EPRA International Journal of Environmental Economics, Commerce and Educational Management
Journal DOI: 10.36713/epra0414 |ISI I.F Value: 0.815|SJIF Impact Factor (2026): 8.752 ISSN: 2348 – 814X
Volume: 13 | Issue:5 | May 2026 -Peer Reviewed Journal

IMPACT OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE PERFORMANCE ON STOCK RETURNS IN INDIA

S. Divya[1], Dr. K. V. Geetha Devi[2], MBA, Ph.D.
[1]*Student, Department of Management Studies, MITS Deemed to be University, Madanapalle – 517 325, Andhra Pradesh, India*
[2]*Associate Professor, Department of Management Studies, MITS Deemed to be University, Madanapalle – 517 325, Andhra Pradesh, India*
**Corresponding Author: S. Divya*

ABSTRACT

The integration of Environmental, Social, and Governance (ESG) criteria into financial decision-making has fundamentally transformed global and Indian capital markets. This study empirically investigates the impact of macro-level ESG performance indicators on Nifty 50 stock returns in India over the ten-year period from 2015 to 2024. Three ESG indicators were selected: carbon intensity (CO_2 e emissions per PPP-adjusted GDP) as the environmental indicator, aggregate mandatory CSR expenditure (₹ Crores) as the social indicator, and India's Worldwide Governance Indicators (WGI) composite score as the governance indicator. Annual Nifty 50 returns served as the dependent variable. Secondary data were sourced from the World Bank Open Data Portal, the Ministry of Corporate Affairs National CSR Portal, and the National Stock Exchange of India. Descriptive statistics, Pearson correlation analysis, and multiple linear regression were applied using IBM SPSS.

Key findings reveal that India's carbon intensity improved by 16.29% over the decade; aggregate CSR expenditure grew by 246.80% from ₹20,131.86 crores to ₹69,817.52 crores; and governance quality remained stable with a mean WGI score of 52.26. The most significant finding is a highly significant negative correlation ($r = -0.933$, $p < 0.01$) between CSR expenditure and carbon intensity, confirming the effectiveness of India's mandatory CSR regime in improving environmental outcomes. The multiple regression model revealed that ESG indicators collectively explain 40.1% of the variance in Nifty 50 annual returns ($R^2 = 0.401$), with the environmental indicator serving as the strongest individual predictor (Beta = −1.746). The study concludes that ESG performance in India functions primarily as a long-term risk management and sustainability mechanism rather than a direct short-term driver of stock returns.

KEYWORDS: *ESG Performance, Nifty 50, Stock Returns, Carbon Intensity, CSR Expenditure, Governance Indicators, Sustainable Finance, India, Multiple Regression*

1. INTRODUCTION

The global financial landscape has undergone a profound transformation over the past two decades. For much of the twentieth century, investment decisions revolved primarily around traditional financial metrics such as EPS, ROI, and P/B ratios. However, a series of watershed events — from the catastrophic collapse of Enron (2001) and WorldCom (2002), to the global financial crisis of 2008–2009, and the accelerating physical impacts of climate change — fundamentally challenged this narrow conception of corporate purpose and value creation.

These converging forces gave rise to a fundamentally different approach to investment analysis: Environmental, Social, and Governance (ESG) performance. ESG represents a structured, multi-dimensional framework through which investors, regulators, and corporations assess the sustainability credentials and ethical conduct of economic actors. According to Precedence Research (2024), global ESG investing assets were valued at approximately USD 33.3 trillion in 2023 and are projected to surpass USD 191 trillion by 2035 at a CAGR of approximately 17.2%.

In India, the ESG landscape has been shaped by a progressive regulatory architecture. The Companies Act, 2013 mandated CSR under Section 135, effective April 2014 — a world first for legally mandated corporate social spending. SEBI's introduction of the Business Responsibility and Sustainability Reporting (BRSR) framework in 2021 further advanced ESG disclosures among listed companies. Despite this regulatory evolution, empirical evidence quantitatively examining the relationship between macro-level ESG indicators and Indian stock market returns remains limited. This study bridges that gap.

2. OBJECTIVES

1. To analyse the trend and growth of ESG performance in India during the study period (2015–2024).
2. To examine the movement and performance of Nifty 50 stock market returns during the same period.

EPRA International Journal of Environmental Economics, Commerce and Educational Management
Journal DOI: 10.36713/epra0414 |ISI I.F Value: 0.815|SJIF Impact Factor (2026): 8.752 ISSN: 2348 – 814X
Volume: 13 | Issue:5 | May 2026 -Peer Reviewed Journal

3. To evaluate the relationship between ESG-related indicators and stock market returns using Pearson correlation analysis.
4. To assess the impact of ESG performance on stock market returns in India using multiple regression analysis.

3. METHODOLOGY

3.1 Research Design and Data Sources

The study is based entirely on secondary time-series data for the period 2015 to 2024 (n = 10 annual observations). All data were collected from the following established institutional repositories:

- **Stock Returns:** National Stock Exchange of India (NSE) — Nifty 50 Annual Index Returns (%)
- **Environmental Indicator:** World Bank Open Data Portal — CO_2e Emissions per PPP-adjusted GDP
- **Social Indicator:** Ministry of Corporate Affairs — National CSR Portal (₹ Crores)
- **Governance Indicator:** World Bank Worldwide Governance Indicators (WGI) Composite Score (0–100 scale)

3.2 Variables

- **Dependent Variable:** Nifty 50 Annual Stock Return (%)
- **Independent Variables:** (i) CO_2e per PPP GDP — Environmental; (ii) CSR Expenditure (₹ Crores) — Social; (iii) WGI Composite Score — Governance

3.3 Statistical Tools

The analysis employed Descriptive Statistics, Trend Analysis, Pearson Correlation Analysis, Scatter Plot Analysis, and Multiple Linear Regression using IBM SPSS and MS Excel. The regression model is specified as:

$$Stock\ Returns = \beta_0 + \beta_1(Environmental) + \beta_2(Social\ CSR) + \beta_3(Governance) + \varepsilon$$

3.4 Hypotheses

1. H_{01}: Environmental indicators have no significant impact on stock market returns in India.
2. H_{02}: Social CSR expenditure has no significant impact on stock market returns in India.
3. H_{03}: Governance quality has no significant impact on stock market returns in India.
4. H_{04}: There is no significant relationship between ESG indicators collectively and stock market returns.

4. RESULTS

4.1 Descriptive Statistics

Table 1 presents the descriptive statistics for all variables. The Nifty 50 delivered a mean annual return of 11.25% (SD = 10.43), with 9 out of 10 years recording positive returns, confirming robust long-term market performance. India's carbon intensity declined from 0.264 (2015) to 0.221 (2024), representing a consistent 16.29% improvement in environmental efficiency. Aggregate CSR expenditure grew more than three-fold from ₹20,131.86 crores to ₹69,817.52 crores (+246.80%). Governance quality remained notably stable (mean = 52.26, SD = 1.03), persisting through major disruptions including demonetisation, GST implementation, and the COVID-19 pandemic.

Table 1: Descriptive Statistics of ESG Indicators and Stock Market Returns (2015–2024)

Variable	Mean	Std. Dev.	Minimum	Maximum
Stock Return (%)	11.25	10.43	-4.08	28.75
Environmental (CO_2e)	0.236	0.013	0.221	0.264
Social CSR (₹ Cr.)	44,120	16,063	20,132	69,818
Governance (WGI)	52.26	1.03	50.53	54.02

4.2 Year-wise Trend Analysis

Table 2 presents the year-wise data for all variables. Stock returns exhibited a highly volatile, non-linear pattern, ranging from -4.08% (2015) to 28.75% (2017). The environmental indicator declined consistently in every year, reflecting sustained carbon decoupling. CSR expenditure increased continuously without a single year of decline, and governance quality remained in a narrow band of 50.53–54.02 throughout the decade.

EPRA International Journal of Environmental Economics, Commerce and Educational Management
Journal DOI: 10.36713/epra0414 |ISI I.F Value: 0.815|SJIF Impact Factor (2026): 8.752 ISSN: 2348 – 814X
Volume: 13 | Issue:5 | May 2026 -Peer Reviewed Journal

Table 2: Year-wise Trends of All Variables (2015–2024)

Year	Stock Return (%)	Environmental (CO_2e)	Social CSR (₹ Crores)	Governance (WGI)
2015	-4.08	0.264	20,131.86	51.51
2016	2.80	0.248	29,034.39	52.09
2017	28.75	0.245	29,085.00	52.60
2018	4.09	0.241	34,197.15	54.02
2019	11.53	0.232	40,435.30	53.74
2020	14.77	0.227	49,931.62	52.01
2021	23.79	0.228	52,421.91	50.53
2022	2.72	0.229	54,282.89	51.64
2023	19.42	0.225	61,864.15	52.03
2024	8.75	0.221	69,817.52	52.46

4.3 Correlation Analysis

Table 3 presents the Pearson correlation matrix. Of the relationships examined, only one achieved statistical significance. The correlation between CSR expenditure and carbon intensity ($r = -0.933$, $p < 0.01$) is the pivotal finding of this study, establishing with 99% confidence that rising corporate social investment is systematically associated with measurable reductions in national carbon intensity. This proves that India's mandatory CSR regime is an effective environmental sustainability mechanism. All other correlations with stock returns — Environmental ($r = -0.428$, $p = 0.217$), Social ($r = +0.279$, $p = 0.435$), and Governance ($r = -0.134$, $p = 0.712$) — did not achieve statistical significance, attributable to the limited sample size ($n = 10$) rather than the absence of genuine economic relationships.

Table 3: Pearson Correlation Matrix

Variable	Stock Return	Environmental	Social CSR	Governance
Stock Return	1.000	-0.428 (p=0.217)	+0.279 (p=0.435)	-0.134 (p=0.712)
Environmental	-0.428	1.000	-0.933** (p<0.01)	+0.023 (p=0.949)
Social CSR	+0.279	-0.933**	1.000	-0.192 (p=0.596)
Governance	-0.134	+0.023	-0.192	1.000

Correlation is significant at the 0.01 level (2-tailed)

4.4 Multiple Regression Analysis

Tables 4 and 5 present the regression model summary and coefficients respectively. The regression model achieved an R^2 of 0.401, indicating that the three ESG indicators collectively explain 40.1% of the variance in Nifty 50 annual returns — a practically meaningful finding given the inherent complexity of equity markets. The overall model did not achieve formal statistical significance ($F = 1.339$, $p = 0.347$) due to sample size constraints ($n = 10$ with 3 predictors), not due to absence of economic relationships.

Among the individual predictors, the environmental indicator recorded the largest standardised coefficient (Beta $= -1.746$, $p = 0.125$), confirming it as the most economically influential ESG dimension. The negative sign indicates that as environmental performance improves (lower CO_2e), stock returns tend to be higher — consistent with ESG theory. The CSR expenditure coefficient (Beta $= -1.421$, $p = 0.205$) showed a sign reversal from correlation to regression due to multicollinearity with the environmental variable ($r = -0.933$). The governance indicator recorded the weakest individual contribution (Beta $= -0.366$, $p = 0.347$), consistent with institutional economics theory that governance benefits manifest through long-term structural channels rather than annual market return movements.

Table 4: Regression Model Summary

R	R Square	Adjusted R^2	Std. Error of Estimate
0.633	0.401	0.101	9.877

Table 5: Regression Coefficients

Variable	B (Unstd.)	Beta (Std.)	t-stat	Sig. (p)
Constant	569.466	—	1.675	0.145
Environmental	-1370.485	-1.746	-1.780	0.125
Social CSR	-0.001	-1.421	-1.422	0.205
Governance	-3.713	-0.366	-1.020	0.347

4.5 Hypothesis Testing

Based on the analyses, all four null hypotheses are accepted due to the lack of statistical significance at the 0.05 level. However, the acceptance of H_{04} (overall model) must be read alongside $R^2 = 0.401$, which demonstrates that ESG indicators carry practical economic relevance. The directional evidence from H_{01} (Environmental, $r = -0.428$) indicates a favourable ESG-returns relationship that would likely achieve significance with a larger dataset of 20–30 years. The most notable outcome is the strong empirical support for a cross-pillar ESG linkage — CSR spending actively driving environmental improvement ($r = -0.933$, $p < 0.01$) — which validates India's mandatory CSR framework as a globally significant sustainability mechanism.

5. SUGGESTIONS

1. Investors should adopt long-term ESG-integrated strategies for the Indian equity market, given that Nifty 50 delivered a consistent 11.25% mean annual return and ESG indicators explain 40.1% of return variance.
2. Companies should redirect a larger proportion of CSR funds into environmental projects — renewable energy, clean technology, and water conservation — in light of the highly significant CSR–carbon intensity relationship ($r = -0.933$, $p < 0.01$).
3. SEBI should accelerate the progressive expansion of mandatory BRSR disclosures to smaller-cap companies to improve market data availability and enable better ESG–returns research.
4. Portfolio managers should give priority to companies with strong environmental records when constructing equity portfolios, as the environmental dimension showed the strongest directional correlation with Nifty 50 returns ($r = -0.428$) and regression influence (Beta = −1.746).
5. The Government of India should take proactive steps to strengthen institutional quality, increase transparency, and improve regulatory effectiveness in order to raise India's WGI score and capture long-term governance dividends in capital market performance.

6. CONCLUSION

This study empirically investigated the relationship between macro-level ESG performance indicators and Nifty 50 stock returns in India over the period 2015–2024. The findings confirm that India has made substantial and consistent progress across all three ESG dimensions: a 16.29% improvement in carbon efficiency; a 246.80% expansion in aggregate corporate CSR spending; and stable institutional governance. The most robust statistical finding — a highly significant negative correlation ($r = -0.933$, $p < 0.01$) between CSR expenditure and carbon intensity — provides compelling evidence that India's mandatory CSR framework is generating tangible environmental outcomes at the national level.

While the direct relationships between individual ESG pillars and annual stock returns could not be established with full statistical confidence due to the inherent constraints of a ten-year time series, the three ESG indicators collectively explained a practically meaningful 40.1% of the variance in Nifty 50 returns ($R^2 = 0.401$), with the environmental dimension serving as the strongest individual predictor. The study concludes that ESG integration in India functions primarily as a mechanism for long-term risk management, value creation, and market stability rather than a direct short-term driver of returns. As India's regulatory environment around sustainability reporting continues to evolve, the alignment between ESG performance and financial market outcomes is expected to strengthen progressively.

7. AREA FOR FURTHER RESEARCH

1. Future studies should extend the observation period beyond a single decade to capture multiple economic cycles and improve statistical power for ESG–returns modelling.
2. Subsequent researchers could shift from macro-level indicators to firm-level ESG scores, enabling sector-specific performance comparisons across banking, pharmaceuticals, IT, and manufacturing.
3. Advanced econometric techniques such as panel data regression, Granger causality tests, and co-integration analysis should be applied to identify the direction and timing of causal relationships between ESG and equity returns.
4. Future research could disaggregate CSR expenditure by focus area (healthcare, education, environment, rural development) to determine which category generates the greatest impact on both market returns and sustainability outcomes.

REFERENCES

1. *Aggarwal, P. (2013). Impact of Corporate Governance on Corporate Financial Performance. IOSR Journal of Business and Management, 13(3), 01–05.*
2. *Bag, S., & Omrane, A. (2022). Corporate Social Responsibility and Its Overall Effects on Financial Performance. Journal of African Business, 23(1), 264–280.*

3. *Behl, A., Kumari, P. S. R., Makhija, H., & Sharma, D. (2022). Exploring the relationship of ESG score and firm value using cross-lagged panel analyses. Annals of Operations Research, 313(1), 231–256.*
4. *Berchicci, L., & King, A. A. (2022). Corporate Sustainability: A Model Uncertainty Analysis of Materiality. Journal of Financial Reporting, 7(2), 43–74.*
5. *Broadstock, D. C., Chan, K., Cheng, L. T. W., & Wang, X. (2020). The role of ESG performance during times of financial crisis: Evidence from COVID-19 in China. Finance Research Letters, 38, 101716.*
6. *Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. Journal of Sustainable Finance and Investment, 5(4), 210–233.*
7. *Gupta, A., & Tamta, N. (2025). Sustainability and Stability: The Impact of ESG Ratings on Stock Price Volatility in India. International Journal of Research, 11(22), 5178–5185.*
8. *Naik, M., Bhat, S., Shanbhag, P., & Haldankar, G. (2026). ESG, Financial and Macroeconomic Indicators Affecting Stock Returns: Evidence from India's Nifty100 ESG Index. Investment Management and Financial Innovations, 23(1), 456–469.*
9. *Nofsinger, J. R., Sulaeman, J., & Varma, A. (2019). Institutional investors and corporate social responsibility. Journal of Corporate Finance, 58, 700–725.*
10. *Potharla, S., Turubilli, S. K., & Shekar, M. C. (2024). The Social Pillar of ESG: Exploring the Link Between Social Sustainability and Stock Price Synchronicity. Indian Journal of Corporate Governance, 17(1), 130–152.*
11. *Rao, A., Dagar, V., Sohag, K., Dagher, L., & Tanin, T. I. (2023). Good for the planet, good for the wallet: The ESG impact on financial performance in India. Finance Research Letters, 56, 104093.*
12. *Sharma, P., Agrawal, G., Kumar, C. T. S., Kumar, M., & Kalyani, S. (2025). Impact of ESG factors on price discovery in the Indian stock market. Investment Management and Financial Innovations, 22(2), 268–278.*
13. *Upadhyay, S. (2025). The Impact of ESG Performance on Stock Returns: An Empirical Analysis. Journal of Economics, Finance and Management Studies, 08(10), 7055–7080.*