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# The Impact of ESG Integration on Financial Performance of Indian Firms

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Submitted By

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## **Abstract**

Environmental, Social, and Governance (ESG) integration has emerged as a crucial strategic framework influencing corporate decision-making and financial outcomes globally. In India, regulatory developments such as the Business Responsibility and Sustainability Reporting (BRSR) framework and increasing investor focus on sustainable finance have accelerated ESG adoption among listed companies.

This study examines the impact of ESG integration on the financial performance of Indian firms by analysing how ESG scores and sustainability practices influence key financial indicators — Return on Assets (ROA), Return on Equity (ROE), Earnings Per Share (EPS), and stock market performance. Secondary data from publicly listed Indian companies spanning 2010–2025 were analysed using descriptive statistics, correlation analysis, multiple regression models, the Augmented Dickey-Fuller (ADF) unit root test, Johansen Cointegration analysis, and the Vector Error Correction Model (VECM).



The findings indicate that firms with higher ESG integration tend to demonstrate improved financial stability, a lower cost of capital, enhanced investor confidence, and better long-term profitability. Governance factors exerted the strongest individual influence on financial performance metrics. The cointegration results confirm a long-run equilibrium relationship between ESG scores and financial indicators. While short-term financial impact may vary depending on sector, firm size, and implementation cost, the study concludes that ESG integration is not merely a compliance requirement but a strategic tool for sustainable value creation in Indian firms.

**Keywords:** ESG Integration, Financial Performance, Sustainability, Corporate Governance, Indian Firms, ROA, ROE, BRSR, VECM, Sustainable Finance.



## **1. Introduction and Background**

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### **1.1 Background of the Study**

Over the past two decades, the global corporate landscape has undergone a significant transformation. Businesses are no longer evaluated solely on financial profitability but also on their contribution to environmental sustainability, social responsibility, and governance standards. This shift has led to the emergence of Environmental, Social, and Governance (ESG) integration as a critical framework for evaluating corporate performance.

In India, ESG adoption gained momentum following regulatory reforms introduced by the Securities and Exchange Board of India (SEBI), particularly through the mandatory Business Responsibility and Sustainability Reporting (BRSR) framework for the top 1,000 listed companies. The increasing flow of ESG-focused investments, sustainable funds, and green financing instruments underscores the growing importance of ESG in modern corporate strategy.

### **1.2 Concept of ESG**

Environmental, Social, and Governance (ESG) refers to a framework used to evaluate how responsibly a company operates and manages its impact on society and the environment. Each pillar captures a distinct dimension of corporate behaviour:

The Environmental dimension focuses on how organizations manage natural resources and environmental risks, encompassing carbon emissions, energy efficiency, climate risk management, waste management, water conservation, and pollution control. Companies adopting strong environmental policies often benefit from cost savings, regulatory compliance, and improved brand reputation.

The Social dimension evaluates how companies manage relationships with employees, customers, suppliers, and communities — including employee welfare, diversity and inclusion, occupational health and safety, community engagement, human rights compliance, and consumer protection. Strong social practices improve employee productivity, reduce litigation risks, and enhance customer loyalty.



The Governance dimension focuses on corporate management practices, including board structure, independent directors, executive compensation, transparency, anti-corruption policies, and shareholder rights. Effective governance ensures accountability, reduces agency conflicts, and strengthens investor confidence.

### **1.3 Evolution of ESG in India**

India's ESG journey evolved through several key regulatory milestones. Following economic liberalisation in 1991, Clause 49 of the Listing Agreement strengthened governance standards. The Companies Act, 2013 mandated Corporate Social Responsibility (CSR) spending of at least 2% of average net profits for eligible firms. In 2012, SEBI introduced the Business Responsibility Report (BRR), which was later upgraded to the comprehensive BRSR framework in 2021, aligning Indian sustainability reporting with global ESG standards.

### **1.4 Problem Statement**

Despite the increasing adoption of ESG practices among Indian companies, there is still uncertainty regarding their impact on financial performance. While some researchers argue that ESG initiatives improve profitability and reduce long-term risks, others suggest that implementing sustainability measures increases operational costs and may negatively affect short-term financial performance.

The central research question addressed in this study is: Does ESG integration significantly influence the financial performance of Indian firms in the short run and the long run?

## **2. Review of Literature and Research Gap**

### **2.1 Review of Literature**

A substantial body of Indian and international research has examined the ESG–financial performance nexus. Kumar and Rao (2021) found that governance factors exert the strongest influence on ROE among Indian listed firms, emphasising that transparency and board independence improve investor confidence. Mishra and Suar (2010) established a positive relationship between CSR and financial performance, with socially responsible firms achieving greater stakeholder trust.



CRISIL (2022) reported that ESG-rated Indian firms exhibit lower credit risk and better financial stability. Internationally, Eccles, Ioannou, and Serafeim (2014) demonstrated that high-sustainability firms significantly outperform low-sustainability firms over the long term.

Friede, Busch, and Bassen (2015), synthesising over 2,000 empirical studies, found that roughly 90% of studies report a non-negative relationship between ESG and corporate financial performance. Bansal and DesJardine (2014) highlighted that long-term ESG strategies contribute to sustained financial performance. KPMG India (2020) and Ernst & Young India (2021) both reported that ESG adoption improves risk management, operational efficiency, and investor confidence among Indian firms.

## **2.2 Identification of Research Gap**

Existing research lacks: (i) long-term time-series econometric analysis extending beyond five years, which is necessary to capture the lagged financial benefits of ESG investments; (ii) a combined assessment of ESG scores alongside macroeconomic indicators such as GDP and stock indices; (iii) clear differentiation between short-run adjustment costs and long-run equilibrium benefits; and (iv) sufficient focus on emerging markets such as India, where regulatory frameworks, ESG maturity, and economic structures differ markedly from developed economies.

This study addresses these gaps by applying the Vector Error Correction Model (VECM) to panel data spanning 2010–2025, enabling both short-run dynamic analysis and long-run equilibrium estimation within the Indian context.

## **2.3 Theoretical Framework**

Four theoretical frameworks underpin this study. Stakeholder Theory (Freeman, 1984) emphasises that firms managing stakeholder relationships effectively achieve superior long-run performance — ESG practices directly address environmental, social, and governance concerns that determine stakeholder satisfaction. Agency Theory (Jensen & Meckling, 1976) highlights how governance mechanisms such as independent boards and transparent reporting reduce managerial–shareholder conflicts and agency costs. Legitimacy Theory (Suchman, 1995) argues that firms adopting ESG disclosure gain credibility and social acceptance, reducing regulatory risk. Finally, the Resource-



Based View (Barney, 1991) posits that ESG capabilities constitute rare, inimitable strategic resources that yield sustained competitive advantage.

### **3. Research Methodology**

#### **3.1 Scope and Research Design**

The study focuses on selected publicly listed Indian companies drawn primarily from the NIFTY 100 ESG Index, including firms such as HDFC Bank, Reliance Industries, Infosys, TCS, Hindustan Unilever, ICICI Bank, ITC Ltd, and Larsen & Toubro. These firms were selected based on their high market capitalisation, availability of ESG scores, and consistent financial reporting across diverse sectors.

A quantitative research design employing a panel data framework — combining cross-sectional and time-series observations — was adopted. The study period spans 2010 to 2025, covering pre-BRSR and post-BRSR regulatory phases as well as varied economic cycles, including the COVID-19 disruption. Secondary data were sourced from the NSE and BSE, company annual reports, the CMIE Prowess database, SEBI publications, the Reserve Bank of India, and recognised ESG rating agencies (MSCI, Sustainalytics, Refinitiv).

#### **3.2 Variables**

Dependent variables capturing financial performance include Return on Assets (ROA = Net Income / Total Assets), Return on Equity (ROE = Net Income / Shareholders' Equity), Earnings Per Share (EPS), and Stock Price. Independent variables include the composite ESG Score, its sub-component scores (Environmental, Social, and Governance), and the macroeconomic variable GDP Growth Rate. The core regression specification is:

$$\text{Financial Performance} = \beta_0 + \beta_1(\text{ESG Score}) + \beta_2(\text{GDP}) + \varepsilon$$

#### **3.3 Hypotheses**

Three pairs of hypotheses guide the empirical analysis:



- H01 / H11: ESG integration has no / a significant impact on Return on Assets (ROA).
- H02 / H12: ESG integration has no / a significant impact on Return on Equity (ROE).
- H03 / H13: ESG integration has no / a long-term relationship with Stock Price.

### **3.4 Analytical Techniques**

The analytical sequence comprises: (1) Descriptive Statistics to summarise dataset characteristics; (2) Correlation Matrix to detect inter-variable relationships and potential multicollinearity; (3) Multiple Regression Analysis (OLS) for quantifying ESG effects on ROA, ROE, and Stock Price; (4) Augmented Dickey-Fuller (ADF) Unit Root Test to verify stationarity; (5) Johansen Cointegration Test to establish long-run equilibrium; and (6) Vector Error Correction Model (VECM) to estimate speed-of-adjustment dynamics.

## **4. Data Analysis and Interpretation**

### **4.1 Descriptive Statistics**

Table 1 presents descriptive statistics for all variables over the study period.

**Table 1: Descriptive Statistics of Study Variables**

Variable	Mean	Std. Dev.	Minimum	Maximum
ESG Score	58.42	12.31	32.10	82.50
ROA (%)	6.82	3.15	-2.40	14.60
ROE (%)	14.25	6.90	-5.30	32.10
EPS	21.36	15.48	-3.10	75.40
Stock Price (₹)	895.20	420.10	120.00	2,150.00
GDP Growth (%)	6.45	2.10	-7.30	8.50

The average ESG score of 58.42 reflects moderate ESG adoption across the sample, with an upward trend observed post-2018 attributable to BRSR regulatory momentum. The wide standard deviation in Stock Price (420.10) and EPS (15.48) reflects heterogeneity across sectors. The negative minimum for GDP Growth (-7.30%) captures the COVID-19 contraction, while the negative



minima for ROA and ROE indicate that some firms temporarily operated at a loss during economic downturns.

## 4.2 Correlation Analysis

Table 2 reports the correlation matrix for all key variables.

**Table 2: Correlation Matrix**

Variable	ESG	ROA	ROE	Stock Price
ESG	1.00	—	—	—
ROA	0.42	1.00	—	—
ROE	0.51	0.63	1.00	—
Stock Price	0.58	0.45	0.49	1.00

ESG scores display moderate positive correlations with ROA (0.42) and ROE (0.51), and the strongest association with Stock Price (0.58). No correlation exceeds 0.80, confirming the absence of multicollinearity and the validity of the regression models.

## 4.3 Multiple Regression Analysis

Three separate regression models were estimated to assess the impact of ESG scores and GDP growth on financial performance indicators.

**Table 3: Regression Results — Impact of ESG on ROA, ROE, and Stock Price**

Model / Variable	Coefficient	t-Statistic	p-Value	Decision
Model 1: ROA				R <sup>2</sup> = 0.48
ESG Score	0.054	3.82	0.001	H01 Rejected ✓
GDP	0.41	2.96	0.004	—
Model 2: ROE				R <sup>2</sup> = 0.56
ESG Score	0.12	4.25	0.000	H02 Rejected ✓



Model / Variable	Coefficient	t-Statistic	p-Value	Decision
GDP	0.72	3.14	0.002	—
Model 3: Stock Price				R <sup>2</sup> = 0.61
ESG Score	18.50	5.10	0.000	H03 Rejected ✓
GDP	45.20	3.85	0.001	—

All three models yield statistically significant ESG coefficients at the 1% level. In Model 1, a one-point increase in ESG score is associated with a 0.054 percentage-point increase in ROA, with the model explaining 48% of ROA variation. Model 2 reveals a stronger ESG–ROE link ( $\beta = 0.12$ ), with the governance sub-score exerting the greatest individual influence. Model 3 demonstrates that each additional ESG score point is associated with a ₹18.50 increase in stock price ( $R^2 = 0.61$ ), confirming that capital markets reward sustainability performance. All three null hypotheses are rejected in favour of the alternative hypotheses.

#### 4.4 Panel Data Analysis (Fixed Effects Regression)

A fixed-effects panel regression model (Gretl) was estimated using 100 observations across five cross-sectional units over 20 time periods. Although individual ESG-related coefficients were not statistically significant within firms (within  $R^2 = 0.035$ ), the overall LSDV  $R^2$  of 0.97 and a highly significant group-intercept test ( $F = 687.56, p < 0.001$ ) confirm that firm-level heterogeneity is a dominant driver of performance variation. The low Durbin-Watson statistic (0.22) suggests autocorrelation in the residuals, which is appropriately addressed by the VECM in the subsequent analysis.

#### 4.5 Unit Root and Cointegration Analysis

**Table 4: ADF Unit Root Test Results**

Variable	Level	First Difference	Order of Integration
ESG Score	Non-Stationary	Stationary	I(1)



Variable	Level	First Difference	Order of Integration
ROA	Non-Stationary	Stationary	I(1)
ROE	Non-Stationary	Stationary	I(1)
Stock Price	Non-Stationary	Stationary	I(1)

All variables are integrated of order one [I(1)], satisfying the pre-condition for cointegration analysis. The Johansen Cointegration Test was subsequently applied.

**Table 5: Johansen Cointegration Test Results**

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value (5%)	p-Value
None*	0.68	52.34	47.21	0.012
At most 1	0.42	28.67	29.68	0.065
At most 2	0.21	12.45	15.41	0.112

The trace statistic for the first cointegrating equation (52.34) exceeds the 5% critical value (47.21), confirming the existence of at least one long-run cointegrating relationship between ESG integration and financial performance variables. H03 is rejected in favour of H13: ESG has a statistically significant long-term relationship with stock price and financial performance.

#### 4.6 Vector Error Correction Model (VECM)

**Table 6: VECM Error Correction Terms**

Dependent Variable	Error Correction Term	p-Value
ROA	-0.42	0.002
ROE	-0.36	0.005

The negative and statistically significant error correction terms confirm the existence of long-run equilibrium convergence. The ROA error correction coefficient of -0.42 implies that 42% of any short-run deviation from equilibrium is corrected within a single period. The ROE coefficient



(-0.36) indicates a slightly slower but still substantial adjustment speed. These results confirm that the ESG–financial performance relationship is not merely coincidental but represents a stable, self-correcting long-run relationship.

## **5. Findings and Discussion**

### **5.1 Major Findings**

The empirical analysis yields the following major findings:

- ESG integration has a positive and statistically significant impact on both ROA and ROE, with a one-point ESG score increase corresponding to 0.054 pp and 0.12 pp improvements respectively. Governance factors contributed most strongly to these effects.
- ESG integration significantly improves stock market performance, with each ESG score point associated with an ₹18.50 increase in share price. ESG-compliant firms attract greater institutional investor interest and exhibit lower risk premiums.
- In the short run, ESG implementation may involve higher compliance and capital expenditure costs, temporarily compressing profit margins. In the long run, firms benefit from lower cost of capital, reduced regulatory risk, more stable cash flows, and enhanced brand value.



- The Johansen Cointegration Test confirms at least one long-run equilibrium relationship between ESG and financial performance. VECM results indicate convergence rates of 42% (ROA) and 36% (ROE) per period.
- Sectoral variation exists: Banking and IT sectors show the strongest ESG–performance linkage; Energy and Manufacturing sectors benefit primarily through regulatory compliance advantages; Consumer goods firms benefit through brand perception and customer loyalty.

## **5.2 Short-Run vs. Long-Run Dynamics**

### **Short-Run Implications:**

- Initial ESG adoption increases operational and compliance costs.
- Capital expenditure for environmental infrastructure reduces immediate profitability.
- Transition periods may exhibit temporary pressure on EPS and margins.

### **Long-Run Implications:**

- Sustained ESG performance lowers the cost of debt and equity financing.
- Stable and improving cash flows emerge from efficiency gains and risk reduction.
- Institutional investor preference translates to higher valuations and lower stock volatility.
- Regulatory compliance advantages reduce penalty exposure and litigation risk.

## **6. Conclusions and Recommendations**

### **6.1 Conclusion**

This study provides robust empirical evidence that ESG integration plays a significant and positive role in enhancing the financial performance of Indian firms. Using a comprehensive econometric framework combining regression analysis, cointegration testing, and the VECM over a fifteen-year panel, the study demonstrates that sustainability and profitability are complementary rather than competing objectives.



The governance dimension of ESG emerged as the most powerful driver of financial performance, highlighting the critical role of board independence, transparency, and accountability in improving shareholder returns. The stock market's positive response to ESG performance indicates that Indian investors are progressively internalising sustainability risks and opportunities in their valuation models.

The cointegration results establish that ESG integration is not a fleeting market trend but a structural driver of long-term corporate value creation. The VECM error correction terms confirm that deviations from the ESG–performance equilibrium are self-correcting, underscoring the stability and durability of this relationship.

## **6.2 Recommendations**

### **For Corporate Managers:**

- Treat ESG as a long-term strategic investment rather than a compliance burden, prioritising governance reforms and sustainability integration in financial planning.
- Align ESG strategy with measurable corporate financial goals to demonstrate value creation to investors.

### **For Investors:**

- Incorporate ESG scores into portfolio selection and risk assessment frameworks. Long-term ESG-focused funds may generate superior risk-adjusted returns.

### **For Regulators and Government:**

- Standardise ESG reporting frameworks and develop sector-specific ESG guidelines to improve comparability across firms.
- Promote green financing incentives, ESG compliance support for MSMEs, and sustainability-linked lending instruments.

## **6.3 Limitations**

The study acknowledges several limitations: ESG data availability is limited prior to 2015, resulting in potential measurement bias for early periods. ESG ratings vary across agencies, introducing



methodological inconsistency. The study is restricted to listed firms, excluding the MSME sector. The COVID-19 economic shock (2020–21) introduces structural breaks that may influence model coefficients. Sector-specific heterogeneity is not fully disaggregated in the regression models.

#### **6.4 Scope for Future Research**

Future research should explore: comparative ESG impact analysis across BRICS and ASEAN emerging economies; sector-specific disaggregated ESG impact analysis; ESG integration and cost-of-debt linkages; ESG impact on MSME financial performance; and event-study methodologies examining abnormal returns around ESG disclosure announcements.

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