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Examining the impact of sustainable practices on bank's financial performance

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Abstract

The banking industry has redefined its activities by including environmental, social, and governance dimensions of sustainability. Using the System General Method of Moments (SGMM) Panel Data method, this study evaluated 34 banks from 2013 to 2022 to determine the relationship between sustainable disclosure policies and financial performance. The study examined the Economic, Environmental, Social, and Governance (EESG) ratings of the selected banks and estimated cross-sectional and time-series variations. The findings indicated a substantial relationship between banking organisations' economic, environmental, and social behaviours and financial performance. The study's findings would benefit banks in designing future sustainability strategies and contribute to improved sustainable banking performance.

Subject Classification: *91G40, 91B84, 91B76.*

Keywords: *Sustainable banking, Financial performance, EESG, ROA, Sustainability, Panel data, Sustainable development goals.*

1. Introduction

1.1 *Banking*

Businesses do not exist in isolation but rather operate within an interconnected system. Banks being essential for the economic advancement of any country, play a significant role in providing credit

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and finance to different industries. Consequently, the banking sector can serve as a mediator, fostering a favourable association between economic development and sustainable practices [26]. Banks are being compelled to concentrate on ensuring the sustainability and ecological responsibility of their operations due to the growing need for non-financial disclosures, the expansion of global ecological consciousness, and the push for sustainable economic development [29].

In past few years, banks are adopting sustainability practices. Banks are recognizing that social and environmental hazards pose a serious threat to their business. Social injustice, resource scarcity, and climate change are just a few of the issues that can have a significant effect on businesses and economies. An increasing number of laws and policies mandate that financial firms take environmental, social, and governance (ESG) considerations into account when making decisions. Institutions that integrate sustainability into their business practices have the power to acquire and retain individuals who value social and environmental concerns. A bank's reputation and brand image can be improved by implementing sustainable practices. Banks contribute to a more stable and resilient financial system that is better equipped to address these challenges, by promoting sustainability. Mckinsey [19] suggested that sustainable finance emerges as a unique opportunity for banks, leading to their growth. It enables the banks to remain competitive and survive in the long run.

GRI is emerged as one of the widely accepted frameworks that includes uniform terminology and standardized metrics for sustainability reporting. According to Wang [32] the GRI framework mandates companies as well as banks to transparently communicate their sustainable practices. Sustainable reporting enables the organization to demonstrate its commitment towards sustainable development [2]. Developed countries prioritize these initiatives more than developing ones, which currently tend to execute them in a more organized approach [17].

The adoption of sustainability by Indian commercial banks has not been extensively addressed in the literature, despite several initiatives. Earlier studies focused on examining sustainable activities and their influence on financial performance in banking sector however, most of them are inconclusive [5], [16], [12], [14]. The previous research were focussed on environmental, social, and governance (ESG) indicators. However, one perspective that remains unaddressed is the economic factor in sustainable banking. Effective economic performance is significant for banks as strategies for economic sustainability can boost investor

confidence and attract in long-term capital. A bank's reputation and brand image can be improved by exhibiting an unwavering commitment to economic sustainability. Indian banks can avoid legal issues and regulatory penalties by proactively implementing economic sustainability into their operations. This helps the bank and makes the Indian economy more resilient in the long run. The complexities of a competitive economic environment in respect to sustainable practices emerged in Campbell's [7] analysis. It was stated that businesses find it difficult to act in a socially conscious manner in a severe and unpredictable competitive environment. Declining profit margins restrict the quality of disclosures and act as a catalyst for unethical activity. Additionally, Slack Resources Theory [31] highlighted the way in which socially irresponsible behavior is propelled by a recessive economic environment. The resources available for sustainability initiatives are restricted by factors like declining productivity, falling GDP levels, and increasing inflation. This brings down to the research questions:

- What are the factors which are impacting the bank's financial performance?
- How banks are getting affected by disclosure on sustainable practices?

The study will contribute to the consensus regarding sustainable business and be advantageous to bankers, customers, and policymakers. Commercial banks can achieve improved financial performance by better understanding sustainability disclosures and the role that banks provide. By employing a comprehensive EESG framework, this study aims to fill this vacuum and offer valuable insights into the financial ramifications of sustainable practices for Indian banks.

Hence, this study aims to achieve the following objectives.

a) To determine the extent of reporting on sustainable disclosure matrix of Indian Commercial Banks.
b) To assess the impact of sustainable banking practices on financial performance of Indian commercial banks.

This study explores the vital role the banking industry plays in promoting the economy's sustainable growth. By creating a baseline for Indian commercial banks' sustainability initiatives, the proposed framework seeks to increase the transparency of their economic,

environmental, social, and governance (EESG) operations. The study's conclusions can also provide regulators with important information to improve and reinforce the sustainability reporting (SR) requirements, fostering the development of a stronger framework for sustainable banking practices in the Indian environment.

Furthermore, the current study is structured as follows: the second section comprises a substantial literature review, followed by the hypothesis framework and research technique in third section. The paper discusses the study's analysis in fourth section. The paper's conclusion, limitations and future roadmaps are discussed in section five.

2. Literature Review

The section discusses sustainability practices adopted by firms and its association with performance. The findings of these studies are presented below.

2.1 *Previous literature on Economic, Environmental, Social and Governance Practices*

Several studies have been conducted to determine the impact of sustainable practices on bank returns [20], [25], [9]. The accounting measure used in this study to evaluate a company's operational financial performance is ROA. Previous research by Garg, [10]; Hou et al., [13]; Dalal and Thaker [8], has utilized ROA as a measure of financial performance. Velte [30] have examined the effect of ESG factors, either individually or collectively, on financial performance and concluded that ESG factors positively impact ROA. Sohail et al. [27] evaluated the governance actions conducted by banks and their impact on performance. According to the study, both internal and external governance methods have a favourable effect on bank performance. Nobanee and Ellili [23] conducted a 10-year study to analyse the level of sustainability disclosures in UAE banks, focusing on economic, environmental, and societal issues. The study's findings revealed no distinction between UAE banks' execution of societal and environmental disclosures.

Jan et al. [15] investigated the relationship between sustainability practices and corporate financial performance. According to the study, firms can increase their profits by implementing sustainable activities into their operational strategy, particularly their banking operations. Furthermore, Dalal and Thaker [8] evaluated the relationship between an organization's returns and ESG variables. The findings revealed that

businesses with greater ESG practices performed better altogether. Azzam et al. [3] conducted an analysis involving 28 items, including seven related to environmental (E), thirteen to societal (S), and eight to governance (G), and the findings demonstrated that S and G parameters have a positive impact on industry performance, while environmental disclosures have no significant effect on economic performance. Batae et al. [4] examined the relationships that exist between bank financial performance and ten aspects of the environmental, social, and governance pillars throughout the ten years following the 2008 financial crisis. Refinitiv's database was used to gather information for 39 European banks between 2010 and 2019. Findings concluded that financial performance and emission reductions are positively correlated. Nonetheless, a bank's social responsibility and product quality policies could conflict with its accounting and market performance. Furthermore, it has been discovered that a bank's financial performance is adversely impacted by an improvement in its corporate governance framework. Zhou et al., [33] investigated the relationship between CSR and bank financial performance using data from Chinese listed banks from 2008 to 2018. And also examined the function that green credit plays as a mediator. The short-term financial performance of banks is found to be negatively impacted by CSR. Maqbool & Hurrah [18] studied the association between societal performance and financial returns and concluded that it has a favourable effect on future organisational performance. The findings revealed that societal (CSR) activities improve businesses' performance over the long run-in addition to their immediate performance. Saxena et al. [24], aimed to determine numerous contexts established for the evaluation of the performance of sustainable banks and reveal that a limited number of banks have adopted sustainable practices in their banks, and it was suggested that rather than complying with required CSR compliance, more institutions should actively embrace sustainable practices. This suggestion is a result of sustainability's increasing significance throughout time. Singh et al. [26] investigated whether green banking activities directly impacted the bank's competitiveness and concluded that they do, resulting in cost savings and operational efficiency. Ghardallou [11] researched how a company's financial performance is affected by corporate sustainability. It specifically looks into how well-functioning CEO traits are as a moderator of the relationships between financial performance and corporate social responsibility (CSR). It examined how CEO's characteristics affect the connection between financial performance and CSR. Result showed that companies with a strong CSR program typically outperform their industry

financially. Neitzert and Petras [22], assessed the impact of corporate social responsibility (CSR) initiatives on bank risk and explore the determinants of this impact. It analyzed the overall risk-mitigating effect of corporate social responsibility initiatives by using data from 582 banks worldwide between 2002 and 2018. In contrast to social and governance activities, the study found that environmental activities determine risk mitigation. Stauropoulou et al. [28] created a conceptual model to analyse the sustainable practices adopted by banks, and the findings demonstrated a favourable relationship between consumer trust and sustainable objectives. Economic, environmental, and social issues are directly or indirectly ascribed to the banking sector. Gaba and Sharma [9], examined EESG indicators of sustainable practices that were chosen from the GRI-G4 sustainability reporting criteria. Over a three-year period, from 2018 to 2021, data was extracted utilizing content analysis. The study indicated that private banks perform better than public banks when comparing banks in the public and private sectors using the Mann-Whitney U test.

According to the literature described above, studies focus on ESG indicators, EES indicators, or the triple bottom line. However, a research vacuum has been identified, as there are insufficient studies that incorporate each of the four attributes as independent variables and study the impact of EESG adoption on bank financial performance in the Indian context.

3. Research Methodology

For this study, the data was collected data from annual reports, business responsibility reports and various websites. The sustainability parameters were selected from GRI-G4 framework. Content analysis was used to gauge adaptation of banks on sustainability disclosure levels. This paper used STATA software for the analysis.

3.1 *Data Collection*

Secondary data was gathered from 2013 to 2022 and sourced from websites, annual reports, business responsibility, sustainability, and bipartite settlement reports. For the present study, 34 Indian Commercial Public and Private Banks have been selected as a sample.

3.2 *Variables used in the study*

The explanatory variable and response variables used in the study model are represented in Table 1.

Table 1
Description of Variables

Variables	Labels	Measurement
Independent Variable: IV		
Economic	ECO	Content Analysis was conducted followed by the creation of a disclosure index using variables such as bank infrastructure, anti-corruption, etc.
Environment	ENV	Content Analysis was conducted followed by the creation of a disclosure index using variables such as energy, emission, waste, etc.
Social	SOC	Content Analysis was conducted followed by the creation of a disclosure index using variables such as occupational health and safety, supplier social assessment etc.
Governance	GOV	Content Analysis was conducted followed by the creation of a disclosure index using variables such as women directors, governance structure, etc.
Dependent Variable: DV		
Return on Asset	ROA	Net Income over Total Assets

3.3 *Model Description*

To investigate the relationship of sustainability practices and financial performance, this study hypothesized that:

H1: Economic practice of bank impacts financial returns.

H2: Environmental practices of banks impacts financial returns.

H3: Social practice of bank impacts financial returns.

H4: Governance practice of bank impacts financial returns.

The panel data regression equations have been employed to investigate the effect of the bank's specific factors on return on assets.

$$ROA\ it = \alpha 0 + \beta 1ECOit + \beta 2ENVit + \beta 3SOCit + \beta 4GOVit + \beta 5AQit + eit \quad (1)$$

Where:

ROA_{it} = Financial Performance indicator of bank i at time t

$\alpha 0$ = Intercept term

ECO_{it} = Economic Parameter i at time t

ENV_{it} = Environmental Parameter i at time t

SOC_{it} = Social Parameter i at time t

GOV_{it} = Governance Parameter i at time t

e_{it} = Stochastic Error Term

The subscripts "t" stands for the time periods, "e_{it}" for the error term, and "i" for the banks.

4. Data Analysis

This section conducts the analysis and presents the study results, complying with the research objectives and methodology.

4.1 *Descriptive Statistics*

Table 2 displays the results of descriptive statistics. Columns 2 and 3 provide the mean and standard deviation, while columns 4 and 5 show the lowest and maximum scores. The mean values of economic, environment, social and governance were 0.74, 0.44, 0.66, and 0.95 respectively.

Table 2

Author's computations

Variable	Mean	Std. Dev.	Min	Max
ECONOMIC	.7428588	.136182	.285714	1
ENVIRONMENT	.4432351	.2092324	0	.909091
SOCIAL	.6614057	.10363	.357143	.892857
GOVERNANCE	.9561723	.0559149	.714286	1
EESGSC-E	.6978547	.0973684	.4566649	.911995

4.2 *Multicollinearity check*

Buallay et al. [6] claimed that a VIF > 10 would indicate multicollinearity among the explanatory variables. Table 3 shows that the data do not exhibit multicollinearity [21]. The VIF analysis's findings confirm that the dataset can be used for further analysis.

Table 3

Author's computations (5% level of significance)

Parameters	VIF
ENVIRONMENT	1.43
ECONOMIC	1.37
GOVERNANCE	1.23
SOCIAL	1.17
Mean VIF	1.30

4.3 *Correlation Matrix*

Table 4 provides the results of the Pearson correlation. The findings conclude that there is a favourable relation of 13.4%, 14.3%, and 4%, respectively, with the environmental, social, and governance indicators and a negative correlation between ROA and the economic indicators. The Governance indicator, in particular, shows a comparatively lower correlation of 4%. Nonetheless, there is no multicollinearity since the correlation among all independent variables is not more than 0.7.

Table 4

Author's own computations (5% level of significance)

	ROA	Economic	Environment	Social	Govern-E
ROA	1.0000				
Economic	-0.0096	1.0000			
Environment	0.1339	0.4564	1.0000		
Social	0.1434	0.3227	0.3215	1.0000	
Governance	0.0480	0.3372	0.3974	0.1775	1.0000

4.4 *Panel Data Assessment*

This study uses panel regression models, which include Random Effect (RE) , Fixed Effect (FE), and SGMMs, to test the framed hypotheses. In the current investigation, the SGMM model is mainly employed to address concerns of endogeneity, measurement error, bias due to missing variables, and bank heterogeneity. The results have indicated that past year's results have an impact on this year's ROA, proving that GMM is better than FE and RE models [1].

4.5 *Fixed Effect*

Table 5 reveals the results of regression using fixed effect, where economic and social indicators are significant. Interestingly, social and governance indicators positively impact the performance of the banks, while environmental and economic indicators show a negative correlation.

Table 5

Author's own computations

Independent Variables	Coef.	Std. Err.	t	Prob
ECONOMIC	-1.833569	.5802506	-3.16	0.002
ENVIRONMENT	-.3100553	.4604347	-0.67	0.501
SOCIAL	1.717184	.778393	2.21	0.028
GOVERNANCE	1.062421	1.34626	0.79	0.431

4.6 *Random Effect*

Table 6 shows the results of the random effect where General Least Square regression was applied, while assuming the correlation between the error term and independent variable to be zero. The results found economic and social factors influential in impacting ROA. Hausman test was later applied to determine the suitability of FE or RE for the study.

Table 6

Author's own computations

ROA	Coef.	Std. Err.	t	Prob
ECONOMIC	-1.582417	.5746382	-2.75	0.006
ENVIRONMENT	.1305486	.4280852	0.30	0.760
SOCIAL	1.77684	.7422246	2.39	0.017
GOVERNANCE	.6798301	1.331568	0.51	0.610

4.7 *Hausman test*

Table 7 represents the "Hausman Specification Test" utilized to ascertain the optimal model between— FE and RE. The research used the Difference (GMM) and focused on dynamic effects despite the inconclusive results obtained with both FE and RE. The results were not statistically significant. The study then shifted its focus to System GMM and found that EES parameters had an impact on ROA.

Table 7

Author's own computations (5% level of significance)

	FE	RE	Difference	S.E.
ECONOMIC	-1.833569	-1.582417	-.251152	.0805091
ENVIRONMENT	-.3100553	.1305486	-.440604	.1695382
SOCIAL	1.717184	1.77684	-.0596567	.2345172
GOVERNANCE	1.062421	.6798301	0.382591	.1983456

4.8 *Diagnostic Checks*

Table 8 exhibits the results of Sargan test employed to check whether the instrument variables are valid or not. Prob>F's significance suggests that the model fits the data well. Robustness tests were then conducted which indicated the significance of the System GMM two-step model. The model is further supported by the Arellano Bond AR (2) tests. The importance of autoregressive terms is demonstrated in the table 8. Furthermore, the study substantiated the importance of the lagged dependent variable and supported the usage of a dynamic panel specification.

Table 8

Author's own computations

Tests	Outcomes
AR (1)	0.0011
AR (2)	0.4946
Sargan Test	0.7434
No. of Instruments	40
Prob> F	0.002

4.9 *Two-step System GMM dynamic panel data results*

Table 9

Author's own computations

ROA	Coef.	Std. Err.	t	Prob.
Economic	-.9149278	.1815878	-5.04	0.000
Environment	.2000885	.060338	3.32	0.001
Social	.7067959	.2280129	3.10	0.002
Governance	.2807946	.4785845	0.59	0.557
_cons	.0033233	.5701457	0.01	0.995

Regression analyses were found to perform better and more optimally with the Dynamic Effect model after a series of specification tests. Table 9 presents the regression analysis results specifying the relationships between the variables. The System GMM results revealed a substantial association between the economic environment and social practices, with p-values of 0.000, 0.001, and 0.002, as shown in Table 9.

Therefore, the "Dynamic Effect Test" has been used in the current study to determine the best model between Pooled (OLS) Regression and Panel Data Regression. The examination also includes examining total effects, period effects, and cross-section effects. The System GMM two-step estimator yields results that are consistant with the Pooled OLS and Panel Fixed Effects models.

5. Conclusion, Limitation and Future Research

Sustainable banking performance promotes financial stability while also protecting the environment, implementing strong internal regulations, promoting economic growth, and sustaining social responsibility. This study aims to empirically assess whether implementing sustainability principles improves financial performance and generates value for investors. The investigation was conducted on 34 banks for the period 2013-14 to 2022-23 while focussing on integrated reporting on (EESG) factors.

This study emphasises the significance of banks prioritising their involvement in social and environmental projects over profitability to ensure long-term viability. The study highlights banks' increasing comprehension of the relevance of economic variables and environmental and social activities in maintaining and enhancing their overall performance. Banks acknowledge and report environmental and social activities as critical components of their corporate operations.

However, the study's sample was confined to Indian commercial banks established in India. Future research is invited to extend the study to developing nations with similar business environments. The following research might also explore sustainability practices and their impact on banks' operational and market performance.

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