RAMIFICATION OF ENVIRONMENTAL SOCIAL AND GOVERNANCE PERFORMANCE ON FINANCIAL PERFORMANCE: EVIDENCE FROM EMERGING MARKET

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Abstract

This study aims to assess the degree of environmental, social, and governance (ESG) performance and its impact on selected companies' financial performance (FP) in the emerging Indian market based on cross-sectional data collected from 528 listed companies in 2022. The ESG performance and FP data were collected from Credit Rating Information Services of India Limited (CRISIL) and annual reports. Correlation and ordinary least squares (OLS) regression have been applied for empirical exploration. The findings show that ESG performance in India is average, with a significant focus on governance and the least on environmental factors. The analysis indicates that ESG scores and individual dimensions (except social) significantly impact FP (Habib, 2022; Maji & Lohia, 2023). Findings provide evidence that ESG performance has a positive and significant impact on FP in emerging markets, highlighting the importance of integrating ESG considerations into business strategies and investment decisions. The findings of this study suggest prioritising ESG considerations to enhance FP and long-term sustainability, ESG performance should be integrated into investment analysis and decision-making processes and policymakers should establish and enforce ESG regulations to promote sustainable business practices.

Keywords: ESG Performance, Sustainability, Financial Performance, Financial and Nonfinancial Sector, Emerging Indian Market

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1. INTRODUCTION

The environmental, social, and governance (ESG) performance has emerged as a critical assessment variable, given the current backdrop of increasing societal disparities, an unprecedented health crisis, growing economic spillover effects, a global climate crisis, and the acceleration of environmental degradation (KPMG, 2022). As a result, investors are becoming more concerned about the ESG performance of the corporate sector than ever underlying affirmative association with financial performance (FP) (Naeem et al., 2022; Chen et al., 2023). Companies that continue with this shift in investor sentiment will certainly have a competitive edge in achieving their trust and establishing a reputation as progressive businesses. Jensen and Meckling (1976) mentioned that business is a social innovation in the contemporary world and a part of society (Branco & Rodrigues, 2006). The research on ESG performance has become a worldwide issue (Huang, 2021), and governments are also making it mandatory for publicly listed companies (Debnath & Kanoo, 2022). The banking sector is also making significant efforts to discharge social obligations (Debnath, Das, et al., 2024). Studies show that ESG performance is important in a corporate management system (Debnath, Kanoo, et al., 2024). Effective ESG performance can build good relationships between stakeholders and corporates by reducing information asymmetry (Siew et al., 2016). ESG performance also promotes business reputation (Jeffrey et al., 2019) as it proves its commitment to the environment, society and governance and able to achieve stakeholders' relationships (Huang, 2021) and ultimately contribute toward enhancing FP (Bodhanwala & Bodhanwala, 2018; Habib, 2022; Ahmad et al., 2021; Maji & Lohia, 2023). Further, studies documented that ESG performance improves employees' confidence in the organization (Huang, 2021), reduces risk (Sassen et al., 2016) and business executives become more sensible toward the environment and society (Ali et al., 2022; Hussain et al., 2022). Thus, it is commonly believed that ESG issues are crucial for future value creation, but the results of ESG research have been mixed. Several studies by Engle et al. (2019), Cornell and Shapiro (2021) and Berg et al. (2022) have produced mixed results. Therefore, it is important to have a more critical discussion of ESG to evaluate the subject better and develop complete rules for corporate governance and sustainable management methods for developing economies context. Therefore, disclosure of environmental performance (*ENVP*), social performance (*SOLP*), and governance performance (*GOVP*) dimensions of day-to-day business activities makes the firm more responsible and trustworthy to investors (Habib, 2022). As a result, increased transparency in business affairs can simultaneously attract more investors and enhance corporate value.

Indian emerging market being the most attractive destination of foreign capital gives rise to the importance of assessing the degree and extent of ESG performance in India as the foreign capital inflow is liked with capital market efficiency (Murthy & Singh, 2013) and economic prosperity (Jana et al., 2019) of a particular country. However, the dominating contemporary empirical research primarily focused on the developed economies context: Adegbite et al. (2019) in the UK, and Gao et al. (2023) in China. This study aims to evaluate ESG performance in the Indian emerging market and its impact on FP, considering accounting and market-based indicators. This is crucial as investors prioritize accounting profits, capital appreciation, and future growth potential reflected in market-based performance. Unlike previous studies (Adegbite et al., 2019; Hu et al., 2018), this study focuses on individual ESG dimensions along with overall ESG practices, aiming to analyze the difference in ESG performance between financial and nonfinancial sector companies. Understanding these sector-specific impacts is crucial for making informed investment decisions. The study uniquely compares ESG performance between the two sectors, using "ESG score" and "ESG performance" interchangeably.

This study is one of the first from emerging economies to examine the impact of ESG performance on the FP of multiple sectors in India. It provides further evidence of the relationship between ESG performance and different sectors, compares the ESG performance of financial and nonfinancial sector firms, and considers the overall ESG practice and individual ESG aspects. The study has practical implications for investors, customers, researchers, policymakers, and regulators, advocating for the integration of ESG principles in corporate operations for the benefit of all stakeholders in society.

The remainder of this work is structured as follows. The study's initial portion offered background information. Section 2 contains a review of the relevant literature on ESG performance and FP, the formulation of hypotheses, and a summary of the objectives. Section 3 discusses data sources and research methods. Section 4 goes into the analysis and discussion of the results. Finally, Section 5 discusses the conclusion, future implications, and limitations of the study.

2. LITERATURE REVIEW

ESG performance reporting started getting the attention of policymakers and investors in the last decade due to the integration of sustainable multi-stakeholder approaches in business policies worldwide. Principle 1 of the Principles for Responsible Investment mentions: "We will incorporate ESG issues into investment analysis and decision making" (United Nations Principles for Responsible Investment [UNPRI], n.d.). The importance of ESG performance and its influence on FP has been extensively discussed by regulators, investors, corporate leaders, and other stakeholders. Therefore, ESG research has emerged as a significant topic of interest. The impact of ESG performance on firm valuation has been studied extensively, with noteworthy attention given to the impact of environmental performance (Cojoianu et al., 2020), social responsibility performance (Albuquerque et al., 2019; Mishra & Modi, 2013), and corporate governance performance (Drakos & Bekiris, 2010) on corporate value. The findings indicate that enhancing ESG performance can increase a company's market value.

Thus, contemporary literature indicates an increasing trend in corporate sustainability reporting in emerging markets (Debnath, Das, et al., 2024). However, there exists a disparity in ESG performance across different sectors (Debnath & Kanoo, 2023; Debnath, Bhuyan, et al., 2024; Kanoo et al., 2024).

Empirical research has been done to investigate the potential impact of ESG performance on FP, but the results have been inconsistent. Some scholars have examined how profitability is influenced by a single aspect of comprehensive ESG performance, ignoring the individual parameters such as ESG aspects (Adegbite et al., 2019; Hu et al., 2018). ESG parameters contribute to overall ESG performance. However, individual parameters are noteworthy in making the company different from its competitors (Habib & Mourad, 2023). As a result, increased transparency in business affairs can simultaneously attract more investors and enhance corporate value (Grove et al., 2022). Undoubtedly, ESG parameters jointly contribute to overall ESG performance (AlHares et al., 2023). Further, some investigations have addressed the issue considering all dimensions of ESG and their ramification on corporate performance (Maji & Lohia, 2023; Habib, 2022; Ahmad et al., 2021). Given the importance of these concerns, the findings have implications for investors and policymakers to understand the impact of ESG performance on FP fully.

Chelawat and Trivedi (2016) and Maji and Lohia (2023) investigated the impact of ESG performance on profitability in Indian emerging markets. Based on the limited sample, they have reported that ESG performance positively influences corporate profitability. Gao et al. (2023) examined the impact of ESG performance on profitability in Chinese-listed firms from 2010 to 2020. They documented that ESG performance can significantly improve FP at all life cycle stages. Likewise, Nguyen et al. (2022), reported a positive association between ESG performance and FP based on US firms. Han et al. (2016) explored the association between ESG performance and FP in Korean firms from 2008 to 2014. They provided conflicting results, noting that environmental performance and governance performance practices are closely related to profitability but that social performance provides little indication of profitability indicators. Yilmaz (2021) investigated the relationship between ESG performance and FP in Brazil, Russia, India, China, and South Africa (BRICS) nations over five years, from 2014 to 2018, and found a positive connection. Nurim et al. (2022) discovered that ESG performance mediates the association between FP and firm value in Indonesian enterprises. Carnini Pulino et al. (2022) demonstrate the positive impact of ESG performance on FP in Italian-listed companies from 2011 to 2020. A similar result was also reported by different studies based on UK-listed firms (Ahmad et al., 2021).

In contrast, Agarwal et al. (2023) documented the negative impact of ESG performance on FP Likewise, Kalia and Aggarwal (2022) conducted a study to assess the impact of ESG performance on FP. They reported that ESG performance positively impacts FP in advanced economies but has an adverse influence on emerging economies. A multi-country sample of 39 financial services companies in Sweden, Denmark, Finland, and Norway was employed by Rahi et al. (2022) to assess the effect of ESG performance on FP from 2015 to 2019. They discovered inconsistent evidence that ESG performance affected return on assets (ROA) positively while negatively affecting return on equity (ROE), return on invested capital, and earnings per share. Sideri (2023) reported a positive association between ESG performance and corporate sustainability in the financial sector. Buallay and Al Marri (2022) envisaged the linkage between ESG disclosure and, based on 1844 samples from 41 countries from 2008 to 2017 in the financial sector. They produced mixed evidence and reported that ESG performance has a deleterious impact on market performance. However, no significant influence on operational and FP. Similar mixed evidence of a relationship between ESG performance and FP in 311 Chinese-listed firms from 2008 to 2019 was also documented by Chen et al. (2021). They demonstrate that ESG performance has a short-term detrimental impact on FP and a long-term positive impact. Naeem et al. (2022) reported that the impact of ESG performance on FP is more potent in developed economies than in emerging economies. Velte (2017) reported mixed results and stated that ESG performance influences accounting-based FP but not market-based performance in Germany. Likewise, Aydogmus et al. (2022) documented that overall ESG performance influences a firm's value; individual dimensions such as social performance and governance performance indicators also influence the firm value in a positive direction, but the environmental performance dimension does not have any significant impact on firm value. The analysis of the literature to date so demonstrates that ESG performance has a considerable impact on business financial results in both developed and emerging nations, but results appear to diverge widely across countries (Chelawat & Trivedi, 2016; Kalia & Aggarwal, 2022). However, Jha and Rangarajan (2020) reported a negative impact of ESG performance on FP.

Therefore, the findings of the literature have yet to reach a consensus because even though most of the literature documented a positive association between ESG performance and FP, some literature still found a negative association, and some other groups of studies recorded mixed findings. In addition, most of the studies investigate the impact of ESG performance on FP across developed economies like the USA, the UK, and China, but studies are limited in the case of emerging economies in general and the Indian emerging market context in particular (Hasan et al., 2021). Therefore, this study attempts to investigate the impact of ESG performance on FP based on Indian companies. More specifically, this study aims to:

1) examine the distribution of ESG and FP variables across firms' financial and nonfinancial sectors;

2) investigate the impact of overall ESG performance on FP in emerging Indian economies;

3) evaluate the impact of ESG components on FP in emerging Indian economies;

To achieve the said objective, we put out the following hypothesis in light of the results of ESG performance across the globe:

H1: There is no difference in environmental, social, governance and financial performance variables' distribution across the financial and nonfinancial sectors.

H2: Overall environmental, social, and governance performance has a positive impact on financial performance in emerging Indian economies.

H3: There is a positive impact of environmental, social, and governance components on financial performance in emerging Indian economies.

3. DATA AND METHODOLOGY

3.1. Sample firms and data source

As per the objectives of our investigation, we have used secondary data to analyze the connection between ESG performance scores and FP of Indian joint stock companies. The ESG performance score was obtained from the Credit Rating Information Services of India Limited (CRISIL) Sustainability Yearbook 2022 (CRISIL, 2022). FP data based on accounting and market data were collected from annual reports and the National Stock Exchange (NSE) website (https://www.nseindia.com/). The CRISIL has released ESG scores for 2022 for 601 companies across 53 sectors of which 450 are listed and 150 are not listed. For the first objective of our analysis, we have considered all 601 firms to examine the ESG reporting status and variations between listed and non-listed companies and financial and nonfinancial sectors. However, to investigate the association between ESG performance and FP, we have only considered listed firms since the market capitalization (MC) of unlisted firms is not available on the NSE website.

3.2. Measurement of environmental, social, and governance scores

3.2.1. Exploratory variables

In this study, the independent variables used to evaluate ESG performance are the composite ESG score and sub-dimensional scores. This score is based on a firm's operations' ESG parameters (Ting et al., 2020). Various organizations and research bodies worldwide measure the ESG performance of listed firms, with the Bloomberg database being a widely cited source for ESG data in sustainability literature (Maji & Lohia, 2023).

To create the environmental score, CRISIL has considered environmental score is calculated using 40% from sector-specific issues and 60% from individual companies, while the social score is determined by taking 25% from the sector score and 75% from individual entities. However, there is no sector-specific score for the governance dimension, as it is comparable across all sectors. To arrive at the final ESG score for individual companies, relative weights have been assigned to sub-dimensions to reflect their relative significance in the overall score. The governance factor has been given the highest weightage of 40%, followed by the environmental aspect at 35% and the social aspect at 25%. The final ESG score value ranges from 0 to 100, with 0 representing the poorest ESG performance and 100 indicating the optimum ESG performance during the assessment period.

3.2.2. Dependent variables

FP is the primary response variable for this present study. For robust measurement of *FP*, following the current literature (Maji & Lohia, 2023; Habib & Mourad, 2023), we have estimated *FP* using both accounting and market-based measures. We considered *ROA* and return on capital employed (*ROCE*) for accounting-based performance. Tobin's Q and MC for market-based performance. While accounting-based performance reflects past performance (Chelawat & Trivedi, 2016), Tobin's Q and MC are believed to be appropriate for market-based performance since they indicate an investor-to-business comprehensive evaluation of its potential for growth in the future (Chelawat & Trivedi, 2016; Gao et al., 2023). The Tobin's Q index and MC are based on market projections, which are vital in measuring FP since stock market value fluctuations are forward-looking and generally difficult for management to manipulate (Gao et al., 2023). It is considered better than accounting-based performance (Ullmann, 1985). A mix of accounting and market performance measures is widely used in the present investigation to evaluate the relationship between sustainability reporting and FP (Hasan et al., 2021; Maji & Lohia, 2023).

Table 1. Operational definition of dependent variables

Variables	*Variables definition*	*Supporting literature*
ROA	(Net income / total assets) × 100	Jha and Rangarajan (2020), Rahi et al. (2022), Ray and Goel (2023)
ROCE	(Earnings before interest and taxes (EBIT) / capital employed) × 100	Ray and Goel (2023)
ESG	ESG performance computed by CRISIL	Maji and Lohia (2023)
ENVP	Environmental performance score computed by CRISIL	
SOLP	Social performance score computed by CRISIL	
GOVP	Governance performance score computed by CRISIL	
LogTQ	Log (market capitalization / total assets at book value)	Rahi et al. (2022), Ray and Goel (2023), Maji and Lohia (2023)
LogMC	Log value of total market capitalization of the company	
LogSize	The log value of the total assets of the company	Ghosh et al. (2022), Habib and Mourad (2023)
LogAge	Log the value of the number of years from its establishment	
Sector	Financial sector (0); non-financial sector (1)	Maji and Lohia (2023), Gao et al. (2023)

Source: Authors' elaboration.

3.2.3. Empirical models

It is widely expected that ESG performance has a close association with FP. This specifies the likelihood of a two-way association between ESG performance and FP, as Velte (2017) pointed out. We employed the Hausman specification test to investigate whether there is a bilateral connection between ESG performance and FP. However, the test results for the present dataset showed no relationship between the two variables. Therefore, we considered *FP* as the dependent variable and *ESG performance* as exploratory variables, as per previous research. We used the ordinary least squares (OLS) method to examine the impact of *ESG performance* and its components on *FP* while also controlling for firm size (proxied by the logarithm of total assets) and age (logarithm of the age of total MC).

Additionally, we have used dummy variables to classify sample companies between the financial and non-financial sectors, as per the classification reported by CRISIL Sustainability Year Book 2022 (CRISIL, 2022). We assigned sector dummy value "0"

for companies under the financial sector and "1" for the nonfinancial sector following the study of Maji and Lohia (2023), where they assigned dummy values for manufacturing and service sectors. Gao et al. (2023) also assigned dummy values to identify the companies based on ownership type. This prompted us to investigate the nature of association by segregating the firms between financial and nonfinancial sectors.

To investigate the impact of *ESG performance* on *FP* we have formulated the following econometric models:

Model 1

$$ROA_i = \alpha + \beta_1 ESG_i + \beta_2 LogAge_i + \beta_3 LogSize_i + \beta_4 Sector_i + \mu_i \quad (1)$$

$$ROCE_i = \alpha + \beta_1 ESG_i + \beta_2 LogAge_i + \beta_3 LogSize_i + \beta_4 Sector_i + \mu_i \quad (2)$$

$$LogTQ_i = \alpha + \beta_1 ESG_i + \beta_2 LogAge_i + \beta_3 LogSize_i + \beta_4 Sector_i + \mu_i \quad (3)$$

$$LogMC_i = \alpha + \beta_1 ESG_i + \beta_2 LogAge_i + \beta_3 LogSize_i + \beta_4 Sector_i + \mu_i \quad (4)$$

Model 2

$$ROA_i = \alpha + \beta_1 ENVP_i + \beta_2 SOLP_i + \beta_3 GOVP_i + \beta_4 LogAge_i + \beta_5 LogSize_i + \beta_6 Sector_i + \mu_i \quad (5)$$

$$ROCE_i = \alpha + \beta_1 ENVP_i + \beta_2 SOLP_i + \beta_3 GOVP_i + \beta_4 LogAge_i + \beta_5 LogSize_i + \beta_6 Sector_i + \mu_i \quad (6)$$

$$LogTQ_i = \alpha + \beta_1 ENVP_i + \beta_2 SOLP_i + \beta_3 GOVP_i + \beta_4 LogAge_i + \beta_5 LogSize_i + \beta_6 Sector_i + \mu_i \quad (7)$$

$$LogMC_i = \alpha + \beta_1 ENVP_i + \beta_2 SOLP_i + \beta_3 GOVP_i + \beta_4 LogAge_i + \beta_5 LogSize_i + \beta_6 Sector_i + \mu_i \quad (8)$$

To use OLS regression, certain prerequisites must be met, including normality, constant variance, and the absence of multicollinearity. Failure to meet these assumptions can result in biased and inefficient estimates. To ensure these assumptions are met, we conducted a few diagnostic tests. We used skewness/kurtosis tests (S.K. test) to verify the normality of residuals. Additionally, we relied on the Cook-Weisberg test (Hettest) to ensure constant variance (White, 1980). Furthermore, we employed multiple correlations among predictor variables and the variance inflation factor (VIF) to check the degree of multicollinearity.

Alternatively, further research could be done by employing the simultaneous quantile regression model. The linear regression model assumes the homogeneous impact of the independent variable on the dependent variable across all the conditional distributions. However, these kinds of presumptions might not always capture the whole picture, particularly if the dependent variable fluctuates between higher and lower values. Therefore, further research could be done by employing a quantile regression model for more robust results.

4. RESULTS AND DISCUSSION

The data in Table 2 shows that the average *ESG* score for Indian companies is 54.34, higher than the CRISIL requirement. Governance scores are highest at 65.54, while social and environmental scores are lower at 49.85 and 44.71. The wide range for all ESG components suggests varying disclosure levels. Company age ranges from 3 to 173 years, and firm size varies with total assets ranging from 5.50 to 15.42. The data also indicates the presence of both profitable and loss-making firms, as well as high- and low-market value firms. Overall, the distribution of variables shows moderate variability and limited skewness.

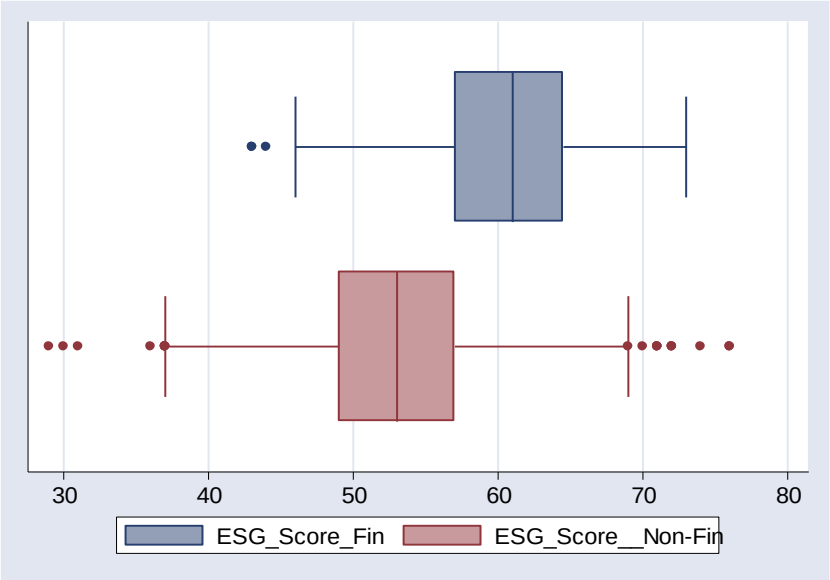
Table 2. Descriptive statistics of ESG performance and FP

Variables	*Mean*	*Maximum*	*Minimum*	*Std. deviation*	*Skewness*	*CV*
ENVP	44.71	83	19	12.61	0.36	0.28
SOLP	49.85	70	23	8.77	-0.14	0.18
GOVP	65.54	82	30	8.19	-1.07	0.13
ESG	54.34	76	29	7.57	-0.02	0.14
ROA	14.49	101.33	-68.35	15.55	0.86	1.07
ROCE	19.83	137.01	-81.50	16.88	1.20	0.85
LogTQ	4509836.48	178237576.00	27257.00	12754280.55	8.41	2.83
LogMC	5.46	9.47	-0.01	1.51	-0.73	0.28
LogAge	46.66	173.00	3.00	28.07	1.22	0.60
LogSize	8.54	15.42	5.50	1.78	1.05	0.21

Source: Authors' calculation.

We analyzed the ESG performance and its three components by dividing the data into financial and nonfinancial sectors and using boxplots. As shown in Figure 1, the box size is almost the same for both sectors, indicating similar ESG score spreads, although outliers exist in both groups. However, the two sectors have a significant difference in ESG scores. The lower quartile of the financial sector corresponds to the upper quartile of nonfinancial firms, suggesting that financial firms have higher ESG scores. Nonetheless, the symmetrical positioning of the median within the box implies that the ESG distribution is similar for both sectors.

Figure 1. Box plot of ESG score for financial and nonfinancial sector

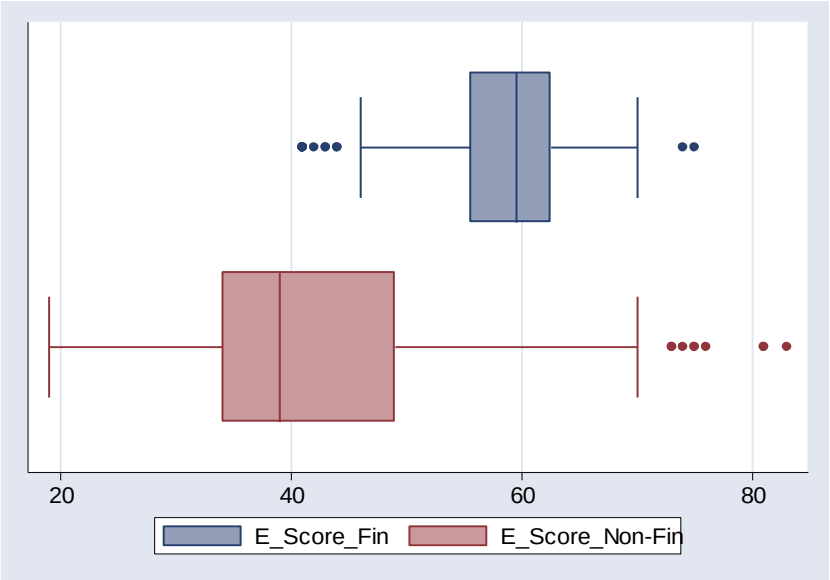


Source: Stata/MP 13.0 output.

The data presented in Figure 1 suggests that financial firms are more consistent in disclosing their environmental scores, as the environmental score spread is narrower for them compared to nonfinancial firms. Furthermore, the figure reveals a significant difference in environmental scores between the two groups, with financial firms having higher scores than nonfinancial firms. However, the distribution of environmental scores is symmetrical for nonfinancial firms and asymmetrical for financial firms, as indicated by the median line. Moving on to Figure 2, social scores are also higher for financial firms than nonfinancial firms. However, the distribution of social scores is almost symmetrical for both sectors, with only a few outliers.

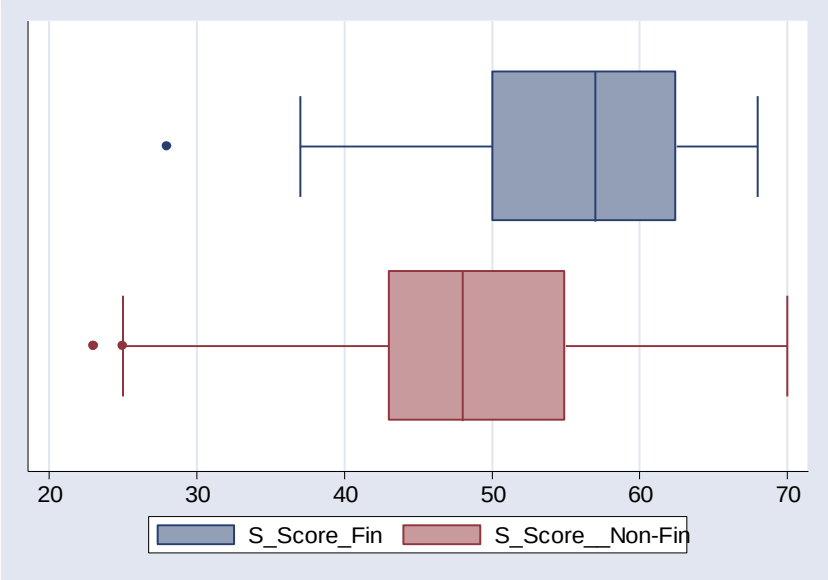
The data presented in Figure 1 highlights a significant disparity in ESG disclosure between financial and nonfinancial sector firms. Financial sector firms tend to disclose more ESG information than their nonfinancial counterparts, indicating a higher commitment towards sustainability and responsible business practices. Additionally, Figure 3 shows no significant difference in governance scores between the two groups, with both sectors demonstrating high compliance. The symmetrical distribution of governance scores in both sectors further supports this conclusion, with only a few outliers. In conclusion, the boxplots demonstrate that financial sector firms are leading the way in ESG disclosure, as required by CRISIL, and have set a high standard for nonfinancial sector firms to follow.

Figure 2. Box plot of an environmental score for financial and nonfinancial sector



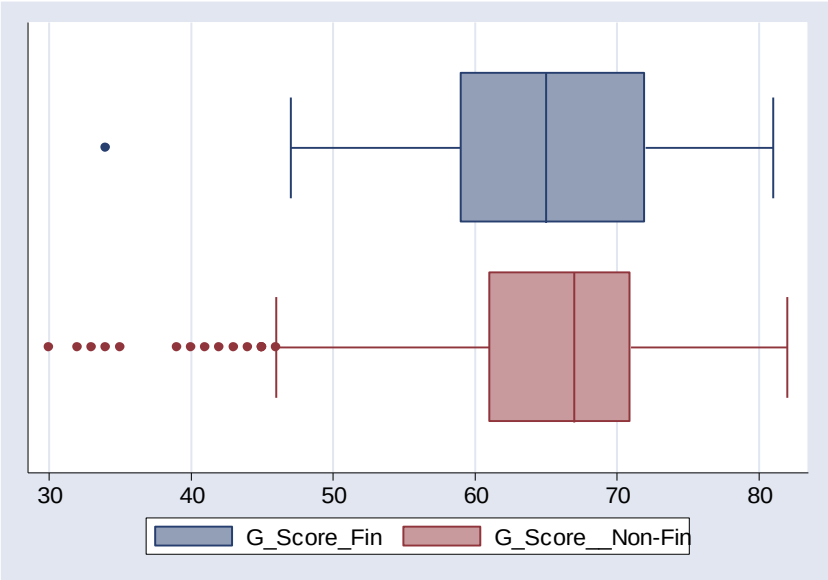
Source: Stata/MP 13.0 output.

Figure 3. Box plot of the social score for the financial and nonfinancial sector



Source: Stata/MP 13.0 output.

Figure 4. Box plot of governance score for financial and nonfinancial sector



Source: Stata/MP 13.0 output.

Following the study of Habib and Mourad (2023), we have employed the Wilcoxon rank-sum test to exhibit the significant variances of distributions of variables between two groups, that is, financial and nonfinancial sectors, in the present study. Table 3 summarises the Wilcoxon rank-sum test results and demonstrates substantial inconsistency in all variables of interest between the financial and non-financial sectors as reflected by the significant value except in the age factor. Therefore, we accept *H1*.

Table 4 displays the results of our analysis of multiple correlations among all the exploratory variables in our study. We found a significant positive correlation among the ESG components and a positive correlation between the size and age of firms with ESG. The degree of correlation is not alarming, which suggests that multicollinearity problems can be avoided. We conducted VIF testing to ensure that our analysis is robust, and the results indicate that multicollinearity is not an issue in the current context. These findings provide valuable insights into the relationship between the variables included in our study.

The results of the regression models are presented in Table 5 and Table 6. Table 5 demonstrates the impact of the overall ESG performance on FP after adjusting for other explanatory variables. The adjusted R-square values signify that the models possess significant explanatory power, while the significant F-statistics demonstrate the goodness of fit of the models employed. An essential assumption of OLS regression analysis is that the dataset should be free from heteroscedasticity or normally distributed residuals.

The Hettest was applied to assess the normal distribution of residuals, and the results indicate

that the residuals are normally distributed for all models utilized in this study. Hence, the results are dependable for all models under consideration. The estimated coefficient of overall ESG performance is notably positive for all measures of FP. This implies that enhancing ESG performance positively influences FP. The results are consistent with the current literature from the context of emerging nations (Chelawat & Trivedi, 2016; Bodhanwala & Bodhanwala, 2018; Bhaskaran et al., 2020; Gao et al., 2023; Ray & Goel, 2023) as well as developed economies (Ahmad et al., 2021; Naeem et al., 2022; Habib & Mourad, 2023). This presents an opportunity for firm decision-makers to focus on adopting and improving ESG practices to enhance FP in emerging economies.

Table 3. Difference analysis using the Wilcoxon rank-sum test between financial and nonfinancial sectors

Variables	*Mann–Whitney U test*		*Hypotheses*	*Decision*
	Z statistic	*p-value*		
ENVP	10.052	0.0000*	The ENVP is different across the financial and nonfinancial sector.	Accepted
SOLP	8.276	0.0000*	The SOLP is different across the financial and nonfinancial sector.	Accepted
GOVP	2.184	0.0290**	The GOVP is different across the financial and nonfinancial sector.	Accepted
ESG	9.252	0.0000*	The ESG performance is different across the financial and nonfinancial sector.	Accepted
LogAge	-1.103	0.2700	The age distribution is different across the financial and nonfinancial sector.	Rejected
LogSize	9.394	0.0000*	The distribution of size is different across financial and nonfinancial sector.	Accepted
ROA	-2.411	0.0159**	The distribution of ROA is different across financial and nonfinancial sector.	Accepted
ROCE	3.434	0.0006*	The distribution of ROCE is different across financial and nonfinancial sector.	Accepted
LogTQ	-9.090	0.0000*	The distribution of Tobin's Q is different across the financial and nonfinancial sector.	Accepted
LogMC	1.658	0.0972***	The distribution of MC is different across the financial and non-financial sectors.	Accepted

*Note: *, ** and *** indicate significance at 1%, 5% and 10%, respectively.*
Source: Authors' calculation.

Table 4. Correlation test

Variable	*ENVP*	*SOLP*	*GOVP*	*ESG*	*LogAge*	*LogSize*
ENVP	1.000					
SOLP	0.6757*	1.000				
GOVP	0.3134*	0.2886*	1.000			
ESG	0.8997*	0.7934*	0.6419*	1.000		
LogAge	0.0329	0.1586*	0.0349	0.0808	1.000	
LogSize	0.5539*	0.6066*	-0.0109	0.4964*	0.1563*	1.000

*Note: * indicates significance at 1% level.*
Source: Authors' calculation.

The study found that age is a significant factor in determining a firm's performance. However, the impact of age differs based on the performance model being used. While it has a positive effect on accounting-based performance models, it has a negative effect on market-based performance models. This finding is consistent with a similar study conducted by Habib and Mourad (2023), which focused on developed economies like the USA. On the other hand, size significantly positively impacts accounting-based and market-based FP measures. This suggests that larger firms are generally more profitable than their smaller counterparts, contrary to existing literature on developed countries. Additionally, the study found a significant and positive coefficient of interaction effect between industry characteristics and overall ESG score on all measures.

Table 5. Regression result showing the impact of ESG performance on FP (Model 1)

Variables	*ROA*		*ROCE*		*LogTQ*		*LogMC*	
	Coefficient	*t-stat*	*Coefficient*	*t-stat*	*Coefficient*	*t-stat*	*Coefficient*	*t-stat*
ESG	0.104582*	6.67	0.07643*	3.89	0.07366*	9.53	0.09211*	9.52
LogAge	0.05555*	4.44	0.03180***	1.67	-0.22405**	2.92	-0.05141*	2.69
LogSize	0.08581*	4.63	0.54119*	5.04	0.43255*	7.32	0.00513*	5.27
Sector	-0.09851*	-5.73	0.00736***	1.89	0.30638*	4.40	0.01798*	3.26
Constant	0.05669*	6.34	0.68351*	4.10	0.45025*	5.49	0.05885*	4.09
F-stat	21.07*		10.57*		12.98*		22.08*	
Adj. R-square	0.2322		0.2654		0.3291		0.3683	
Mean VIF	1.33		1.35		1.54		1.56	
Hettest (Chi^2)	2.076		1.496		1.1023		1.0342	
SK tests (Adj. Chi^2)	0.9732		0.7793		0.8851		0.7952	

*Note: *, ** and *** indicate significance at 1%, 5% and 10%, respectively.*
Source: Authors' calculation.

Table 6. Regression result showing the impact of ESG performance on FP (Model 2)

Variables	ROA		ROCE		LogTQ		LogMC	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
ENVP	0.02463**	2.86	0.00397*	3.78	0.02253*	3.87	0.02192*	3.80
SOLP	0.00982	1.08	0.00792	1.38	0.01236	1.45	0.01205	1.42
GOVP	0.06876*	4.66	0.25988**	2.05	0.04147*	5.29	0.04181*	5.38
LogAge	-0.00382***	1.70	-0.03475**	4.09	-0.02244**	2.90	0.1956**	2.55
LogSize	0.09595*	5.86	0.09119*	4.85	0.04242*	6.87	0.03728*	3.87
Sector	0.03128*	3.08	0.05213*	6.39	0.06491*	9.80	0.06169*	9.69
Constant	0.50129*	6.20	0.40694*	8.53	0.07924*	6.25	0.44062*	6.86
F-stat	5.86*		7.28*		8.03		8.22	
Adj. R-square	0.2100		0.2563		0.3767		0.2804	
Mean VIF	1.57		1.54		1.73		1.73	
Hettest (Chi²)	0.883		1.037		0.962		0.871	
SK tests (Adj. Chi²)	0.8975		0.6732		0.8323		0.7139	

*Note: *, ** and *** indicate significance at 1%, 5% and 10%, respectively.*
Source: Authors' calculation.

Table 7. Regression result on ESG performance and FP (Model 1): Financial and nonfinancial sector

Variables	Financial sector				Nonfinancial sector			
	ROCE		LogMC		ROCE		LogMC	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
ESG	0.09854*	3.08	0.01281*	3.32	0.04143*	9.60	0.07504*	9.59
LogAge	0.08121*	5.99	0.03153*	-2.53	-0.08012	1.42	-0.08059***	1.65
LogSize	0.02088*	3.10	0.44982*	5.14	0.037235	5.33	-0.03862*	10.24
Constant	0.33172*	3.98	0.41445*	6.03	0.21451*	3.85	0.4830*	11.13
F-stat	16.85*		12.32*		14.54		49.16*	
Adj. R-square	0.4045		0.3266		0.3183		0.2406	
Observations	71		71		457		457	
Mean VIF	1.08		1.45		1.11		1.12	
Hettest (Chi²)	1.3962		0.9873		1.246		1.034	
SK tests (Adj. Chi²)	1.4387		1.0924		1.194		1.095	

*Note: *, ** and *** indicate significance at 1%, 5% and 10%, respectively.*
Source: Authors' calculation.

Table 8. Regression result on ESG component's performance and FP (Model 2): Financial and nonfinancial sector

Variables	Financial sector				Nonfinancial sector			
	ROCE		LogMC		ROCE		LogMC	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
ENVP	-0.05374*	2.65	-0.05278**	2.61	0.02585*	4.38	0.02612*	4.40
SOLP	-0.00188	1.23	-0.001164	1.04	0.01188	1.38	0.01214	1.40
GOVP	0.06015*	3.17	0.05912*	3.12	0.03728*	4.46	0.03729*	4.44
LogAge	-0.56218*	2.55	-0.56670*	2.56	-0.10403	1.29	-0.13187	1.62
LogSize	0.58620*	5.90	-0.40666*	4.10	0.58547*	13.78	-0.365823	8.55
Constant	0.15908	5.41	0.05095*	5.35	0.63852*	8.57	5.0509	7.86
F-stat	23.59		25.06		27.06		29.62	
Adj. R-square	0.4312		0.4322		0.3168		0.2389	
Observations	71		71		457		457	
Mean VIF	1.84		1.83		1.59		1.52	
Hettest (Chi²)	0.569		0.667		1.096		0.9735	
SK tests (Adj. Chi²)	0.9862		1.0863		1.315		1.2673	

*Note: *, ** and *** indicate significance at 1%, 5% and 10%, respectively.*
Source: Authors' calculation.

This indicates that the impact of ESG on FP is more significant for nonfinancial firms than for financial ones. As a result, we cannot reject *H2* based on the above discussion. Table 6 displays the regression results that illustrate the impact of ESG components on FP after accounting for the effects of other explanatory variables. According to the results of the second model, all ESG sub-dimensions (*ENVP, SOLP,* and *GOVP*) have a significant and positive influence on accounting and market measures of FP at significance levels of 0.01 and 0.05.

The present study indicates that *ENVP* positively influences accounting and market measures of FP, which is consistent with previous research carried out in both developed (Habib & Mourad, 2023) and developing countries (Maji & Lohia, 2023). However, there are other studies which show that *ENVP* has a negative impact on market-based performance (Naeem et al., 2022). The coefficient for *GOVP* is positive and statistically significant for all measures of FP. This suggests that companies that provide more information on *GOVP* tend to have better FP. This finding aligns with the study of Habib and Mourad (2023). However, we found no significant impact of *SOLP* on FP across the models. Our results suggest that all components of ESG, except *SOLP*, are significantly associated with improved FP. This supports the validity of *H3*. We obtained similar results for other explanatory variables, as in Model 1. The adjusted R-squared and significant F-statistics indicate that the model fits well. Additionally, diagnostic tests support the use of OLS regression analysis. Overall, the study concludes that all components of ESG, except *SOLP*, significantly impact improving FP.

The researcher carried out rigorous OLS regression analysis on the financial and non-financial sectors to determine the impact of ESG and its sub-components on FP. The results were analyzed in detail and presented in Tables 7 and 8, respectively. The models used fit well with significant F-statistics and adjusted R-squared values. Diagnostic tests also supported the OLS regression analysis. The analysis

results reveal that *ESG* performance has a positive and significant impact on all performance measures in both sectors, indicating its crucial role in driving financial success.

Further, the study highlights that *ENVP* and *GOVP* factors also significantly impact FP in both sectors, although the *ENVP* factor harms the financial sector. The negative impact of *ENVP* on FP is in line with earlier studies conducted by Smith et al. (2007) and Ho and Taylor (2007). However, the *SOLP* factor did not significantly impact FP in either sector (Narula et al., 2024). These results have critical implications for businesses that seek to remain profitable while embracing sustainable practices.

The study found that ESG performance significantly impacts FP in emerging markets. Companies prioritizing sustainability and responsible business practices tend to outperform their peers. This has important implications for investors, policymakers, and corporate leaders, highlighting the potential for integrating ESG considerations into investment decisions and the need for an enabling environment that supports ESG best practices.

5. CONCLUSION

The present study examines the stimulus of ESG performance on FP, using accounting and market-based indicators in the Indian emerging context. The study also looked at how the individual components of ESG, i.e., *ENVP*, *SOLP*, and *GOVP*, affect FP in terms of market-based and accounting metrics. Analysis of ESG performance indicates that Indian companies give the least importance to environmental aspects. This study shows a positive association between ESG performance (including its sub-dimensions) and FP (accounting and market-based metric). According to the OLS regression analysis, companies with greater ESG performance have higher FP. Additionally, the regression findings show that the individual effects of *ENVP* and *GOVP* on the FP are positive and significant. The present findings corroborate with the existing literature on developed economies (Habib, 2022; Nguyen et al., 2022) and developing economies (Chelawat & Trivedi, 2016; Maji & Lohia, 2023), showing a positive impact of ESG performance and its sub-dimensions on FP. Therefore, the present findings demonstrate the important role of ESG performance on FP and support the theoretical assumptions that increased environmental, social and environmental responsibility practices promote profitability (Velte, 2017).

This investigation contributes to the literature on sustainability reporting and ESG performance from emerging Indian economies. The present findings have important practical implications for regulators, policymakers, investors, corporate executives, and researchers in understanding how ESG performance and sub-dimensions influence the FP. Corporate executives will be able to frame the business strategies to adopt ESG performance in true letter and spirit of policy to achieve organizational goals while legitimately satisfying all stakeholders' expectations.

This study has limitations, leaving scope for future research in this field. It is conducted on cross-section data for the year 2022. Longitudinal studies may thus provide more insight into trends in the ESG performance of the Indian corporate sector. Further studies may be undertaken to investigate the factors likely to determine ESG performance. The study's focus on emerging markets may limit the generalizability of findings to developed markets. Thus, multi-country comparisons will give regulators and policymakers a greater understanding of results for global comparability and a holistic picture.

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