The Quant ESG Equity Fund, exhibit the highest Sharpe Ratios (2.01 in Q1 to 1.19 in Q4), demonstrating strong risk-adjusted performance, the Axis ESG Fund consistently shows negative Sharpe Ratios (ranging from -0.09 to -0.14) across all quarters, indicating poor risk-adjusted performance. Additionally, all other funds also display a declining trend in their risk-adjusted performance.

Descriptive statistics indicate a declining trend in the mean value and standard deviation, decreasing from 0.64 in Q1 to 0.36 in Q4, and from 0.62 in Q1 to 0.44 in Q4, respectively. This sharp decline in the mean and reduction in variability over time reflect a possible system-wide contraction in risk-adjusted performance, potentially due to macroeconomic factors or sectoral underperformance in ESG-linked investments. (Statistical tool applied: Microsoft Excel 2019).

### **ANOVA**

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.415754	4	0.103938	0.268292	0.89603	2.689628
Within Groups	11.62222	30	0.387407			
Total	12.03798	34				

Descriptive Statistic	Q1	Q2	Q3	Q4
Mean	0.64	0.65	0.47125	0.3625
Standard Error	0.22142	0.24017	0.20487	0.15825
Median	0.585	0.58	0.285	0.235
Standard Deviation	0.62628	0.67931	0.57947	0.44759
Sample Variance	0.39223	0.46146	0.33578	0.20034
Kurtosis	3.7072	3.93869	3.44412	0.32284
Skewness	1.59576	1.67879	1.77552	1.06779
Range	2.1	2.27	1.84	1.33
Minimum	-0.09	-0.12	-0.1	-0.14
Maximum	2.01	2.15	1.74	1.19
Confidence Level (95.0%)	0.52358	0.56791	0.48445	0.37419

Despite observable trends in declining Sharpe Ratios, the ANOVA results indicate a P value of 0.89603, which is greater than 0.05 ( $P=0.896.3>0.05$ ), reflecting that these differences are not statistically significant at the 5% level. Hence, the null hypothesis is accepted, and the conclusion can be drawn that, while the trend is visually apparent, it is not robust enough to establish a time-dependent decline in performance. This reinforces the notion that performance variation may be driven more by fund-specific or market anomalies rather than consistent quarterly shifts.

## Analysis: 2: Relationship between NAV growth, AUM growth, and performance in ESG-linked mutual funds.

1. **H01:** There is no significant relationship between NAV growth, AUM growth, and the performance of ESG-linked mutual funds.
2. **H11:** There is a significant relationship between NAV growth, AUM growth, and the performance of ESG-linked mutual funds.

## Correlation Matrix

			GROWTH RATIO	OF SHARPE	GROWTH NAV	OF	GROWTH AUM	OF
GROWTH RATIO	OF	SHARPE	Pearson's r	—				
			df	—				
			p-value	—				
			95% CI Upper	—				
			95% CI Lower	—				
			Kendall's Tau B	—				
			p-value	—				
			N	—				
GROWTH OF NAV			Pearson's r	0.101	—			
			df	22	—			
			p-value	0.638	—			
			95% CI Upper	0.485	—			
			95% CI Lower	-0.315	—			
			Kendall's Tau B	0.022	—			
			p-value	0.902	—			
			N	24	—			
GROWTH OF AUM			Pearson's r;	0.216	0.489*	—		
			df	22	22	—		
			p-value	0.310	0.015	—		
			95% CI Upper	0.570	0.746	—		
			95% CI Lower	-0.205	0.107	—		
			Kendall's Tau B	0.239	0.493***	—		
			p-value	0.107	<.001	—		
			N	24	24	—		

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , Source: jamovi. (2.6)

**Table 2: SUMMARISATION OF RESULTS**

Variable Pair	Pearson's r	p-value	Significance
Sharpe Ratio & NAV	0.101	0.638	Not significant
Sharpe Ratio & AUM	0.216	0.310	Not significant
NAV & AUM	0.489	0.015	Significant

Source: Author Creation

Through the correlation study, the researcher attempted to analyse the relation between NAV growth, AUM growth, and the Sharpe Ratio. It has been observed that, in the case of the relationship between Sharpe Ratio and NAV, the Pearson's r value,  $r = 0.101$ , which is less than the critical value of  $r = 0.404$  ( $r = 0.101 < 0.404$ ), at df 22, with a P-value of  $0.683 > 0.05$ . Similarly, the relationship between Sharpe Ratio and AUM indicates Pearson's r value,  $r = 0.216$ , which is less than the critical value  $r = .404$  ( $r = 0.216 < 0.404$ ) at df 22, with a P-

value  $0.310 > 0.05$ , at a significance level of  $\alpha = 0.05$ . Both cases indicate that the relationships are not statistically significant. Hence, it can be concluded that there is no meaningful correlation between the Sharpe Ratio and either NAV or AUM growth.

However, in case the study of relationship between NAV and AUM, the Pearson's r value is  $r = 0.489$ , which exceeds the critical value of  $0.404$  ( $r = 0.489 > 0.404$ ) at df 22, and P-value is,  $p = 0.015 < 0.05$ , indicating a statistical significance at a significance level  $\alpha = 0.05$ . This result indicates a moderate positive correlation between NAV and AUM growth, implying that as NAV increases, AUM tends to grow as well.

### **Analysis: 3: To assess the extent to which NAV returns and fund size (AUM) influence the performance of ESG mutual funds**

1. **H01**: NAV growth has no significant impact on the Sharpe Ratio.
2. **H02**: AUM growth has no significant impact on the Sharpe Ratio.
3. **H11**: NAV growth has a significant impact on the Sharpe Ratio.
4. **H12**: AUM growth has a significant impact on the Sharpe Ratio.

Through this study, the researcher attempted to assess the extent to which NAV growth and fund size (measured by AUM growth) influence the performance of ESG mutual funds (measured by Sharpe Ratio). For that purpose, a multiple linear regression was conducted with the Sharpe Ratio as the dependent variable and NAV growth and AUM growth as independent variables. The equation can be explained as,

$$\text{Sharpe Ratio} = \beta_0 + \beta_1 (\text{NAV Growth}) + \beta_2 (\text{AUM Growth}) + \epsilon$$

#### **Model Fit Measures**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>
1	0.217	0.0469	-0.0439

Note. Models were estimated using a sample size of N=24.

#### **Omnibus ANOVA Test**

	Sum of Squares	df	Mean Square	F	p
<b>GROWTH OF NAV</b>	2.07e-4	1	2.07e-4	6.22e-4	0.980
<b>GROWTH OF AUM</b>	0.268	1	0.268	0.807	0.379
<b>Residuals</b>	6.977	21	0.332		

Note. Type 3 sum of squares

#### **Model Coefficients - GROWTH OF SHARP RATIO**

Predictor	Estimate	SE	t	p
Intercept	0.49127	0.11895	4.1300	<.001
GROWTH OF NAV	-3.95e-4	0.01585	-0.0249	0.980
GROWTH OF AUM	0.00874	0.00973	0.8983	0.379

### Durbin–Watson Test for Autocorrelation

Autocorrelation	DW Statistic	p
0.485	1.02	0.016

### Collinearity Statistics

	VIF	Tolerance
<b>GROWTH OF NAV</b>	1.31	0.761
	1.31	0.761

### Normality Test (Shapiro-Wilk)

Statistic	p
0.880	0.008
<b>GROWTH OF AUM</b>	

Source: jamovi. (2.6)

As per as assumption test is concern, the Durbin–Watson test produced a statistic of 1.02 with a p-value of 0.016 ( $1.02 < 2$ , &  $0.016 < 0.05$ ), indicating the presence of positive autocorrelation in the residuals. Again p-value is less than 0.05, suggesting that the residuals are not randomly distributed. Likewise, the Shapiro–Wilk test for normality produced a statistic of 0.880 with a p-value of 0.008, which is also less than the 0.05 ( $0.008 < 0.05$ ) threshold, indicating that the residuals are not normally distributed. The Variance Inflation Factor (VIF) values for both independent variables were 1.31, less than the commonly accepted threshold of 5 ( $1.31 < 5$ ), indicating that multicollinearity is not a concern in the model.

However, the model produced an  $R^2$  value of 0.0469, indicating that only 4.7% of the variance in the Sharpe Ratio was explained by the predictors. Furthermore, neither NAV growth ( $\beta = -0.0004$ ,  $p = 0.980 > 0.05$ ) nor AUM growth ( $\beta = 0.0087$ ,  $p = 0.379 > 0.05$ ) had statistically significant effects on the Sharpe Ratio. Consequently, it is reasonable to conclude that no substantive linear relationship exists between the Sharpe Ratio and the growth metrics of NAV and AUM within the scope of this study.

## 9. FINDINGS AND CONCLUSIONS

The present study conducted a comprehensive empirical analysis of ESG-linked mutual funds in India over four quarters of the financial year 2024–25, with a focus on evaluating performance through the Sharpe Ratio and understanding the relationship between fund growth (NAV and AUM) and risk-adjusted returns. The findings reveal that the performance of ESG-linked mutual funds is highly heterogeneous. While the Quant ESG Equity Fund consistently outperformed others in terms of Sharpe Ratio across all quarters, indicating robust risk-adjusted returns, the Axis ESG Fund showed persistent negative Sharpe Ratios, suggesting underperformance. However, the ANOVA test yielded a p-value of 0.896, which is above the 5% significance threshold, indicating that the variation in mean Sharpe Ratios across quarters is not statistically significant.

This suggests that while visual trends may indicate performance decline, such patterns are not strong enough to confirm systematic time-bound changes and may be more attributable to fund-specific factors or random market fluctuations.

Further, correlation analysis between the Sharpe Ratio and growth variables such as NAV and AUM demonstrated no significant linear relationship. The Pearson correlation between the Sharpe Ratio and NAV growth was weak ( $r = 0.101$ ,  $p = 0.638$ ), as was the correlation between the Sharpe Ratio and AUM growth ( $r = 0.216$ ,  $p = 0.310$ ), both of which failed to reach statistical significance. These findings suggest that higher NAV or fund size growth does not necessarily translate into superior risk-adjusted returns, indicating that investors cannot assume performance excellence purely based on fund growth metrics. However, a statistically significant and moderate positive correlation ( $r = 0.489$ ,  $p = 0.015$ ) was found between NAV and AUM growth, highlighting that funds experiencing NAV appreciation often tend to accumulate more assets under management. This outcome reflects a likely behavioral tendency among investors to invest in funds with improving NAVs, potentially driven by the perception of performance.

Regression analysis further validated the lack of influence of NAV and AUM growth on performance. The model had a low explanatory power ( $R^2 = 0.0469$ ), and neither NAV growth nor AUM growth significantly impacted the Sharpe Ratio, as both variables reported p-values greater than 0.05. Additionally, diagnostic tests showed the presence of autocorrelation (Durbin-Watson = 1.02,  $p = 0.016$ ) and non-normality in residuals (Shapiro-Wilk  $p = 0.008$ ), which implies that the model assumptions were not fully met and caution should be exercised in interpreting the regression results.

Despite this, the results reinforce the conclusion that short-term growth in NAV and AUM does not directly determine fund performance in ESG-linked mutual funds. Overall, the findings suggest that ESG branding alone does not ensure better risk-adjusted returns and that fund-specific characteristics, investment strategies, and market responsiveness are likely more crucial in driving fund performance. Therefore, investors and fund managers are advised to move beyond superficial ESG labelling and undertake deeper performance-based analysis when evaluating ESG mutual funds in India.

## 10. SCOPE OF THE FUTURE STUDY

This empirical study is focused on the short-term period, and hence, further study can be run on longitudinal data. Again, this study considers the Sharpe ratio only as a performance metric, and hence, other performance metrics can be used for macro point analysis.

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