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CHHATRAPATI SHAHU INSTITUTE OF BUSINESS EDUCATION AND RESEARCH (CSIBER), KOLHAPUR, MAHARASHTRA, INDIA

(An Autonomous Institute)
University Road, Kolhapur - 416004, Maharashtra State, India.

website : www.siberindia.edu.in
E-mail : editorsajmr@siberindia.edu.in

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Website: www.siberindia.edu.in
Email: csiberpress@siberindia.edu.in
Editor Email: editorsajmr@siberindia.edu.in

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The Impact of Environmental, Social, and Governance (ESG) Reporting on Corporate Value: An Empirical Evidence from India

Neelam
Research Scholar,
University Business School, Panjab University, Chandigarh, Punjab, India

Dr. Purva Kansal
Professor,
University Business School, Panjab University, Chandigarh, Punjab, India

Dr. Keshav Malhotra
Professor,
Department of Evening Studies-MDRC, Panjab University, Chandigarh, Punjab, India

Abstract

Environmental, Social, and Governance (ESG) reporting have emerged as critical determinants of corporate value and investor decision-making in recent years. As global challenges such as climate change, social inequality, and governance failures have come into sharper focus, stakeholders around the world increasingly demand greater transparency and accountability from corporations. As we know that, India is a rapidly growing economy characterized by evolving regulatory frameworks and diverse socio-economic challenges, therefore, this study investigates the impact of ESG disclosures on corporate value, with a specific focus on firms operating in India. The study uses 255 sample companies listed in Bombay Stock Exchange (BSE-500 Index) from 2019 to 2023. The overall and individual environment, social, and governance (ESG) disclosure scores taken as a proxy to measure the effect of ESG disclosure on corporate value. For the purpose of ESG disclosure score, self- developed framework is used. Further, this study considers the return on assets (ROA), return on equity (ROE), return on capital employed (ROCE), Tobin's Q, Price Earnings ratio (P/E ratio), and Price to Book value ratio (P/B ratio) as corporate value measures. In this study, panel data regression analysis is used to examine the influence of ESG disclosures on corporate value of the firm. The study results show a positive relationship between ESG disclosure and firm performance. It suggests that companies' desire to enhance their performance need to pay more attention towards sustainability and ESG disclosures. The findings underscore the critical role of regulatory initiatives in shaping corporate ESG practices. This study confirms that ESG disclosures are not merely a regulatory requirement but a critical determinant of corporate value in the Indian market. By fostering greater transparency and accountability, ESG practices enhance firm resilience and attractiveness to stakeholders. As sustainability becomes a central tenet of business strategy, companies that proactively embrace ESG principles are likely to sustain long-term value creation in an increasingly conscientious market landscape.

Keywords: ESG, Corporate Value, Sustainability, ESG Disclosure, ESG Reporting, Sustainability Reporting

Introduction

The rising significance of Environmental, Social, and Governance (ESG) disclosure in corporate reporting reflects a broader shift towards sustainable and ethical business practices. Due to the modern concept of sustainability, the markets have grown more competitive and dynamic, which has created tremendous pressure on corporations to achieve long-term sustainability and profitability (Malik and Kashiramka, 2024). ESG reporting practices focus on transforming corporations into accountable entities that take social and environmental issues seriously through which long-term sustainability can be achieved (Alshehhi *et al.*, 2018). Therefore, Environmental, Social, and Governance (ESG) is critical to businesses and the expansion of the economy as a whole. These factors are being given weightage in any informed investment decision by all types of investors (Maji and Lohia, 2023). Because of the significant effect of these nonfinancial factors on future cash flows of a business, they are considered equally important on par with financial information. Regulatory frameworks across the globe have also begun to promote and regulate the disclosure of ESG information either in annual reports or as separate reports. These ESG issues also have a significant bearing on the financial and market performance of companies. Therefore, it is important to identify the influence of these ESG disclosures on corporate value. To fill this research gap, this study is conducted to examine the impact of ESG reporting disclosures on the value of corporations.

The review of literature highlighted that a number of studies have been conducted on examining the association between ESG reporting and firm performance (Hamrouni *et al.*, 2019; Alareeni and Hamdan, 2020; Ademi and Klungseth, 2022) in a country where ESG reporting is mandatory. Similarly, the literature also highlighted studies in the Indian context (Maji and Lohia, 2023; Rao *et al.*, 2023; Malik and Kashiramka, 2024), conducted based on the scores taken from ESG credit rating agencies and traditional measures of performance. However, this study differs from and extends previous literature in two ways. First, the study analyses the extent of ESG reporting practices of sample companies through self- developed ESG framework particularly for Indian

companies. Second, it investigates the influence of ESG disclosures and corporate value using ESG scores collected from a self-developed ESG framework. Therefore, this study provides a comprehensive view of ESG disclosure and corporate value.

Research Objectives

The study has the following objectives:

- To Examine the Extent of ESG Reporting practices of the selected companies in India.
- To Analyse the Impact of ESG Reporting on corporate value.
- To Provide Recommendations for Enhancing ESG Reporting Practices.

Review of Literature

In this section, previous literature related to the various theories studied and used to develop the conceptual framework and research questions for the study. There are various theories related to sustainability and ESG reporting. However, the most relevant theories are stakeholder and legitimacy theory. The stakeholder theory has a root cause for developing sustainability reporting and ESG disclosure (Freeman, 1984; Velte, 2017). As sustainability decision-making is closely linked to stakeholders' demands, the ESG reporting idea is also linked to stakeholder theory, which emphasises that companies are expected to meet the needs of stakeholders both primary as well as secondary to the firm (Freeman and McVea, 2001). Freeman (1984) defines the stakeholder as internal and external: workers, customers, suppliers, local community and organization. The stakeholder theory aims to maximizing the shareholder's wealth, winning the shareholders trust, and reducing managerial cost. Gray *et al.* (1995) employed stakeholder theory and states that as the stakeholder is more important to the organisation, the more effort should be made to maintain good relationship with them. As a result, businesses frequently employ information to manage or manipulate stakeholders in order to gain their support for organisational survival, as well as a strategic marketing strategy to promote a positive image among their constituents. The other prior studies who employed stakeholder theory to examine the impact of ESG reporting on firm performance includes Phillips (2003) and Tamimi and Sebastianelli (2017). Legitimacy theory states that there is an apparent contract between company and society which requires company to fulfil their societal obligations and follow societal norms to ensure their survival (Burhan and Rahmanti, 2012). Similarly, Deegan (2002) states that the society allows corporations to own and use natural resources and to hire employees. Therefore, the organizations have the permission to operate from society and is ultimately accountable to society for how it operates and what it does. If society feels that an organisation has broken its share of the social contract, the organization's survival will be jeopardised. As a result, legitimacy is regarded as a strategic resource on which an organization's sustainability is predicated (Dowling and Pfeffer, 1975). Legitimacy theory is also frequently used by social and environmental academics to explain why corporate management takes certain measures, such as revealing specific social and environmental facts as part of its economic strategy. For example, (Lindblom,1994; Deegan,2002; Patten,2005) employed legitimacy theory as the theoretical framework for environmental and social reporting. It indicates that legitimacy theory is a positive theory that aims to explain or forecast specific managerial activities. The literature also highlighted other theories i.e., signalling theory, resource- dependency theory and social contract theory in relation to sustainability of an organization. However, the two most prominent theory for ESG reporting are legitimacy and stakeholders' theory. As a result, this study will use the legitimacy as well as stakeholder theory to examine the motivation for ESG reporting in India.

ESG Disclosure and Firm Performance

There are number of studies who have analysed the relationship between ESG disclosure and firm performance. Balatbat and Carmicheal (2012) analysed impact of ESG (environmental, social and governance) practices on the financial performance of companies listed in Australian Securities Exchange for the period of 2008-2010. They found positive relationship between ESG scores and firm performance. In the international context, the other studies (Atan *et al.*, 2016; Tarumji *et al.*, 2016; Fatemi *et al.*, 2017; Bodhanwala and Bodhanwala, 2018; Yu *et al.*, 2018; Albitar *et al.*, 2019; Triyani *et al.*, 2020) also found positive relation of ESG scores with firm value and performance. In Indian context, studies (Chelwat and Trivedi, 2016; Dalal and Thaker, 2019) examined the influence of ESG factors on the performance of Indian public limited companies in terms of profitability and the value of the firm. They found that good corporate ESG performance enhances financial performance through both accounting as well as market-based measures.

The literature also highlighted number of studies showing no impact of ESG reporting on corporate value. For example, Farooq (2015) examined impact of ESG disclosures on firm performance of emerging markets. They found that there was no significant impact of ESG scores on firm profitability as well as shareholder's wealth. Farooq (2015) also suggested that the ESG information is not valued by stock market participants in the

emerging markets. There are other studies as well, such as (Atan *et al.*, 2017; Junius *et al.*, 2020) evidencing no significant impact of ESG reporting on corporate value.

The number of literatures also shows mixed results related to ESG reporting and corporate value. For example; Velte (2017) examined the impact of ESG performance on the corporate value of German companies for the year 2010-2014. They have used two measures for corporate value i.e., ROA and Tobin's Q. He found that ESG performance had positive impact on ROA but no impact on Tobin's Q. Therefore, the author found a mixed result. He also showed that governance had the strongest impact on firm value as compared to environmental and social component of ESG performance. The other important evidence was provided by Buallay (2019) who made a comparison between manufacturing and banking sectors in relation to the level of ESG reporting and its impact on operational, financial and market performance. He showed that ESG positively affect the operational, financial and market performance in the manufacturing sector whereas negatively affect the operational, financial and market performance in the banking sector. In the Indian context as well, Fahad and Busru (2020) investigated the effect of ESG disclosure on both firm profitability and firm value among Indian companies. They have analysed 386 Indian firms for the period of 2007-2016. They found negative impact of ESG disclosure on firm profitability but positive impact on firm value. The other author which evidenced mixed results for different dimensions of ESG disclosures are (Bullay 2017; Yoon *et al.*, 2018; Sharma *et al.*, 2019; Alareeni and Hamdan,2020).

To summarise, it can be seen that the findings of the studies have been mixed, as evidenced by the preceding discussion. It also highlighted the mixed result which create confusion. Therefore, it highlighted a need to revisit the findings from time to time, and more research so that clearer view can be provided. Furthermore, the limitations of these studies reveal a research gap that must be addressed, particularly for S&P 500-listed companies. Therefore, this study is conducted to analysed the impact of ESG disclosure on corporate value.

Research Questions

On the basis of the review of literature, the study has two main research questions. These are as follows:
(RQ1): What is the current state of ESG reporting practices among Indian corporations?
(RQ2): What is the impact of ESG reporting on the financial performance and market valuation of companies in India?

Data and Methodology

The initial sample of the study includes all companies listed on the BSE 500 index as on March 31 2021. Review of literature indicated that there are certain types of companies, which are not apt for determining their ESG practices. Therefore, all the public sector companies, banking and financial companies and non- financial companies like communication and trade were deleted from the sample of BSE 500 companies. After that, the companies having different financial year and companies with missing data were also deleted. It all resulted in final sample of 255 companies over the period of 2019-2023.

ESG Disclosure Measures

In order to achieve the objective of the study, the study has used ESG scores of sample companies. For ESG scores, ESG framework has been developed for companies in India using different standardized framework i.e., GRI framework, Dow Jones ESG index, NASDAQ ESG Index, WEF stakeholder capitalism matrices, and national guidelines provided by SEBI. In order to collect ESG scores of sample companies, content analysis methodology is adopted. The content analysis of annual reports of the sample companies is conducted based on the developed ESG framework.

Construction of ESG Disclosure Index

A methodology has been adopted to develop ESG reporting index based on the research methodology and works of previous researcher (Garg, P., 2017; Aggarwal and Singh, 2018; Goel, P., 2018; Sharma *et al.*, 2020). The following criterion has been used for the construction of the ESGD Index:

- The Environment, Social, and Governance themes and items of the developed index is based on four international frameworks i.e., GRI framework, Dow Jones ESG index, NASDAQ ESG Index, WEF stakeholder capitalism matrices, and one Indian framework i.e., national guidelines provided by SEBI for the preparation of Business Responsibility & Sustainability Report (BRSR).
- To identify initial disclosure, a total of the disclosures of each selected indices and framework has been done.
- To select final disclosures out of those initial items, the content analysis of the selected standardized index was undertaken to delete same and repetitive items. It resulted in 135 items.

- After that, the index is tested for face validity. The face validity of the index was established after the modifications which were made on the basis of the advice received by experts in the area of ESG. The final index consists of 95 items.
- In order to identify the factors, exploratory factor analysis was conducted. A questionnaire was created using the ESG disclosure items to gather stakeholders' opinions on company ESG reporting. The factor analysis reduced the items to 90 items in developed ESG index.
- The constructed index has been checked for its reliability by calculating cronbach's alpha. The scale comprised of three factors constituting a total of 90 items. The reliability coefficient indicated that the instrument is quite reliable as the alpha coefficient is 0.923 (>0.60).

Coding of ESG Reporting Framework

To check the extent of ESG reporting made by the companies, a scoring methodology has been adopted from the previous literature (Kansal *et al.*, 2014; Garg, 2017; Sekhon and Kathuria, 2019). A disclosure is given a score of zero (0), if no information is being provided; one (1), if information is provided but neither qualitatively nor quantitatively, i.e., very general things are discussed about a particular disclosure; two (2), if information is being provided qualitatively only, i.e., how the company intends to complete the task for that particular disclosure; three (3), if the information is provided with monetary figures as well. This dimension is adopted as information on ESG is highly subjective, it cannot be actually measured in terms of 'yes' or 'no' only.

Corporate Value Measures

The study measures corporate value based on two dimensions: accounting and marketing-based measure. The indicators of accounting-based measure include ROA, ROE, and ROCE whereas, the marketing- based measures includes Tobin's Q, P/E Ratio, and P/B ratio. These variables are frequently used as dependent variables to measure the corporate value by employing suitable panel data regression models in prior studies (Chelawat and Trivedi; Velte, 2017; Bodhanwala and Bodhanwala 2018; Xie *et al.*, 2018; Buallay, 2019; Alareeni and Hamdan, 2020; Shaikh, 2021; Vellimuthu *et al.*, 2024). ROA is used as a measure for comparing the performance of a company relative to its total assets (Jha and Rangarajan,2020). Return on equity indicates how well the company has utilized the shareholders 'money in generating returns for them (Garg, 2015). Return on capital employed (ROCE) used for comparing performance between businesses as a company which earns higher returns per rupee of capital invested in business generates more value (Chelawat and Trivedi,2016). Tobin's Q is defined as the ratio of the market value of the firm to the book value of total assets, where the market value is measured by the sum of the market value of equity and the book value of total liabilities (Gill and Kaur, 2015). Price Earnings ratio is another market value-based performance measure that signifies earning capacity of the firm by calculating the price per share divided by earnings per share (Kothari and Sloan, 1992; Kang *et al.*, 2010). Finally, Price to Book Value ratio (PBV) is defined as a comparison between the stock price (market value of shares) and the book value of shares (Brigham and Gapenski, 2006). The data related to the corporate value is collected from prowess database for the period 2019-2023.

Control Variables

In addition to the variables discussed above, a number of control variables is also included in the study. As the study aimed at determining whether there exists any relation between corporate value and ESG scores, it is imperative that other influencing aspect of ESG reporting and corporate value or both should be controlled. The control variable used in the study have been derived through a review of prior literature (Garg, 2015; Arayssi *et al.*, 2016; Chelawat and Trivedi, 2016; Velte, 2017; Yu *et al.*, 2017; Dalal and Thaker, 2019; Jha and Rangarajan, 2020). The literature indicates multiple number of control variables. However, the most used control variable in the similar kind of studies have been taken. In this study, to control for companies-specific characteristics size of the company, age of the company, leverage of the company, risk are taken as control variable. The data related to the control variable is collected from prowess database for the period 2019-2023.

Methodology

In order to examine the impact of ESG disclosure on the corporate value, the study has used panel regression analysis by employing six panel regression models. Theses panel regression models are as follows:

Model 1: $ROAit = \alpha i + \beta 1\ ESGDSit + \beta 2\ SIZEit + \beta 3\ AGEit + \beta 4\ LEVit + \beta 65RISKit + \varepsilon it$

Model 2: $ROEit = \alpha i + \beta 1\ ESGDSit + \beta 2\ SIZEit + \beta 3\ AGEit + \beta 4\ LEVit + \beta 65RISKit + \varepsilon it$

Model 3: $ROCEit = \alpha i + \beta 1\ ESGDSit + \beta 2\ SIZEit + \beta 3\ AGEit + \beta 4\ LEVit + \beta 65RISKit + \varepsilon it$

Model 4: $TOBINQit = \alpha i + \beta 1\ ESGDSit + \beta 2\ SIZEit + \beta 3\ AGEit + \beta 4\ LEVit + \beta 65RISKit + \varepsilon it$

Model 5: $P/Bit = \alpha i + \beta 1\ ESGDSit + \beta 2\ SIZEit + \beta 3\ AGEit + \beta 4\ LEVit + \beta 65RISKit + \varepsilon it$

Model 6: $P/Eit = \alpha i + \beta 1\ ESGDSit + \beta 2\ SIZEit + \beta 3\ AGEit + \beta 4\ LEVit + \beta 65RISKit + \varepsilon it$

Where, αi refers to intercept, β represents regression coefficients that capture the impact of ESGDS on corporate value, *ROAit* denotes return on assets that refers to accounting based measure, *ROEit* indicates the return on

equity referring to a financial-based measure, *Tobin's Qit* represents market based performance measures, *PEit* denotes price earnings ratio which refers to a market value-based measure, *SIZEit* indicates the natural logarithm of total assets used as a proxy for firm size, AGEit indicates the natural logarithm of the number of years since the company's inception used as proxy of firm age, *LEVit* represents the debt-equity ratio which is used as a proxy for leverage, *RISKit* is calculated as beta which represent the risk associated with different firm, *i* and *t* represent individual firms from 1 to 255 firms and the time period from 2017 to 2021, *eit* refers to the error term.

In order to check the influence of ESG disclosure on the corporate value, the study employs three panel regression models, pooled, random, and fixed effects models (Chelawat and Trivedi, 2016; Dalal and Thaker, 2019; Buallay, 2020; Hongming *et al.*, 2020; Vellimuthu *et al.*, 2024). The data used in the study is firstly screened for stationarity using Levin-Lin-Chu test, before running the panel regression. Normality testing was not undertaken because normality of data is not a presumption in panel data (Chelawat and Trivedi, 2016). The study also used Hausman specification test to choose the most suitable regression model for the analysis. The authors have also used the variance inflation factor (VIF) and correlation matrix to check the multicollinearity problem. Further, the authors have used based on prior studies (Chelawat and Trivedi, 2016; Dalal and Thaker, 2019; Hongming *et al.*, 2020) Wooldridge test for autocorrelation among variables of the study and Breusch–Pagan/Cook–Weisberg test for testing heteroscedasticity.

Empirical Analysis

Table 1 presents the descriptive statistics of all the variables considered in the study. It consists of ROA, ROE, ROCE, Tobin's Q, P/E ratio, and P/B Ratio, ESG disclosure score, firm size, firm leverage, firm age, and risk. The corporate value measures such as ROA exhibit an average of 8.68%, a maximum of 47.50%, and a minimum of -88.41% respectively. It can be seen that a few companies have their negative and declining performance which leads to accounting losses. The ROE reports an average value of 16.85%, and the range between maximum and minimum is 331.30 and -225.16%, which indicates that few companies incur financial losses. Similarly, the ROCE shows an average of 11.98% with a maximum and minimum of 83.38% and -316.15%., which indicates that few companies are not generating enough profit from its capital. In terms of marketing- based measure of corporate value, the mean value of Tobin's Q is 9.95, a maximum of 91.27%, and a minimum of 0.01, indicating that sample companies have a higher market value than the book value of total assets. The price earnings ratio generates an average of 74.14% and a maximum of 3176.32%, which is very high compared to a minimum of -0.83%. The Price to book value ratio shows an average of 16.11% and a maximum 4806.73%, which is also very high as compared to its minimum of 0.03%. The standard deviation of ROA, ROE, ROCE, Tobin's Q, Price to book value ratio, and the price-earnings ratio are 9.76, 25.16, 20.33, 206.21, 175.81, and 10.72 respectively. The higher standard deviations imply that the sample companies have significant accounting, financial, and market values.

Table 1: Descriptive Statistics.

Variables	Mean	Std. Deviation	Skewness	Kurtosis	Minimum	Maximum
ROA	8.6869	9.70978	-2.507	24.979	-88.41	47.50
ROE	16.8540	25.16629	3.370	75.582	-225.16	331.30
ROCE	11.9892	20.33903	-7.746	106.984	-316.15	83.38
P/E	74.1432	206.20925	12.275	171.617	-0.83	3176.32
P/B	16.1082	175.80561	26.646	724.740	0.03	4806.73
Tobin Q	9.9528	10.72258	2.993	13.179	0.01	91.27
ENV Score	33.47	14.956	0.112	-0.790	4	68
SOC Score	63.47	18.231	-0.113	-0.275	3	108
GOV Score	53.30	10.356	-0.272	-0.009	11	76
Quan ESGD Score	62.28	12.161	-0.306	0.094	15	88
Qual ESG Score	150.24	38.418	0.034	-0.483	26	243
FIRM SIZE	8.0531	1.79443	-1.640	8.364	-3.00	13.79
FIRM AGE	3.5251	0.77408	-1.735	5.184	0.00	5.06
LEV	0.5642	0.21185	-1.765	9.919	-1.25	1.00
RISK (Beta)	1.0545	0.36336	0.147	0.407	-0.40	2.40

Source: Author's Calculation

The descriptive statistics shows that the average ESG disclosure score of the sample companies is 62.28, which is very less compared to ESG disclosure scores in developed countries like USA, UK, Europe, and Germany. Generally, the average mean value of the ESG score is more than 70, indicating that companies achieve good returns in terms of ESG reporting. The maximum of 88 and minimum of 15 show that many sample companies have not provided enough ESG information. The quantitative score of environments, social, and governance dimension indicate that the companies are proving least information on environment dimension and most information on social dimension. The result also shows that the companies are providing more information on the mandatory disclosure as compared to voluntary disclosures. It indicates that the companies are fulfilling only the regulatory requirement in terms of ESG disclosure implying that companies in India are motivated by the legitimacy theory for proving the ESG information.

In order to use panel regression, it is necessary to test the stationarity of data using Levin-Lin-Chu panel unit root test (Levin Lin Chu, 2002). Table 2 displays the panel unit root test findings, including modified t statistics and probability results. All variables are statistically significant, indicating that the null hypothesis is rejected. Therefore, the data series is considered stationary at the level.

Table 2: Levin-Lin-Chu Test

Variables	Statistics	Probability
ROA	-35.008	0.000
ROE	-58.004	0.000
ROCE	-13.907	0.000
TOBIN Q	-45.966	0.000
P/B	-108.03	0.000
P/E	-230.01	0.002
ESGD	-67.342	0.000
F_SIZE	-18.001	0.000
F_AGE	-8.076	0.001
LEV	-98.023	0.000
RISK	-23.002	0.000

Source: Authors calculation

After checking stationarity of data, there is a need to check correlation among the independent variables and dependent and independent variables. Therefore, Table 3 reports the results of the correlation matrix to check the relationship between the variables. The correlation coefficients clearly show a high correlation between ROA and ROCE at 0.826, which indicates that ROA and ROCE are closely related. Similarly, the correlation coefficient of ROA and ROE is 0.63. It is noted from the results that ESG disclosure scores have positively correlated with ROA (0.07), ROCE (0.08) and Tobin's Q (0.148), respectively. In contrast, ROE (- 0.105), Price-Book ratio (-0.104) and price-earnings ratio (-0.08) negatively correlate with the ESG disclosure score. Further, the results reveal the absence of serial correlation between the variables, and most of the correlation coefficients are within the acceptable level of 0.8.

Table 3: Correlation Matrix

Correlations														
	ROA	ROE	ROCE	P/E	P/B	Tobin Q	ENV	SOC	GOV	ESG	FIRM SIZE	FIRM AGE	LEV	Beta
ROA	1													
ROE	.632**	1												
ROCE	.826**	.518**	1											
P/E	-0.015	-0.008	-.080*	1										
P/B	-0.034	.501**	-0.022	-0.012	1									
Tobin Q	.171**	.092*	.139**	0.038	0.008	1								
ENV	.129**	-0.053	-.129**	0.025	0.058	-.167**	1							
SOC	0.062	-0.045	-.076*	0.023	0.001	-.125**	.602**	1						
GOV	0.026	-0.038	-0.040	-0.045	-0.007	-.111**	.441**	.726**	1					
ESG	.073*	.105**	.089*	0.008	.104**	.148**	.779**	.923**	.815**	1				
FIRM SIZE	-.072*	-.174**	-0.056	-0.032	-.183**	-.180**	.080*	-0.029	-0.018	0.024	1			
FIRM AGE	.096**	0.026	.100**	-0.002	-0.017	-0.057	-0.021	-0.015	-0.002	-0.016	.444**	1		
LEV	.442**	.260**	.381**	-.082*	0.066	.083*	0.010	0.006	0.041	0.019	-.155**	0.038	1	
Beta	-.205**	-.098**	-.122**	0.029	.083*	-.128**	.103**	0.035	0.025	0.055	0.045	-0.010	-.096**	1
**. Correlation is significant at the 0.01 level (2-tailed).														
*. Correlation is significant at the 0.05 level (2-tailed).														

Source: Authors calculation

The panel data analysis does not have a problem with the high correlation between variables (Vellimuthu *et al.*, 2024). Furthermore, the study re-examines the magnitude of the coefficients using the variance inflation factor (VIF). The average VIF values fall below the 10 criteria (Vellimuthu *et al.*, 2024). Additionally, the study uses the variance influence factor (VIF) to test the multicollinearity problem. Table 4 displays the findings. The regression models' VIF findings unequivocally demonstrate that the collinearity value is less than 3. It shows that the study variables are free from multicollinearity problems and that none of our models show a serious multicollinearity problem. The results are consistent with the previous studies (Ott and Longnecker, 2001; Gujarati, 2003).

Table 4: Variance Inflation Factors (VIF)

Variables	ROA	ROE	ROCE	TOBIN Q	P/B	P/E
ESG	1.23	1.01	1.01	1.01	1.01	1.01
F_Size	1.2	1.2	1.2	1.12	1.2	1.23
F_Age	1.17	1.14	1.17	1.09	1.17	1.28
LEV	1.04	1.04	1.04	1.04	1.04	1.04
Beta	1.01	1.01	1.01	1.03	1.01	1.02

Source: Authors Calculation

The study also employs Wooldridge test to check the autocorrelation among the variables of the study. The result of the test reported probability value (0.0787) signifying that data is free from the probability of autocorrelation. In order to check the heteroscedasticity problem, Breusch–Pagan/Cook–Weisberg test is employed and the results exhibit that data is from the heteroscedasticity problem, as the *p* value (0.002) is less than 5%, confirming the homoscedastic nature of the data. Therefore, the data can be further analysed.

After pre-testing data for panel regression analysis, the panel data regression results are presented in Table 5. It uses six dependent variables to measure the corporate value: ROA, ROE, ROCE, Tobin's Q, price-book ratio, and price-earnings ratio. The Hausman test is employed to select the most appropriate model among three. The dependent variable Return on asset (ROA) is used as an accounting- based measure to assess the firms' accounting performance. The result of the Hausman test shows a value of 65.68 with a probability value of 0.000, indicating that the most appropriate model for explaining the results is fixed effect model as compared to pooled OLS and RE. The independent variable ESG disclosure score results shows a positive and statistically significant relationship with ROA. The results confirm that companies with better ESG reporting and commitment have more profitability. This result is in line with the prior studies (Bodhanwala and Bodhanwala,

2018; Xie *et al.*, 2018; Dalal and Thaker, 2019 Conca *et al.*, 2021; Zhang *et al.*, 2022; Vellimuthu *et al.*, 2024). The firm characteristics such as firm size and beta were found to be negative and statistically significant with accounting performance measures (ROA), highlighting that larger firms have lower profitability.

The next dependent variable i.e., ROE is also used as a proxy of accounting- based measure of corporate value to assess the firm's financial performance. According to the Hausman test results, the fixed effect model is the most efficient model for explaining the results of ROE (14.19). The ESG disclosure scores beta coefficient has a positive and statistically significant relationship with ROE. It encourages enterprises to focus on ESG reporting disclosure in order to improve financial performance. Furthermore, the ESG disclosure score improves the firm's corporate value. The findings are similar with previous research (Friede *et al.*, 2015; Laskar and Maji, 2016; Aboud *et al.*, 2018; Bodhanwala and Bodhanwala, 2018; Vellimuthu *et al.*, 2024). Firm control variables such as size and beta have a negative impact on the firm's financial success. It demonstrates that larger enterprises are less profitable than smaller firms.

Similar to ROA and ROE, the study has used return on capital employed (ROCE) as an accounting- based measure. In line with ROA and ROE, the Hausman test result identified the FE model to be more efficient and the relationship between ROCE and ESG disclosure are statistically significant. The results are consistent with Chelawat and Trivedi (2016) and Bodhanwala and Bodhanwala (2018) indicating better ESG reporting have a positive effect on corporate value.

The study used three proxy of marketing- based measure of corporate value i.e., Tobin's Q, P/B Ratio, and P/E Ratio. In case of Tobin's Q also, Hausman test showed the fixed effect model more efficient as compared to pooled OLS and random effect model. The results reveal that ESG disclosure scores have a positive and statistically significant relationship with Tobin's Q. It indicates that higher ESG disclosure positively influences market performance. Also, it enhances the firm's positive image and then firm performance. These results are in consonance with prior studies (Chelawat and Trivedi, 2016; Yu *et al.*, 2017; Dalal and Thaker, 2019; Hongming *et al.*, 2020; Vellimuthu *et al.*, 2024). The control variable, firm size, and beta have negative and statistically significant associations with market performance (Tobin's Q).

Along with Tobin's Q, the other marketing- based measure used in P/B ratio, which is used to measure the firms book value performance, and the Hausman test value shows 22.32 (0.0004) for the P/B ratio, indicating fixed effect model to be used. The results show that ESG disclosure scores are positive and significant. It implies that the P/B ratio is significantly influencing the firm's market value performance. The public consider the P/B ratio while making investment decisions. The findings are in line with the signalling theory because the public will perceive the company's sustainability activities as a signal for a positive act. The results align with previous studies Balatbat and Carmicheal (2012); Yoon *et al.*, (2018).

Finally, the P/E ratio is used to measure the firms market value performance. On contrary to other marketing-based measure, the Hausman test value shows 7.41 for the P/E ratio, which confirms that the random effect model is the most appropriate model for explaining the results compared to pooled OLS and FE. The results indicate that ESG disclosure scores are both positive and insignificant. This implies that the P/E ratio has no substantial impact on the firm's market value performance. The public does not consider the P/E ratio when making investing decisions. The findings contradict the signalling hypothesis since the public will interpret the company's sustainability initiatives as a signal for a positive action. The findings are consistent with prior studies (Junius *et al.*, 2020; Ting *et al.*, 2020; Vellimuthu *et al.*, 2024).

Table 5: Regression results of ESG disclosure score and corporate value

Variable s		ROA			ROE			ROCE			TOBIN Q			P/B			P/E	
	Pooled OLS	Random Effe	Fixed Effec	Pooled OLS	Random Effe	Fixed Effect	Pooled OLS	Random Effe	Fixed Effect	Pooled OLS	Random Effec	Fixed Effect	Pooled OLS	Random Effec	Fixed Effect	Pooled OLS	Random Effect	Fixed Effect
Intercept	12.98**	6.12**	5.17**	62.85***(3.82	43.74**	5.65**	23.36**	23.26**	23.31**(1.28	48.19***(6.93	54.06***(11.17	48.54***(7.35	39.71**(3.36)	37.86***(3.18	25.47***(1.27	51.26***(0.74	32.39***(5.81)	38.47***
	-2.1	-1.29	-1.11		-3.04	-0.27	-1.81	-1.94										-7.12
ESG	2.37**	1.08**	1.24**	8.76**	5.38**	6.81*	6.44**	6.49**	7.75**	5.25***	7.66***	9.78***	65.44**(-2.93)	63.31**	113.01**(-3.25	8.53	-5.85	-5.34
	-2.13	-1.1	-1.08	-2.82	-1.95	-1.85	-2.65	-2.83	-2.44	-4.01	-8.23	-8.53		(-2.80)		-0.32	(-1.77)	(-1.58)
F_Size	-0.31*	-0.69*	0.28**	-2.76***	-3.18***	-5.92***	-0.55	-0.35	1.22*	-1.23***	-0.43	0.17	22.19***(-5.52	22.81***(-5.17	57.84***(-5.05	-7.24	6.91***	7.26***
	(-1.54)	(-0.71)	-0.72	(-4.92)	(-4.76)	(-4.87)	(-1.25)	(-0.68)	-1.17	(-4.77)	(-1.64)	-0.45				(-1.49)	-6.27	-6.5
F_Age	1.18***	1.42**	3.65**	2.51**	3.98**	26.52**	2.79**	2.74**	2.94**	-0.29	-0.26	3.12*	13.91*	16.55*		5.93	-23.63***(-3.5	-26.89***(-3.7
	-2.55	-2.16	-1.47	-1.98	-2.25	-3.86	-2.73	-2.07	-0.43	(-0.54)	(-0.81)	-1.77	-1.49	-1.57	74.49***(4.52	-0.58		
LEV	19.22***(	12.49***(7.70	4.24**(2.05	27.29***(6.44	26.07***(5.49	24.11***(3.5	35.37***(10.78	30.01***(8.05	14.28**(2.50	2.24	0.21*	-1.73*	36.77*	41.68*	101.11*	-88.61**	2.11	2.79
										-1.27	-0.12	(-0.84)	-1.22	-1.27	-1.61	(-2.44)	-0.35	-0.46
Beta (Risk)	-4.19***	-2.95***	-2.55**	-4.20**	-3.13	-3.16	-4.43**	-2.59	-1.07**	-3.02**	-1.69**	-1.37**	51.55**(2.99)	52.12**	48.36**	13.67	-2.43	-2.41
	(-4.89)	(-4.70)	(-3.99)	(-1.75)	(-1.61)	(-1.54)	(-2.36)	(-1.59)	(-0.61)	(-2.98)	(-2.71)	(-2.16)		-3.09	-2.51	-0.66	(-1.13)	(-1.29)
R^2	0.24	0.22	0.58	0.28	0.18	0	0.17	0.2	0.16	0.23	0.15	0.17	0.35	0.25	0.15	0.11	0.15	0.09
Wald χ2 / F-statistic	45.55	93.14	5.05	55.12	68.6	8	30.49	83	4.61	12.83	99.49	20.55	10.19	47.53	9.52	34.08	47.35	10.12
LM test (pooled vs. FE or RE)		255.88			191.66			119.62			118.32			99.86			64.32	
		0			0			0			0			0			0	
Hausman test (RE vs. FE)		65.58 (0.000)			14.19			21.11			22.64			22.32 (0.0005)			7.41	
					-0.0108			-0.0008			-0.0004						-0.1921	

Source: Authors calculation, * ** p < .01, * * p < .05, * p < .1, t statistics are given parentheses

Discussion & Recommendation

The present study investigates the extent of ESG reporting practices of selected sample companies and how ESG disclosure scores influence the firm operational, financial, and market value performance of Indian firms. The study examines the efficiency of ESG disclosure scores on firm performance using 255 sample companies' data which are collected from their annual reports through developed ESG framework for the period from 2019 to 2023. The study used panel regression models such as pooled OLS, fixed, random effects. The ESG scores collected thorough developed framework indicated that the sample companies a are providing least information about environment dimension and the maximum information on social dimension. It indicates that the companies are motivated by the legitimacy theory, thus, fulfilling regulatory requirement only. The empirical results found that ESG disclosure scores significantly and positively influence the corporate value indicating companies with better ESG disclosures ultimately improve the corporate value.

This analysis helps researchers and businesses determine whether providing more ESG information continues to have an impact on a company's performance and valuation. The Study's empirical findings will help government officials and politicians understand how their regulations affect corporate performance and help them to make better policies. The findings will also assist business practitioners in overcoming concerns about the possible detrimental impact of ESG measures on firm performance, thereby promoting innovative and strategic adjustments in business models to capitalise on ESG prospects.

Overall, this study contributes valuable insights, However, based on the findings of this study, few recommendations can be made to enhance the adoption and effectiveness of ESG reporting in India which can contribute to improved corporate value. First, the regulatory authorities, such as SEBI (Securities and Exchange Board of India), should ensure stringent compliance and disclosure requirements for ESG reporting. A standardized ESG reporting framework particularly for Indian companies can provide consistency and comparability across industries. Second, Companies, particularly small and medium enterprises (SMEs) should be educated about the benefits of ESG reporting in enhancing stakeholder trust and corporate valuation. Third, Leveraging advanced technologies like AI, blockchain, and data analytics can enhance the accuracy, transparency, and efficiency of ESG reporting. Indian corporations should invest in digital tools to streamline their sustainability data collection, analysis, and disclosure processes. Fourth, companies must recognize ESG's role as a value driver rather than a compliance obligation. Investing in clean energy, social welfare initiatives, and strong governance mechanisms can lead to long-term financial and reputational benefits. Finally, stakeholders, including investors and consumers, should be educated on the importance of ESG practices to foster demand for responsible corporate behaviour. By implementing these measures, Indian corporations can maximize the dual benefits of improving corporate value and contributing to sustainable development.

Limitations & Future Scope of Research

This study provides valuable insights into the impact of ESG reporting on corporate value in India. However, several areas remain unexplored, offering opportunities for future research. First, as this study is focused on all companies listed in BSE-500 index, the future studies can focus on sector-specific impacts of ESG reporting, examining variations in the influence of ESG practices across industries such as finance, manufacturing, technology, and energy. This can provide tailored insights into the nuances of ESG reporting for different sectors. Second, current study is limited in scope, spanning only five years from 2019 to 2023, therefore, conducting longitudinal research will offer a more comprehensive understanding of its effects over time, considering evolving market conditions and regulatory changes. Third, Comparing the impact of ESG reporting on corporate value in India with other countries, particularly emerging and developed economies, could provide a global perspective and highlight best practices applicable to Indian corporations. Fourth, most research focuses on large corporations, but the implications of ESG reporting for SMEs remain underexplored. Future studies could evaluate the challenges and benefits of ESG adoption for smaller enterprises in India. Fifth, Investigating the behavioural aspects of corporate decision-making regarding ESG practices and reporting can shed light on the motivations and barriers influencing the adoption of ESG frameworks. Lastly, by advancing the understanding of ESG disclosure's influence on corporate value, this study aims to inspire further exploration and refinement in sustainable corporate practices and their financial implications.

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