Do ESG practices impact banks' performance? An empirical Analysis from the Indian Banking Industry

Dr. Ramesh Prasad
Department of Commerce and Management, St. Xavier's University
Kolkata; E-mail: ramesh.prasad@sxuk.edu.in

Abstract

The Present study enquire into the impact of ESG initiatives on Indian banks' performance with respect to market performance (Market Capitalization, Market Value Added) and operational performance (Return on Assets). This study employs three regression models on a dataset of 28 Indian banks (considering both public and private sectors), for the period of 2021-22. The dependent variables of the respective model include Market Capitalization (MC), Market Value Added (MVA), and Return on Assets (ROA). The ESG performance score, considered as a proxy for ESG practices, indicates an independent variable for which the data is extracted from the Refinitive database. Additionally, this study incorporates three control variables specific to banks, including the capital adequacy ratio, assets quality, and liquid assets. This study reveals mixed and inconclusive results regarding the connection between ESG practices and bank performance. Indian banks are compensated by deterioration (negative impact) in operational performance owing to the adoption of ESG practices. In contrast, adopting ESG practices leads to strengthening (significant positive impact) market performance. The preliminary findings of this study highlight that Indian banks have not wholeheartedly incorporated the ESG agenda. Indian banks are at the initial stage regarding adopting ESG practices since there is no standardized Indian guideline to embrace the ESG agenda, particularly for the Indian banking industry. So far as novelty is concerned, this pilot study is a modest first attempt to evaluate the ESG practices' impact on banking performance in the Indian framework. This type of research in the Indian scenario has not yet been empirically investigated to date. This study contributes noteworthy inputs for academicians, practitioners, policymakers, banking regulators, investors, and other stakeholders in the context of dynamic of sustainability behaviour of Indian banks.

Keywords: *ESG performance score, MVA, Market capitalization, Indian banks, ROA*

Paper type: Research paper

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1. Introduction

Environment challenges (carbon emission, climate risk, sustainable energy consumption and supply of products, green finance, and sustainable finance), social challenges (human rights, data privacy, healthy working environment, health & safety of employees, CSR strategy), and governance failure on account of the higher amount of NPA have become one the significant pressing concern for the banking institution at present era. In recent years, the concern for ESG practices has heightened their growing importance for financial institutions such as banks. Across the world, financial institutions are progressively acknowledging to embrace a broader spectrum of environmental, social, and governance responsibilities owing to intensified regulatory pressure relating to their lending and investment decisions, investors' demand for sustainable products, and a greater understanding of the long-term risk associated with unsustainable business practices. **Mondal and bauri (2022**) researched on environmental risk and stated that Climate risk is an emerging risk, affecting financial and operational activities of firms. The primary function of a bank is to accept deposits and lend to customers. However, banks are vulnerable to ESG ("Environment, Social, and Governance") risks both internally and externally. At present, environmental risk has become a severe concern for banks. Banks may lend to companies that engage in environmentally harmful activities and default on their loans due to pollution fines and other regulatory pressures. This could lead to losses for banks and an increase in non-performing assets (NPAs). Furthermore, banks that finance environmentally damaging activities may face public backlash and customer boycotts, resulting in increased reputational risk. Banks may also be exposed to environmental risk through their investments in assets that are sensitive to environmental factors, unsustainable practices of their customer, the supply chain they rely on, unsustainable bank activities (electricity consumption by banks without resorting to solar energy consumption), etc. These factors could lead to increased legal costs for banks and a decrease in customer volume due to their perceived irresponsibility towards environment. Additionally, banks are also exposed to social and governance risks, such as customer discrimination, human rights violation, failure to protect customer data from hackers, excessive executive compensation, and lack of transparency etc. These ESG risks are posing a significant challenge to banks' financial and market performance. It is, therefore, the integration of ESG initaitive has become an imperative task for banking institutions **(Menicucci & Paolucci, 2023; Mishra & Sant, 2023)**. Since, ESG has emerged as a substantial amount of corporate risk and has the potential to influence performance of bank **(Zhao *et al*, 2018; Srivastava, 2022; Gutiérrez- Ponce & Wibowo, 2023).** Hence, to mitigate ESG risk and generate shareholder value alongside sustainable performance. The financial

institutions have come to realize the importance of considering "environmental, social and governance" issues into their business model. ESG considerations have become increasingly significant within the banking sector, significantly influencing both market and financial performance (**Menicucci & Paolucci, 2023; Muré *et al.*, 2021; Shakil *et al.*, 2019; Buallay *et al.*, 2020; Azmi *et al.*, 2020; Ersoy *et al.*, 2022; Aras & Kazak 2022; Muré *et al.*, 2021).** They believe that a company with higher ESG performance is poised to deliver greater sustainable shareholder value and financial performance than weaker ESG performer companies. The growing awareness has led to increased interest among academicians, the research community, and policymakers to explore the nexus between ESG dimensions and bank performance.

Banking institutions are recognized as both creators of financial value and catalysts for fostering sustainable development (**Ersoy *et al.*, 2022; Menicucci & Paolucci, 2023**). In India, banking regulators are experiencing substantial pressure in the wake of the 2015 Paris Climate Agreement, the G20 Summit, and a close examination of the Climate Risk and Sustainable Finance report in 2022. As per the RBI circular issued in 2020, Indian banks are now obligated to compile annual reports encompassing ESG information and are required to follow TCFD guidelines, with assets exceeding 5000 Cr (**Kwatra, 2023).** Recent research by **Srivastava (2022)** suggests that Indian banks with a strong focus on ESG practices are likely to generate higher performance in comparison to non-ESG-focused banks. It is, therefore, the research on ESG practices' impact on Indian bank performance is gaining substantial interest. Despite this, previous literature has failed and neglected to address this contemporary issue in the Indian domain. Indian researchers to date have not yet extensively addressed the link between ESG practices and bank performance in India. There are dearth of literature available concerning the relationship between these factors. This raises a research question regarding whether the adoption of ESG practices by Indian banks leads to an improvement in their performance. Therefore, a pioneering effort has been undertaken to address this research question. The current paper is a novel attempt from an Indian standpoint. In our study, we have tried to shed new light on the following research question: Do the ESG practices of Indian banks influence market capitalization? Can ESG practices of Indian banks impact market value added? How do ESG practices affect Return on Assets for Indian banks? This study uses the ESG performance scores of respective Indian banks collected from the Refinitive database for 2021-22 and employed regression analysis. The central focus of this paper is to examine the ESG practices' impact on market capitalization, Market Value Added (MVA), and Return on Assets (ROA) of Indian banks. This pilot study holds wide practical implications and is of considerable significance for banking regulators, policymakers, prospective investors, and other stakeholders. The current research offers several noteworthy additions to the previous literature. Firstly, it enhances prior literature understanding regarding the connection between

ESG practices and diverse aspects of Indian banks' market performance and operational performance. Second, the results heighten the priority of ESG agenda in the Indian banking sector. The findings of this paper may be useful for banking regulators in designing effective ESG policies for Indian banks. This pilot study is the first modest attempt, as it covers the majority of the public and private sector banks in India. Furthermore, the current study incorporates market capitalization, market value added, and ROA which is not available in the Indian research paper.

The current study proceeds with the following sections. The beginning section covers with an introduction and then proceeds on to background theories, previous literature, and hypothesis framework. The third section covers research design and methodology followed by data analysis and a discussion of results. The last section ends with conclusions and practical implications.

2. Background theories, previous literature and proposed hypothesis

2.1 Background theories

The theme of ESG from a banking perspective has been extensively documented in previous literature (**Buallay *et al.*, 2020; Srivastava, 2022; Mishra & Sant, 2023; Menicucci & Paolucci 2023)**. Previous research by **Azmi *et al.* (2021), Menicucci & Paolucci (2023), Ersoy *et al.* (2022), Menicucci & Paolucci (2023), Bakri *et.al.* (2022), Khoury *et al.* (2023), Khlif *et al.* (2015)** used several theories, including stakeholders' theory, social contract theory, signalling theory, Agency theory, neoclassical theory, to establish the connection of ESG practices with banks' performance

In line with stakeholder theory, active involvement in ESG initiatives can serve as a foundation for gaining a competitive advantage while simultaneously ensuring stakeholders' interest in alignment with ESG commitments. However, the neoclassic theory proposes that involvement with ESG practices is supposed to raise operational costs; deteriorate corporate performance, and competitive disadvantages (**Friedman, 2007**). As a result, he believes that ESG and financial performance are negatively associated.

2.2 Previous studies and hypothesis formulation

There are several studies conducted in the context of ESG and bank performance. **Buallay *et al.* (2020)** using data from 232 listed banks in both developed and developing countries, evaluated sustainability reporting's impact on bank performance for eight years. He demonstrated that ESG affects market performance positively in developed countries' banks and insignificantly in the case of developing countries' banks. Further, ESG affects financial performance negatively in developed countries' banks and positively in the case of developing countries' banks. Another study by **Azmi *et al.* (2020)** worked on 251 banks from 44 emerging economies and observed the influence of ESG initiatives on the value of banks. They reported that a low degree of ESG involvement leads to a positive effect on the value of banks, and environmental practices exhibit a substantial effect on bank value. Similarly, **Bakri *et al.* (2022)** analyzed the data of 24 Malaysian banks for 10 years (2011-2020) and evaluated the impact of ESG on Tobin's Q, considering

the social pillar as a moderating variable. The study reported that ESG enhanced Tobin's Q of Malaysian banks. **Khoury *et al.* (2023)** examined ESG's effect on ROE, ROA, and Tobin's Q of 46 listed banks in the MENAT region for 13 years. They highlighted that investment in ESG activities up to a certain level improves financial performance and deteriorates after higher investment. **Menicucci & Paolucci (2023)** studied ESG impact on financial performance considering 105 Italian banks for four years. They found mixed results; the overall impact is negative on financial performance but positive while examining the individual dimension of ESG. **Buallay *et al.* (2023)** assessed the effect of the ESG dimension on financial performance (ROE, ROA), and Tobin's Q of seven different countries' banks and demonstrated that the ESG pillar has deteriorated financial performance. Furthermore, **Ersoy *et al.* (2022)** investigated the ESG scores' effect on the US commercial banks' market value and confirmed that a high ESG score can boost a bank's market value. Recently **Mishra & Sant (2023)** assessed the ESG adoption level of Indian banks and demonstrated that private banks largely comply ESG agenda with respect to the disclosure of ESG data in comparison to public banks. Further, they also highlighted that Indian banks are majorly emphasized on environmental dimensions. Another study by **Muré *et al.* (2020)** reported in their research paper that banks resort to ESG adoption for bettering their reputation to alleviate the impact of financial penalties. A recent study by **Liu *et al.* (2023)** demonstrated an adverse association between ESG rating and non-performing assets which leads to enhanced bank performance. similarly, **Shakil *et al.* (2019)** demonstrated that environmental and social practices help to enhance ROA and ROE of banks in an emerging country. Another recent study by **Galletta *et al.* (2023)** investigated the association of ESG scores with operation risk. They demonstrated that a higher ESG score leads to minimized operational risk in the bank. Meanwhile, another recent study by **Gutiérrez- Ponce & Wibowo (2023)** considered 10-year data from Indonesian banks to study the association between sustainability performance and financial achievements. The study reported that overall ESG activities are inversely linked to ROA, ROE, and Tobin's Q, while the individual dimension of ESG denotes varied results. Recent research by **Al-Ajmi *et al.* (2023)** analyzed data from 246 banks in emerging economies over a 12-year period data and scrutinized th**e** effect of environmental disclosure on ROA, ROE, and Tobin's Q, and revealed a negative impact on banks' performance. Similarly, **Hasan *et al.* (2022)** found that the environmental performance of 56 Gulf cooperative council banks has a significantly negative effect on their financial performance over a period of 9 years. Another study by **Aras & Kazak (2022)** using four-year data of banks in OECD countries demonstrated that the ESG factor significantly increases the P/B ratio and Tobin's Q of companies. **Xia *et al.* (2019)** showed that environment-related information has a significantly positive impact on the financial performance of 30 listed banks in China. Recently **Somnath *et al.* (2024), Mondal & Bauri (2022),** and **Mondal & Bauri (2024)** have also

demonstrated that climate risk also affects firms' financial performance as well as firm value in G 20 countries. Though, a substantial volume of existing literature has explored the nexus between ESG practices and bank performance within the setting of China, Indonesia, the USA, Malaysia, and other emerging economies. To our knowledge, the nexus between these two notions is missing in the Indian context. Therefore, to fill this research gap in the current body of literature, the current research undertakes to examine the influence of ESG practice on bank performance, specifically focusing on market performance and operational performance.

Table 1. Relationship between ESG practices and banks' performance

| Association between variables	Positive relationship (+)	Negative relationship (-)
ESG practices and market performance	Azmi *et al.* (2020), Ersoy *et al.* (2022), Buallay *et al.* (2020), Aras & Kazak (2022),	Buallay *et al.* (2023), Gutiérrez- Ponce & Wibowo (2023), Al-Ajmi *et al.* (2023)
ESG practices and operational performance	Shakil *et al.* (2019), Buallay *et al.* (2020),	Menicucci & Paolucci (2023), Gutiérrez- Ponce & Wibowo (2023), Al-Ajmi *et al.* (2023), Hasan *et al.* (2022)

Source: Author compilation

Previous literature of **Buallay *et al.* (2023), Azmi *et al.* (2020), Hasan *et al.* (2022)** has documented that bank's ESG performance can be considered a significant predictor of bank performance. However, prior literature has found mixed results relating to the connection between ESG initiatives and bank performance, as summarized in Table 1. Some studies argue that ESG initiatives exert a positive influence on operational and market performance, while, others suggest a negative relationship. Moreover, the relationship between these two is complex and varies from country to country. We, therefore propose two hypotheses based on previous literature and theoretical background:

H1: ESG practices significantly affect the market performance of Indian banks.

H2: ESG practices significantly affect the operational performance of Indian banks.

Figure 1. Research model
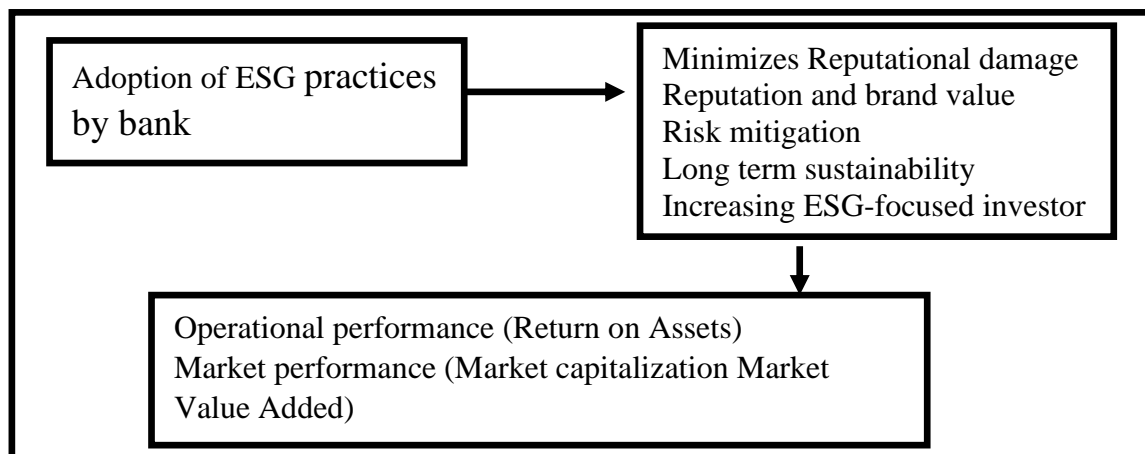
3. Research design & methodology

3.1 Selected sample and collection of data

This study employs 28 Indian banks comprising 12 from the public sector and 16 from the private sector banks for the year 2021-22. We excluded 5 private banks due to the unavailability of ESG data. The conditions for selecting sample banks include the availability of financial data, ESG information, and banks with assets worth 5000 Cr or more. Additionally, this pilot study is based on one year (2021-22) since, according to the RBI circular of 2020, banks are now embarking on a path of responsible and climate-conscious financial practices by communicating their ESG data in their annual reports and mandated to align with "Task-Force on Climate-related Financial Disclosure" (TCFD) guidelines for the commercial bank with assets of Rs 5000 Cr (**Kwatra, 2023)**. Further, the annual report and Refinitive database were used to extract the necessary financial and ESG data for the sample banks. Refinitive database, an internationally recognized databank that provides comprehensive reliable information on over 450 different ESG metrics. A number of previous studies with regard to the banking sector extracted data from Refinitive's database (**Menicucci & Paolucci, 2022**; **Khoury *et.al.*, 2023**)

Table 2. Selected Sample bank

Name of sample banks
1) Bank of Baroda
2) Bank of India
3) Bank of Mararastra
4) Canara bank
5) Central bank of India
6) Indian bank
7) Indian Oerseas bank
8) PNB
9) Punjab & Sind bank
10) SBI
11) UCO Banks
12) Union Bank of India
13) Axis bank
14) Bandhan bank
15) CSB bank
16) City union bank
17) DCB bank
18) Federal bank
19) HDFC bank
20) ICICI bank
21) IDFC First bank
22) Jammu & Kashmir bank
23) Karnataka bank
24) Karur Vysya bank
25) Kotak mahindra

26)	RBL bank
27)	Yes Bank
28)	IDBI Bank

Source: Authors' compilation

3.2 Selected variables and their measurement

The performance of the bank (POB) shows market performance and operational performance which indicates the dependent variable. The proxy indicators of the performance of a bank (POB) are market capitalization (MC), market value added (MVA) and return on assets (ROA), respectively. Further, ESG practices reflect independent variables. The proxy employed for ESG practices is the ESG performance score (ESGps) collected from Refinitive database. Furthermore, three bank attribute control variables were employed for the analysis. The details of selected variables and their measurement are briefly explained in the table below.

Table 3. Summary of variables

Variables and their abbreviation	Explanation of variables	Measurement of variables	Supporting references
Dependent variables *Performance of bank (POB)*			
Market Capitalization (MC)	Market capitalization (MC) indicates the total value of a company based on the market price of traded shares.	(No. of share * share price)	
Market Value Added (MVA)	MVA reflects value creation power over the total capital invested.	(Market Capitalization - total capital invested)	
Return on Assets (ROA)	It is a prevalent metric used to assess operational performance.	(Profit after tax/ Total assets)	Shakil *et al.*(2019), Buallay (2018), Azmi *et al.* (2020), Ahmed *et al.* (2018), Ersoy *et al.* (2022), Gutiérrez-

			Ponce &Wibowo (2023)
Independent variables *ESG practices*			
ESG performance Score (ESGps)	ESG performance score is measured based on 10 categories of ESG dimensions and an aggregate of 25 themes.	Compilation of ESG score of each dimension (www.refinitive.com)	Khoury *et al.* (2023), Menicucci & Paolucci, (2023),
Control variables			
Capital Adequacy ratio (CAR)			Khoury. (2021), Ersoy *et al.* (2022), Menicucci & Paolucci, (2023),
Assets quality (AQ)	Percentage of total assets declared as NPA.	The proportion of Non-Performance Loans to Total Assets	
Liquid assets (LA)	A proportion of advance to customer out of total deposit by customer	advance to deposit ratio	Khoury. (2021), Menicucci & Paolucci, (2023)

Source: Authors' calculation

3.3 Selected statistical tools and models

The current study begins with descriptive statistics (mean, standard deviation, minimum, and maximum values) to recognize the fundamental properties of the selected variables. Additionally, the current study also incorporates data diagnostic tests (heteroscedasticity, autocorrelation, and multicollinearity) to obtain unbiased results. Lastly, the current study performs pooled OLS regression for estimating the link between bank performance and ESG practices. As the current study is a first pilot study and at a very initial stage, the pooled OLS regression technique is preferred. This study develops three regression models explained below.

$$MC = \beta_0 + \beta_1 ESGps + \beta_2 CAR + \beta_3 AQ + \beta_4 LA + \varepsilon \quad (i)$$

$$MVA = \beta_0 + \beta_1 ESGps + \beta_2 CAR + \beta_3 AQ + \beta_4 LA + \varepsilon \quad (ii)$$

ROA= β_0+ β_1ESGps + β_2CAR + β_3AQ +β_4LA+ ε (iii)

4. Data analysis

Fundamental statistics, correlation matrix, and pooled OLS have been employed to analyze the data. Additionally, we have conducted data diagnostic tests and verified the robustness of our findings.

4.1 Overview of descriptive statistics

Table 4 illustrates the fundamental statistics for bank performance, ESG performance score, and other selected variables for the sample Indian banks. Regarding market capitalization (MC) and market value added (MVA), the average values of the 28 sample banks are 725226.11 Cr and 66568.50 Cr respectively. As far as return on assets (ROA) is concerned, the average ROA during 21-21 is 0.71% with a standard deviation of 0.53% which varies between -0.07% to 19%. The average ESG performance score (ESGps) after mandating TCFD guidelines for Indian banks is found 49 with a minimum score of 10 and a maximum 83. Moreover, the normality of the data set is checked, and found that the sample data is not normality distributed. We applied two two-stage transformation method guided by **Templeton (2011)** to transform the data set into normal data. Additionally, Skewness and kurtosis are used to validate the data set's normality. **Kline (2011)** believes that the accepted range of skewness and kurtosis for the normality of data should be (+ - 3) and (+ -10). Our results of skewness and kurtosis fall between the acceptance range and confirm that the data has been transformed into normally distributed data.

Table 4. Fundamental statistics of selected variables

Variables	n	Mean	S.D	Min	Max	Skewness	Kurtosis
MC	28	725226.11	103164.45	28085.35	4660058	0.205	-0.874
MVA	28	665658.50	958119.94	24881.72	4379970.59	0.203	-0.885
ROA	28	0.7132	0.5392	-0.0700	1.990	-0.232	-0.545
ESGps	28	49	21.68	10.00	83.00	-0.617	0.1728
CAR	28	0.17314	0.03093	0.13230	0.27100	0.036	-0.600
AQ	28	0.1271	0.2108	0.0021	0.78853	0.080	-0.470
LA	28	0.74857	0.14482	0.4900	1.1200	-0.002	-0.398

Source: Author computation

Figure 1. ESG performance score of Indian banks for 2021-22
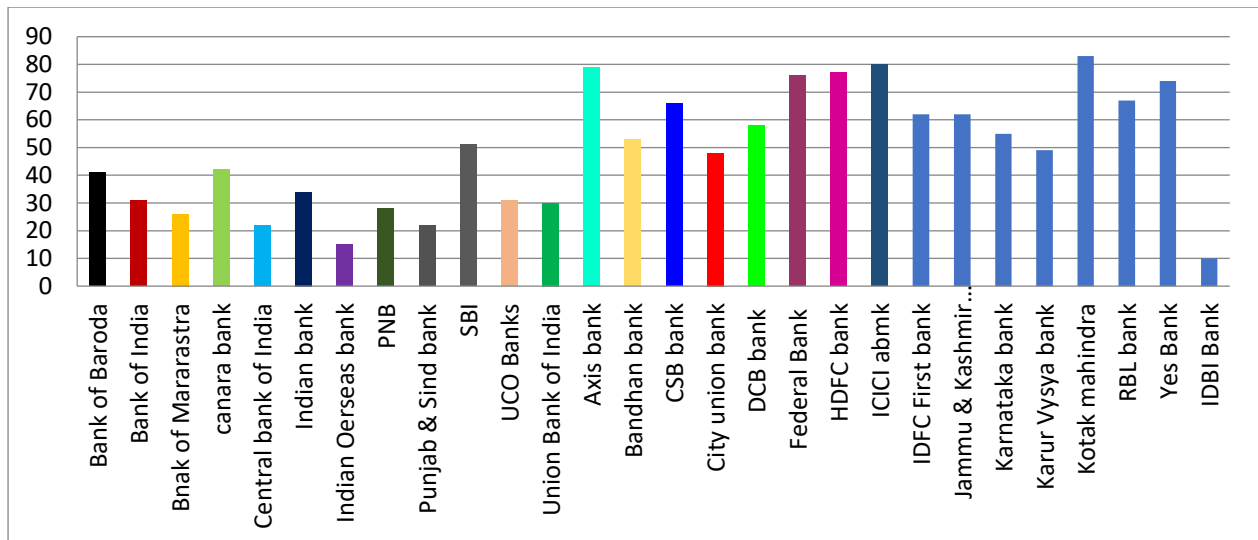
Source: Author own creation (www.refinitiv.com)

4.2 Pearson correlations test

Table 5 presents the Pearson correlation between bank performance and ESG performance score (ESGps). Market performance measures (MC, MVA) have a strong positive correlation (significant at 1% level) with ESG performance score. Furthermore, the coefficient of correlation (-0.250) between operational performance (ROA) and ESG performance score signifies a negative correlation. Pearson correlation result is also used to find out the presence of multicollinearity. **Copper & Schindler (2003)** opined that a correlation value of 0.80 or more is a matter of concern for serious multicollinearity. Here, none of the correlation values exceed 0.80, which confirms the absence of a multicollinearity issue.

Table 5. indicates Pearson correlation among different variables

Variables	MC	MVA	ROA	ESGps	CAR	AQ	LA
MC	1						
MVA	0.853**	1					
ROA	0.038	0.037	1				
ESGps	0.777**	0.779**	-0.250	1			
CAR	-0.163	-0.173	0.394*	-0.428*	1		
AQ	-0.523**	-0.543**	-0.172	-0.345	-0.07	1	
LA	0.011	0.006	0.267	-0.302	0.716**	0.384	1

Source: Author computation. (*Here, ** indicates significance at 1% ; * indicates significance)* at 5% level.

4.3 Data diagnostic test

This research performs three diagnostic tests presented in Tables 6 to 8. Table 6 presents Breush-Pagan/Cook Weisberge test to find out the presence of heteroscedasticity. Heteroscedasticity is a situation in which the error term does not follow constant variance. The test statistic of Table 3 clearly suggests that heteroscedasticity is not a matter of serious concern in the selected models, as chi-square value of Breush-Pagan/Cook Weisberg is not significant at 5% in the selected three models. Hence, we invalidate the null hypothesis, and it indicates the absence of heterosexuality.

Further, for investigating the serial autocorrelation, this study performs Breusch-Godfrey LM test, shown in Table 4. Autocorrelation is a situation where error term observations are correlated with itself over different time lags. Failure to address autocorrelation can lead to biased parameter estimates and statistical inferences may be flawed. From Table 6 it is found that the Chi-square values of the first two models are not significant at 5%, so we can reject the null hypothesis. Hence, it reflects the absence of serial autocorrelation in models 1 and 2. However, regarding model 3, it has a statistically significant chi-square value ($P<0.05$). It confirms the existence of serial autocorrelation in model 3. However, this study relies on data collected for a single year (2021-22); hence, autocorrelation is typically not a major concern in cross-sectional data, given that the data is gathered at a single time point.

Additionally, the emergence of multicollinearity can produce unreliable and erroneous inferences. Therefore, before proceeding with regression analysis, recognizing the existence of multicollinearity is crucial. To recognize multicollinearity issues, this study employs Variance Inflation Factors (VIF), as shown in Table 5. It shows that the highest VIF value is 3.548, then 2.99, and so on. So far as tolerance VIF values are concerned, Gujrati (2004) and Hair et al. (2010) suggest that VIF value exceeding 10 became the cause of multicollinearity. The VIF values of predictor variables in this study are found to be below 10 and indicate the absence of a multicollinearity problem.

Table 6. Breush-Pagan/Cook Weisberge test for Heterocedasticity

	Model 1	*Model 2*	*Model 3*
Chi square	2.17	2.37	0.22
P value	0.146	0.1235	0.6403
Heteroscedasticity	Non-exist	Non-exist	Non-exist

Source: Author computation

Table7. Breusch-Godfrey LM test for autocorrelation

	Model 1	*Model 2*	*Model 3*
Chi square	0.679	0.635	5.876
P value	0.4100	0.4256	0.0153
Autocorrelation	Non-exist	Non-exist	exist

Source: Author computation

Table 8. Variance Inflation Factor (VIF) test for multicollinearity

Independent Variables	Model 1	Model 2	Model 3
ESG	1.445	1.445	1.433
CAR	2.957	2.975	2.997
AQ	1.870	1.870	1.967
LA	3.626	3.626	3.548

Source: Author computation.

4.4 Regression results

The results from pooled OLS in Table 9 demonstrate the degree to which ESG performance scores can be used to predict the performance of banks. The coefficients for ESG performance score regarding market performance are 0.714 and 0.712, statistically significant (at 5% level). This observation implies that a one-unit increase in ESG performance score associates with 0.714 and 0.712 units increase in market capitalization and market value added of banks. However, the coefficient for ESG performance score regarding operational performance is -0.126, but it is not statistically significant. This signifies the absence of a significant impact of ESG performance score on return on assets (ROA) in model 3. Regarding control variables, the capital adequacy ratio exerts a favourable influence on the bank performance proxys' (market capitalization, market value added, and return on assets). Further, it is also found that bank performance deteriorates with the increase of non-performing assets. Additionally, it is interesting to note that a higher proportion of advances or loans appear to have a favourable effect on market performance, but simultaneously exerts a detrimental impact on return on assets (ROA).

Additionally, models 1 and 2 have adjusted R-square values of 0.587 and 0.589, suggesting that approximately 58% of the variation in market performance can be estimated by ESG performance scores in the models. Moreover, the adjusted R-square value is 0.299 in model 3, which suggests that 29.9% of the variation in return on assets (ROA) is predicted by the ESG performance score. The F statistics of the three models are 9.514, 9.583, and 3.457 indicating that the models as a whole are statistically significant.

Table 9. Regression models

Variables	Model 1 MC	Model 2 MVA	Model 3 ROA
Constant	(2.470**)	(2.413**)	(0.378**)
ESG	0.714 (4.526*)	0.712 (4.526*)	-0.126 (-0.605)
CAR	0.052 (0.231)	0.037 (0.162)	0.837 (2.772**)
AQ	-0.246 (-1.369*)	-0.244 (-1.360*)	-0.657 (-2.684**)
LA	0.463 (0.649)	0.123 (0.493)	-0.554 (-1.685***)
Observations (n)	28	28	28

Adjusted R²	0.587	0.589	0.299
F value	9.514*	9.583*	3.457**

Source: Author computation (*Here, *, ** indicate significance level at 1% and 5%*)

4.5 Robustness of the results

Table 10 represents the robustness of results obtained in regression models. This study incorporates two distinct alternative measures of bank performance to confirm the consistency of results. The findings presented in Table 9 validate the robustness of our results.

Table 10. Robustness test

Variables	Tobin's Q	ROE
Constant	(4.568**)	(-0.301**)
ESG	0.859 (5.729*)	-0.043 (-0.1754)
CAR	0.522 (0.132)	0.359 (1.039*)
AQ	-0.623 (-0.698*)	-0.387 (-1.399*)
LA	0.463 (0.577)	-0.141 (0.366)
Observations (n)	28	28
Adjusted R²	0.539	0.328
F value	28.798*	15.239*

Source: Author computation (*Here, *, ** indicate significance level at 1% and 5%*)

5. Results' discussions

Section 5 underlines the discussion of reported results. The findings of this investigation demonstrate that the ESG performance score yields a robust and statistically meaningful impact on both the market capitalization and the market value added (reflecting market performance) of Indian banks. Our results align with the findings drawn in previous research (**Azmi *et al.*, 2020; Ersoy *et al.*, 2022; Buallay *et al.*, 2020; Aras & Kazak 2022)**. The favourable effect of ESG performance score on market performance implies that banks' commitment to ESG practices tends to experience favorable market response. Consequently, investors and stakeholders in the Indian banking sector are increasingly valuing sustainability and perceive ESG initiatives as valuable and impactful. These practices are likely to attract responsible investors, increase overall stock price, and enjoy greater public trust. Furthermore, the Indian banks that emphasize sustainability, social responsibility, and ethical governance are poised to generate additional economic value for their stakeholders. Hence, the H1 and H2 hypothesis, postulating a significant influence of ESG practices on Indian banks' market performance, are affirmed.

However, ESG performance score exerts a negative impact (non-significant) on the Return on Assets (operational performance) in Indian banks and consistent with previous findings of **Menicucci & Paolucci (2023), Gutiérrez- Ponce & Wibowo (2023), Al-Ajmi *et al.* (2023), Hasan *et al.* (2022), Buallay *et al.* (2023)**. It might raise questions about short-term costs or resource allocation required to maintain and implement ESG practices which might initially impact ROA negatively. As a result, the H3 hypothesis, which suggests ESG practices exert a substantial impact on Indian banks' operational performance, is not supported.

The findings of this research may reflect the need for a more comprehensive examination of the trade-offs and nuance associated with the adoption of ESG practices in the Indian banking context. While there is clear evidence of a positive influence on market performance, the negative effect on ROA demands further investigation. It is possible that the long-term benefits of ESG practices, such as risk mitigation and enhanced reputation, may outweigh the initial dip in ROA.

5. Conclusion and Practical implications

The prominence of ESG risks has exerted intensified pressure on banking institutions. These institutions are engaged in a continuous process of revisiting and refining their ESG practices to effectively mitigate potential ESG-related risks. In this respect, our study is the pioneering pilot study that aims to analyze the consequence of ESG issues on the financial performance of banks in India, specifically focusing on market performance (namely, Market Capitalization and Market Value Added), as well as operational performance indicators (like Return on Assets [ROA]). This study incorporates ESG performance scores data, which are considered proxies for ESG practices, collected from the Refinitive database for a total of 28 Indian banks (12 public, 16 private) for the year 2021-22. We applied three regression models using ESG performance score as a predictor of bank performance with the incorporation of bank-specific control variables.

This study revealed mixed and inconclusive findings in relation to the association of ESG practices with bank performance. The study demonstrated that ESG practices have a positive and significant impact on market capitalization as well as market value added in Indian banks. However, the study also revealed that ESG practices have affected Indian banks' Return on Assets (ROA) negatively. This result signifies that the integration of ESG practices initially led to a decline in the Indian banks' operational performance. The results of this pilot research highlight that Indian banks are at the very initial stage of embracing the ESG agenda into their business processes (**Mishra & Sant, 2023**). According to RBI's SFG survey report, top leading commercial banks in India have initiated measures to address climate risk and sustainable finance, but there is still a pressing need for collective and additional efforts in this area. Only a limited subset of Indian banks incorporates key performance indicators (KPIs) related to climate risk, sustainability, and environment, social, and governance (ESG) into their performance assessment process. Furthermore, despite the growing emphasis on ESG, Indian banks' alignment with the Business Responsibility and

Sustainability Reporting (BRSR) guidelines has not yet been wholeheartedly achieved. Indian banks have no single set of standardized ESG reporting frameworks. Therefore, Indian banks are still lagging behind in the adoption of ESG practices.

The results of this novel pilot study contribute noteworthy inputs for academicians, banking regulators, policymakers, investors, and other stakeholders. The study supports the neoclassical theory, stakeholder theory, agency theory, and signalling theory. This research broadens the existing body of knowledge concerning the empirical significance of ESG practices in the Indian banking domain, an aspect that had previously not been investigated by prior researchers. This study is the first empirical study for Indian banking institutions, as banking regulators and policymakers have been emphasizing ESG factors in their lending and investment decision-making to promote sustainability. By prioritizing ESG factors, Indian banks can contribute to addressing global concerns such as climate change and green finance. Additionally, banks with strong ESG commitments may be better equipped to manage risks relating to climate change, regulatory risk reputational damage, etc. However, there is no standardized ESG guideline, particularly for Indian banking institutions. In India, the Business Responsibility and Sustainability Reporting (BRSR), formerly referred to as NVG ("National Voluntary Guidelines") and NGRBC ("National Guidelines on Responsible Business Conduct") provides guidelines for the preparation of sustainability reports that are exclusively applicable to listed companies. The results of this study could potentially prompt India's central bank and banking regulator to consider taking essential measures to broaden the scope of the BRSR guidelines. This would enable Indian banking institutions to adhere to ESG guidelines and communicate a substantial volume of ESG information to their stakeholders. Consequently, Indian banks could enhance their operational performance in the long run. This implies that policymakers should emphasize the significance of ESG for Indian banks' long-term sustainable performance. The results might be helpful within the realm of practical relevance. Banks can mitigate environmental risks by charging higher interest rates to industries that emit a high volume of carbon footprint, which leads to minimizing finance from banks. They can also incentivize borrowers by offering preferential terms such as lower interest rates or other financial incentives to encourage investment environment-friendly projects, such as renewal energy, energy-efficient technologies, and green finance initiatives. Additionally, banks can encourage dialogues and collaborations with stakeholders, including NGOs, regulators, and communities, to better understand the environment as well as social risks. Encouraging customers to use online banking and e-statement services instead of paper passbooks, as well as the adoption of solar energy within the bank, can lead to a more sustainable banking approach. Moreover, fostering a strong corporate governance culture of integrity and accountability within banks can effectively mitigate governance risks. This study holds a significant importance in the current era of sustainable banking.

Nevertheless, this study has a few weaknesses that could limit its generalizability. First, this pilot study is restricted to a single year's data.

Second, the analysis relies solely on the aggregate ESG performance score. Despite these limitations, this study offers novel insights into the association between ESG practices and bank performance, with special attention particularly to the Indian banking sector.

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