“Do sustainable business practices enhance firm profitability? An empirical study of Indian listed companies”

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DO SUSTAINABLE BUSINESS PRACTICES ENHANCE FIRM PROFITABILITY? AN EMPIRICAL STUDY OF INDIAN LISTED COMPANIES

Abstract

This study employs a panel data model to examine the impact of sustainable business practices on profitability in the Indian market, focusing on 49 companies listed in the S&P BSE ESG 100 index from 2015 to 2022. Sustainable business practices are measured by ESG composite scores and individual environmental, social, and governance scores. Profitability is represented by return on equity and return on assets. Utilizing the Panel Corrected Standard Error technique to address data issues like autocorrelation and heteroscedasticity, the study finds that sustainable business practices insignificantly impact profitability. However, the social pillar has a significantly positive correlation with return on assets, with each unit improvement in the social score resulting in a 0.1323 increase in return. Conversely, the governance pillar negatively impacts return on assets, with each unit increase in governance score resulting in a decrease of 0.1527 units in profitability. Interestingly, larger companies experienced reduced returns on both assets and equity, as financial risk also lowered returns. These findings emphasize the relevance of companies' socially responsible behavior, suggesting that managers and investors should prioritize sustainable practices for long-term benefits. Additionally, the findings advocate for robust regulatory frameworks focused on sustainability.

Keywords sustainable business practices, ESG, panel corrected standard errors, emerging economy, India, firm performance

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INTRODUCTION

Firms have recently become increasingly conscious of embracing sustainable business practices (SBPs). There is a rising awareness that their actions substantially influence society, the environment, and the economy. Moreover, recent concerns about escalating pollution, abrupt climatic fluctuations, diminishing natural resources, and biodiversity loss have emphasized the imperative of incorporating SBPs (Lathabhavan, 2022). The primary rationale behind organizations incorporating SBPs within core activities is the growing trend of countries assessing the activities that impact sustainable development (Fowler & Hope, 2007).

Utilizing stakeholder theory, this paper enhances the current knowledge base by assessing the financial impact of SBPs initiated by publicly traded Indian entities. SBPs are proxied by total ESG scores (ESG scores) and factors of the environmental score (ENV score), social score (SOC score), and governance score (GOV score), following past literature like that of Cerciello et al. (2022). SBPs hold particular significance for emerging markets like India. As an economy standing fifth globally (Rao et al., 2023), India is swiftly developing and facing

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unique sustainability challenges (Narula, 2012). The requirement to report on "Business Responsibility and Sustainability Reporting" (BRSR) for the 1,000 topmost Indian corporations by SEBI (Joshi & Joshi, 2024), emphasizes the importance of conducting this study. Without substantial foreign direct investments (FDI), India's ambitious goal of reaching a US$5 trillion GDP by 2024–2025 could face significant obstacles (Maji & Lohia, 2023; Mallik & Kashiramka, 2024). Consequently, it becomes imperative to consistently provide comprehensive information regarding firms' performance regarding non-financial indicators (Maji & Lohia, 2023). Lastly, the scant research on non-financial indicators (Malarvizhi & Matta, 2016) within the growing economy setting makes this study necessary.

Incorporating SBPs requires much deliberation as it involves an expenditure of executing them, which can influence the firms' financial outcomes (Stoykova, 2014). Many studies have been undertaken recently regarding the financial performance of sustainable enterprises and, consequently, their survival. However, there is a dearth of such studies in the case of emerging economies (Yilmaz, 2021). Emerging markets require special attention due to their unique cultural characteristics and political instability (Aboud & Diab, 2018). The link between sustainability initiatives and financial outcomes in India has received relatively little attention despite the growing literature on the relationship between these two constructs, and the current study aims to bridge this gap.

1. LITERATURE REVIEW

The past studies on ESG were categorized into two types (Clark et al., 2015). The first type involves directly examining sub-components of ESG and examining for association with the entity's performance. The second category of analysis centers on Socially Responsible Investment (SRI) funds, evaluating and contrasting their returns, performance, and market valuation compared to non-SRI funds. Results across these studies have consistently been mixed. Many theories examine the link between ESG practices and financial performance. Within the realm of corporate social responsibility, the stakeholder theory guides firms in meeting their duties and obligations towards multiple stakeholders, extending beyond mere shareholders. According to stakeholder theory, businesses that effectively handle their interactions with internal and external have improved results by building a stronger reputation and fostering loyalty among stakeholders (Freeman, 1984). It underscores the firm's capacity to transform social obligations into financial gains (Cerciello et al., 2022). Another significant theory is the resource-based view. It posits that firms possess unique capabilities that, when efficiently employed, can lead to a marketplace advantage and enhanced financial outcomes (Haffar & Searcy, 2017).

Prior research has documented varied results when analyzing the association between sustainability and financial performance. Some studies indicate a negative relationship between sustainability and profitability (López et al., 2007), while others like Al-Shammari et al. (2022), Veeravel et al. (2023), Velte (2017), and Yilmaz (2021) have reported a positive association. Several studies have found a non-significant correlation between them (Crisóstomo et al., 2011; Surroca et al., 2010). In their meta-analytical review, Friede et al. (2015) revealed that most studies disclosed a positive association between ESG variables and financial performance. In a systematic literature review conducted using content analysis, Muhmad and Muhamad (2021) concluded that 96% of published articles report a favorable association between sustainability initiatives and financial performance. A study on 180 US firms conducted for 12 years found that sustainable firms outperformed non-sustainable firms (Eccles et al., 2014). Velte's (2017) analysis in the German context firmly established that the ESG score, ENV score, SOC score, and GOV score are strongly and favorably linked to ROA while demonstrating no impact on market measures. Ahmad et al. (2021), in their research on UK firms, found that ESG score has a significantly non-negative influence on earnings per share as well as market measures. Contrary to these findings, Kalia and Aggarwal (2023), in their research on the health sector in the case of developing countries, found that ESG activities adversely impact firm performance. A panel data analysis conducted on 33 pharma companies from India for ten years concluded a negative associa-

tion between ESG and the market-to-book value ratio (Agarwal et al., 2023). In comprehensive research on BRICS countries, Yilmaz (2021) found that although the combined ESG score positively impacts ROE and ROA, it fails to influence the operating profit and net profit ratios. Atan et al. (2018), in their research in the Malaysian context, noted an insignificant association between ESG score and ROE. The sustainability-profitability analysis outcomes yield contrasting results when the context changes from developed to developing nations. When considering the impact of Companies' social performance on business results, it is logical to anticipate a substantial disparity between companies in advanced and emerging economies (Laskar et al., 2017). Industrialized countries possess superior resources, such as advanced technology and skilled labor, which they may utilize to achieve sustainable development (Porter & Kramer, 2006).

The ENV score, as an independent pillar of the sustainability framework, assesses a company's commitment to implementing long-lasting environmental practices. Companies with high environmental scores generally prioritize waste and emission reduction, natural resource conservation, and adopting renewable energy sources. It is widely thought that these practices favorably impact the organization's environmental and financial performance. Various publications have examined the nexus between environmental practices and financial outcomes. In their research study, Hart and Ahuja (1996) found an inverse relationship between emissions and firm performance. Malarvizhi and Matta (2016), in their research on Indian firms, discovered no noteworthy association between the extent of environmental disclosure and the organization's success. Business sector, country-specific context and type of disclosures influence the link between environment-related disclosures and cost of equity (Aerts et al., 2008). The scholars found that this relationship is weaker in businesses that care more about the environment, more pronounced for European companies than North American companies, and more robust for North American companies' paper disclosures and European companies' web-based disclosures (Aboud & Diab, 2018). Lee et al. (2016) posit that environmental responsibility has a substantial and beneficial influence on firms' ROA and ROE.

Researchers have attempted to ascertain the corporate social performance – financial outcomes nexus for many years. Friedman (1970), in the seminal thesis, posits that this association should be harmful. Companies that initiate socially responsible activities on their own accord experience increased expenses, resulting in reduced overall financial performance. Freeman (1984), in his stakeholder theory, in contrast, supports the notion that the association between the two constructs is favorable. Augmenting social expenditures reduces transaction costs and improves stakeholder connections (Jones, 1995), ultimately improving net financial performance. Aupperle et al. (1985) presented empirical data indicating an insignificant correlation between corporate social responsibility and organizational profits. Velte (2017) found that CSR activities improve financial outcomes. However, some studies indicate contrary results. In their study, Cheng et al. (2023) discovered that organizations that allocate significant resources toward corporate social responsibility may encounter challenges in maximizing profits because of the added expenses incurred.

Corporate governance is essential for a company's development and its ability to compete with global corporations. The governance score evaluates a company's accountability, transparency, and compliance with established corporate governance policies. It measures aspects like the board's makeup, the executives' remuneration, the shareholders' rights, and the risk management techniques. Research to date has been inconclusive regarding the impact of governance parameters, such as the role duality of the chairman and CEO, board size, board meetings, and equity ownership, on firm performance (Bhatt & Bhatt, 2017). In their research on Indonesian enterprises, Siagian et al. (2013) discovered a positive association between corporate governance (CG) and company value and found that reporting quality negatively impacts firm value. Velte (2017) found that an improved governance score leads to better ROA. In contrast, Kalia and Aggarwal (2023) found that the GOV score negatively impacts ROE.

This study examines the impact of SBPS as represented by Total ESG Scores and the independent pillars of ENV score, SOC score, and GOV score on ROA and ROE. The hypotheses below summarize the assumptions behind these variables.

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H1: A positive association exists between firms' ESG scores and profitability (ROA, ROE).

H2: A positive association exists between firms' ENV scores, SOC scores, GOV scores and profitability (ROA, ROE).

2. METHOD

The study uses 49 companies on the Standard & Poor's BSE 100 ESG Index. The index comprises 52 companies and measures securities adhering to sustainable investment standards. Such companies have risk and performance like those on the Standard & Poor's BSE 100. However, they also meet extra sustainability investment criteria. The period of this study is from 2015 to 2022. Previous studies (Choi & Wang, 2009) suggest that sustainability performance, indicated by ESG scores, may not result in immediate improvements in financial performance. So, this study analyzes the ESG scores, ENV score, SOC score, and GOV score of the year t (2014 to 2021) and profitability ratios of year t+1 (2015 to 2022). The primary criterion for reducing the sample size to 49 organizations was the availability of ESG scores. The data on ESG scores and profitability ratios are obtained from Bloomberg. Table 1 indicates the companies' sector-wise weightage.

Table 1. Industry-wise sample classification

Global Industry Classification Standard (GICS)	Total	Percent
Financials	17	33%
Energy	2	4.04%
Consumer Discretionary	6	11.3%
Information Technology	5	10.4%
Materials	4	7.9%
Consumer Staples	5	7.6%
Health Care	4	5.70%
Communication services	2	3.90%
Utilities	2	2.50%
Industrials	1	1.40%
Real Estate	1	0.80%
Total	49	100.00%

The current empirical study uses accounting ratios that evaluate the profitability of entities like return on equity (ROE) and return on assets(ROA). Yilmaz (2021) utilized similar profitability metrics. Also, Agyapong et al. (2024) utilized ROE and ROA as profitability measures to assess the performance of Ghanaian banks. Compared to market-based ratios, accounting performance measures are considered less noisy (Bodhanwala & Bodhanwala, 2018; López et al., 2007) and hence suitable for the study. Many extrinsic macro-level parameters can influence the market performance of companies implementing sustainability measures. Accounting performance measures help understand the firm's policy effect on them and are considered more suitable (Bodhanwala & Bodhanwala, 2018; Garcia-Castro et al., 2010). ROE is a significant ratio used to evaluate profitability (Griffin & Mahon, 1997), and investors often use it to measure management performance (Scott, 2003).

This study uses sustainable business practices (SBPs) as an independent variable proxied by ESG scores. The ESG score quantifies around 120 parameters and is developed and disclosed by Bloomberg (Shaikh, 2021). As cited by Alsayegh et al. (2020), the Bloomberg database has a system of four disclosure scores, starting from 0.1, indicating minimal disclosure by corporations, to 100, representing comprehensive disclosure of all data points gathered by Bloomberg. The data are weighted as per significance, with the higher weight assigned to the more relevant disclosure (Giannarakis, 2013). Past studies have used similar scores (Atan et al., 2018; Giannarakis et al., 2016; Han et al., 2016; Romano et al., 2020; Yilmaz, 2021).

The study uses control variables like size, leverage, and age, following the earlier literature (Alodat et al., 2022; Maji & Lohia, 2023; Salleh et al., 2022). Dienes et al. (2016) claim that sustainability studies in the past have prominently used variables like firm size, firm age, and profitability (Jha & Rangarajan, 2020). The logarithm of total assets represents the size (Agyapong et al., 2024), while the company's financial risk proxies leverage. Age is represented by the years since the companies' establishment. Table 2 summarizes the variables of this research work.

This study includes multiple models and uses STATA 14.2 for data analysis. Group 1 consists of two models using the ESG score as the explanatory variable. Group 2 consists of two other models, ENV score, SOC score, and GOV score, used as independent variables. Yilmaz (2021) used similar models in the study.

Table 2. Variables definition

	Variables of the study	Terminology	Formula	Source	References
Dependent Variable	Return on Equity	ROE	Net Profit after Tax ÷ Equity	Bloomberg	Kalia & Aggarwal (2023), Yilmaz (2021)
Dependent Variable	Return on Assets	ROA	Earnings before interest and Tax ÷ Average Assets	Bloomberg	Kalia & Aggarwal (2023), Mallik & Kashiramka (2024), Velte (2017)
Independent Variable	ESG Score	ESG score	Score by Bloomberg based on disclosures on three pillars	Bloomberg	Dhaliwal et al. (2014), Kumawat & Patel (2022), Maqbool & Bakr (2019), Yilmaz (2021)
Independent Variable	Environmental Score	ENV score	Score by Bloomberg based on environmental disclosures	Bloomberg	Dhaliwal et al. (2014), Kumawat & Patel (2022), Maqbool & Bakr (2019), Yilmaz (2021)
Independent Variable	Social Score	SOC score	Score by Bloomberg based on social disclosures	Bloomberg	Dhaliwal et al. (2014), Kumawat & Patel (2022), Maqbool & Bakr (2019), Yilmaz (2021)
Independent Variable	Governance Score	GOV score	Score by Bloomberg based on governance disclosures	Bloomberg	Dhaliwal et al. (2014), Kumawat & Patel (2022), Maqbool & Bakr (2019), Yilmaz (2021)
Control Variable	Leverage	LEV	Total Debt ÷ Total Assets	Bloomberg	Boulhaga et al. (2023), Han et al. (2016), Kumawat & Patel (2022), Mallik & Kashiramka (2024)
Control Variable	Size		Log of Assets	Bloomberg	Boulhaga et al. (2023), Clarkson et al. (2013), Mallik & Kashiramka (2024), Singh & Misra (2021)
Control Variable	Age		The total period since incorporation	Bloomberg	Boulhaga et al. (2023), Chtourou & Triki (2017)

Group 1

Model 1

$$ROE = \beta_0 + \beta_1 ESGscore_{i,t} + \beta_2 L\_SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 L\_AGE_{i,t} + \varepsilon_{i,t}. \quad (1)$$

Model 2

$$ROA = \beta_0 + \beta_1 ESGscore_{i,t} + \beta_2 L\_SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 L\_AGE_{i,t} + \varepsilon_{i,t}. \quad (2)$$

Group 2

Model 3

$$ROE = \beta_0 + \beta_1 ENVscore_{i,t} + \beta_2 SOCscore_{i,t} + \beta_3 GOVscore_{i,t} + \beta_4 L\_SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 L\_AGE_{i,t} + \varepsilon_{i,t}. \quad (3)$$

Model 4

$$ROA = \beta_0 + \beta_1 ENVscore_{i,t} + \beta_2 SOCscore_{i,t} + \beta_3 GOVscore_{i,t} + \beta_4 L\_SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 L\_AGE_{i,t} + \varepsilon_{i,t}. \quad (4)$$

3. RESULTS

The descriptive statistics for the variables are detailed in Table 3. The minimum ESG score is 20.8, while the maximum is 77.608. The range of ENV score is from 0.42 to 77.29. The GOV score varies between 40.2 and 98.615, while the SOC score ranges from 4.806 to 91.1. Amongst the three sub-components, the GOV score is maximum at 98.615. Furthermore, the accounting performance measures show a mean of 18.674% for ROE and 10.143% for ROA. The control variables of Log Size, Log Age, and LEV indicate a mean of 1.759 for Log Size, .527 for Log Age, and 3.996 for LEV.

Table 4 depicts Pearson's correlation matrix for the control, independent, and dependent variables. As the ENVscore, SOCscore, and GOVscore are components of the total ESG score, predictably, all three are positively correlated. However, the SOCscore and GOVscore indicate a negative correlation with each other. The total ESG score negatively correlates with ROE, ROA, and LEV and shows an insignificant positive correlation with size and age. The variance inflation factors (VIF) were calculated to test for multicollinearity. Severe multicollinearity exists when VIF is higher than 10. Table 5 represents the multicollinearity

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Table 3. Descriptive statistics

Variables	Observations	Mean	Std. Dev.	Min	Max	Skew.	Kurt.
ESGscore	343	48.687	11.754	20.8	77.608	.152	2.581
ENVscore	343	33.532	20.515	.42	77.29	.123	2.027
SOCscore	343	33.524	16.789	4.806	91.1	1.162	4.448
GOVscore	343	80.829	9.732	40.2	98.615	–1.671	6.767
ROE	343	18.674	16.745	–43.325	105.755	1.532	9.599
ROA	343	10.143	9.282	–10.121	49.48	1.159	4.486
LEV	343	2.311	3.996	.086	23.776	3.077	13.104
Log Size	343	12.744	1.759	8.713	17.727	.433	3.028
Log Age	343	3.774	.527	2.639	4.745	.069	1.963

Table 4. Correlation matrix

Variables	ESGscore	ENVscore	SOCscore	GOVscore	ROE	ROA	LEV	Size	Age
ESGscore	1.000								
ENVscore	0.845	1.000							
SOCscore	0.507	0.534	1.000						
GOVscore	0.479	0.251	–0.214	1.000					
ROE	–0.137	–0.090	–0.097	–0.105	1.000				
ROA	–0.114	0.018	0.241	–0.351	0.770	1.000			
LEV	–0.224	–0.323	–0.163	–0.030	–0.068	–0.330	1.000		
Size	0.221	0.114	0.096	0.167	–0.330	–0.403	0.341	1.000	
Age	0.024	0.070	–0.054	0.137	0.051	–0.006	–0.141	0.224	1.000

for Group 1 Models (Model 1, Model 2), and Table 6 states the multicollinearity for Group 2 Models (Model 3, Model 4).

Table 5. VIF for Group 1 variables

Variable	Variance Inflation Factor	1/Variance Inflation Factor
ESGscore	1.19	0.838266
Log Size	1.40	0.713239
LEV	1.36	0.735557
Log Age	1.13	0.884798
Mean VIF	1.27	

Table 6. VIF for Group 2 variables

Variable	Variance Inflation Factor	1/Variance Inflation Factor
ENVscore	1.91	0.522888
SOCscore	1.74	0.573339
GOVscore	1.35	0.741507
Log Size	1.36	0.734919
LEV	1.41	0.706989
Log Age	1.14	0.878050
Mean VIF	1.49	

The variables' stationarity was tested before undertaking panel data regression analysis (Chelawat & Trivedi, 2016; Kumawat & Patel, 2022) using the Levin-Lin-Chu test. Table 7 indicates that the data series is stationary. The study tests the data using static panel data approaches like the Fixed effects model (FEM), pooled OLS, and Random effects model (REM), and findings are displayed in Table 7. Similar approaches have been used by Velte (2017), Atan et al. (2018), Bodhanwala and Bodhanwala (2018), and Yilmaz (2021). After the associated tests, the Hausman test and the Breusch-Pagan Lagrangian Multiplier Test (Kumawat & Patel, 2022) were applied, and each of the four models was matched to a suitable model. Table 7 (Panel B) indicates the statistical outcome. The suitability of the pooled OLS Model vis-à-vis the Random Effects Model is determined by the Breusch-Pagan LM test. On the other hand, the Hausman Test compares the estimators of the random effect model and the fixed effect model. The random effects model is chosen as the null hypothesis is accepted for all models. Table 7 (Panel C) indicates the diagnostic test conducted to check FEM/REM consistency. Autocorrelation occurs when residuals from one period correlate with another (Kumawat & Patel, 2022). Since the alternative hypothesis is accepted, the result suggests that the panel data exhibit serial correlation (refer to Table 7, Panel C). Another problem in panel data is the condition of heteroscedasticity (Kumawat & Patel,

Table 7. Panel regression results (FEM/REM)

Dependent Variables	Model1	Model 2	Model 4	Model 5
	ROE(REM)	ROA(REM)	ROE(REM)	ROA(REM)
ESGscore	–.01676 (–0.19)	–.09823* (–2.44)		
ENVscore			.001924 (0.03)	–.05632** (–1.96)
SOCscore			.0201586 (0.27)	.17697*** (5.67)
GOVscore			.0272651 (0.26)	–.131701*** (–3.03)
Log Size	–3.3828*** (–3.42)	–.94646* (–1.85)	–3.52799*** (–3.53)	–1.26076*** (–2.66)
LEV	.4875 (1.19)	–.50966* (–2.46)	.52421 (1.26)	–.41498** –2.16
Log Age	4.01400 (1.13)	2.17673 (1.09)	3.874877 (1.08)	1.63524 (0.88)
_cons	46.32658*** (3.12)	19.95072 (2.53)	44.85721*** (2.81)	27.59911*** (3.64)
N	343	343	343	343
R^2	0.1303	0.0245	0.0105	0.1683
Probability Wald x^2	0.0119	0.0004	0.0468	0.0000
Panel B				
Breusch-Pagan Lagrangian Multiplier Test				
Chi square	314.88	495.25	304.22	480.88
Probability>chi^2	0.0000	0.0000	0.0000	0.0000
Hausman Test				
Chi square	2.79	9.00	5.56	4.96
Probability>chi^2	0.5933	0.0611	0.4748	0.5488
Panel C				
Wooldridge Test for Serial Correlation				
F-Statistics	24.966	74.980	22.462	67.955
Probability>F	0.000	0.000	0.000	0.000
Group-wise Heteroskedasticity Test				
Chi square	444.21	405.11	443.80	361.21
Prob.	0.0000	0.000	0.0000	0.0000

Table 8. PCSE regression estimate for variables of the study

	Model1	Model 2	Model 3	Model 4
	Return on Equity	Return on Asset	Return on Equity	Return on Asset
ESGscore	.04462 (0.58)	–.021642 (–0.56)		
ENVscore			.0065932 (0.12)	–.03717 (–1.43)
SOCscore			–.02510 (–0.38)	.13230*** (3.36)
GOVscore			–.021509 (–0.22)	–.15271*** (–3.47)
Log Size	–3.47201*** (–4.72)	–1.46085*** (–5.18)	–3.31678*** –4.97	–1.53452*** (–6.53)
LEV	.34425 (1.21)	–.48727*** (–3.81)	.28690 (1.02)	–.45173*** (–3.56)
Log Age	5.18269* (1.65)	1.100837 (1.16)	5.04679 (1.58)	1.70675 (1.79)
_cons	41.0139*** (2.75)	26.80126*** (4.88)	44.20829** (2.39)	33.51 (5.07)
N	343	343	343	343
R^2	0.1387	0.1586	0.1384	0.2529
Wald x^2	54.61	206.36	62.56	239.25
Probability Wald x^2	0.000	0.000	0.0000	0.0000

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2022), in which the error term is not constant. All models reject the null hypothesis (refer to Table 7, Panel C), indicating heteroscedasticity.

Since the data have autocorrelation and heteroscedasticity, the diagnostics indicate inconsistent results, and ultimately, the panel-corrected standard error (PCSE) technique is applied. This method is a commonly adopted estimator. According to Beck and Katz (1995), it is an improved form of the 'inefficient ordinary least square' and outperforms the asymptotically efficient FGLS estimator in numerous cases. Beck and Katz (1995) propose keeping OLS parameter estimates but substituting the panel-corrected standard errors with OLS standard errors in PCSE. Table 8 summarizes the outcome of the PCSE estimator.

4. DISCUSSION

Group 1 Models show a non-significant influence of the ESG score on the profitability of companies as represented by ROE and ROA. Several past studies also noted these findings on *H1* (Crisóstomo et al., 2011; Jha & Rangarajan, 2020). While studying Malaysian companies, Atan et al. (2018) found that combined and separate components fail to impact firm profitability. Kalia and Aggarwal (2023) posit that although entities in developing economies initiate ESG practices to build investor confidence, it is perceived as an extra cost. ESG initiatives are viewed as high-cost activities in emerging markets. The statistical outcome of the first model indicates that log size and log age are significant control variables. The positive coefficient of log Age indicates that companies in business for a more extended period have higher profitability. Log Size has a negative coefficient, implying smaller firms have higher profitability. Models 1, 2, 3, and 4 indicate that size is a significant control variable with a negative coefficient. Hasan et al. (2022) confirmed that in the Indian setting, size adversely impacts a firm's performance, which corroborates the findings. Model 2 and Model 4 indicate LEV as a significant control variable with a non-positive coefficient. This highlights that firms with higher ESG scores, ENV scores, SOC scores, and GOV scores will have lower financial risk. According to Model 5, the SOC score significantly and positively influences ROA, which supports *H2* of the study. This finding is consistent with Velte's (2017) conclusion that a significantly favorable association exists between the SOC score and ROA. Further, Laskar et al. (2017) also deduced that social factors influence financial performance more than environmental and economic factors in the case of Indian companies. One possible explanation of this finding could be the introduction of compulsory Corporate Social Responsibility (CSR) expenditures as mandated by the Companies Act 2013 in India. Another explanation could be that customers could be more motivated to acquire goods or accept services from a firm that demonstrates socially responsible behavior, resulting in higher sales and profitability (Sen & Bhattacharya, 2001).

Model 4 also indicates a negatively significant effect of the GOV score on ROA. Guney et al. (2020) discovered a robust negative correlation between their measure of corporate governance quality and return on assets. They have explained this by mentioning that vital governance initiatives require significant time and resources, reducing profitability. This study has some limitations. It has considered accounting measures of performance. Future studies can include market-based measures. The existing study considers companies from all sectors. Future studies can focus on a specific sector. It will be interesting to see how corporate governance measures impact the SBPs and profitability relationship, and future studies can explore this area.

CONCLUSION

This study examines how the SBPs of 49 companies listed in the Standard & Poor's BSE 100 ESG Index impact their profitability. The results indicate that total ESG scores are statistically insignificant in influencing profitability measures such as ROA and ROE. However, the social score significantly impacts ROA, while the governance score has a negative impact. This may be because solid governance mechanisms require substantial investment and can reduce profitability in the short run. As a control variable, leverage shows a significant negative impact on profitability, indicating that SBPs reduce financial risk. Firm size has a negative effect on profitability.

These findings have several theoretical, managerial, and academic implications. The study enhances the understanding of ESG scores and their sub-components (environmental, social, and governance), emphasizing their differing impacts on profitability. The positive effect of the social score on ROA highlights the crucial role of social performance and aligns with the principles of Stakeholder theory. The current study helps corporate leaders identify actionable improvements within the environmental, social, and governance areas that may enhance their performance. The relationship between an organization's social impact and the financial outcome is critical for managers and investors. By evaluating how a firm's actions and policies in the social sphere affect its bottom line, stakeholders can make more informed decisions about its long-term viability and success. Companies with high social scores can create a strong brand for social responsibility. The regulators should enhance awareness of policies that prioritize social and environmental initiatives. Also, regulators should incentivize or reward corporations prioritizing non-financial performance and financial accomplishments. In addition, regulators may develop a policy framework that is more efficient by evaluating the ENV score, SOC score, and GOV score separately.

AUTHOR CONTRIBUTIONS

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