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Sustainability Practices and Credit Risk: Evidence from Commercial Banks in Kenya

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Abstract
The integration of sustainability practices into financial institutions has become an emerging priority globally, yet limited empirical attention has been given to how these practices influence credit risk, particularly in developing economies. This study investigates the effect of sustainability practices—captured through environmental, social, and governance disclosures—on credit risk among commercial banks in Kenya. Anchored on the Triple Bottom Line Theory and supported by Stakeholder and Legitimacy theories, the study employed a causal research design using secondary data from 39 licensed commercial banks in Kenya, covering the period 2019 to 2023. Credit risk was measured using the ratio of non-performing loans to total loans, while sustainability practices were assessed using disclosure indices developed from banks' annual reports. The analysis applied a random-effects panel regression model and controlled for capital adequacy and firm size. The findings revealed that governance practices had a statistically significant negative effect on credit risk ($\beta = -0.450$, $p = 0.047$), while environmental ($\beta = 0.336$, $p = 0.182$) and social practices ($\beta = 0.103$, $p = 0.721$) were not statistically significant. Capital adequacy ($\beta = -0.447$, $p < 0.001$) and firm size ($\beta = -0.073$, $p = 0.038$) were also significant determinants of credit risk. These results suggest that robust governance mechanisms and strong financial fundamentals are key to mitigating credit risk in Kenyan banks, while environmental and social initiatives may require longer-term strategies or stronger regulatory incentives to yield measurable impacts. The study recommends enhanced policy enforcement on governance practices, capital buffers, and structured incentives for ESG adoption. Future research could incorporate longer timeframes or cross-country comparisons to deepen insights into the sustainability-credit risk nexus.

Keywords: *Sustainability practices, credit risk, ESG, commercial banks, Kenya, corporate governance*

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I. Introduction

In recent years, sustainability has emerged as a critical component of corporate strategy, particularly in the financial services sector where environmental, social, and governance (ESG) principles are reshaping risk management frameworks and stakeholder relations. Commercial banks are increasingly expected to embed sustainability practices such as responsible lending, ethical governance, and community engagement into their operations to align with global standards and evolving stakeholder demands (Duarte et al., 2023). These practices not only reflect a bank's social and environmental accountability but also influence long-term financial stability (Zhao & Song, 2023). By promoting transparency and aligning corporate behavior with broader societal goals, sustainability initiatives are gaining recognition as integral to modern banking strategy (Li & Lin, 2022).

Credit risk—defined as the likelihood of a borrower defaulting on contractual obligations—remains one of the most pressing risks within banking institutions (Basel Committee, 2022). It is influenced by both internal financial controls and external economic conditions. Traditional approaches to credit risk management have focused on capital adequacy, credit scoring, and loan loss provisions (Hernández et al., 2021). However, recent developments highlight the growing importance of non-financial factors, including environmental exposure and governance quality, in shaping credit outcomes (Kim & Lee, 2023). For instance, banks exposed to environmentally risky borrowers or firms with weak governance structures may be more vulnerable to loan defaults, making ESG factors increasingly relevant in credit risk evaluation (Smith, 2022).

The conceptual relationship between sustainability practices and credit risk is grounded in several theoretical perspectives. The Triple Bottom Line (TBL) theory, introduced by Elkington (1994), emphasizes that organizations should concurrently pursue financial, environmental, and social objectives to achieve sustainable performance. This theory aligns with Stakeholder Theory, which posits that firms must consider the interests of all stakeholders—including regulators, customers, and communities—in shaping responsible business practices (Freeman, 1984). In parallel, Legitimacy Theory suggests that aligning operations with societal norms and expectations strengthens organizational legitimacy, potentially enhancing stability and reducing exposure to credit

risk (Suchman, 1995). Together, these theories provide a multidimensional framework for understanding how sustainability integration may influence credit performance.

In Kenya, the commercial banking sector has made notable strides in adopting ESG-aligned practices. Regulatory authorities, such as the Central Bank of Kenya (CBK), have encouraged financial institutions to integrate sustainability into core strategies, particularly in light of the country's Vision 2030 development blueprint and commitments to global sustainability goals (CBK, 2023). Despite these efforts, credit risk levels remain elevated, with the sector experiencing persistently high non-performing loan (NPL) ratios averaging around 14% (Omondi, 2022). As banks seek to improve risk profiles and align with ESG imperatives, empirical insights into the link between sustainability practices and credit risk are essential. This study, therefore, responds to a timely need to explore whether ESG integration can enhance credit risk management in Kenya's banking landscape.

Statement of the Problem

The integration of sustainability practices into credit risk management has gained momentum globally, yet its practical impact within emerging financial markets remains inadequately understood. In Kenya, commercial banks continue to face elevated credit risk levels, as evidenced by a non-performing loan (NPL) ratio that has consistently hovered around 14%—well above the Central Bank of Kenya's prudential threshold (CBK, 2023). These high NPL levels undermine financial stability, constrain lending capacity, and weaken the resilience of the banking sector. While regulatory frameworks and internal risk assessment models have evolved, persistent credit risk suggests the need to explore alternative or complementary risk mitigation strategies, such as sustainability-aligned banking practices.

Sustainability practices—including environmental screening of borrowers, socially inclusive financing, and strengthened governance structures—offer a potential pathway for enhancing credit quality. International evidence suggests that banks with robust ESG policies are better positioned to anticipate and manage credit risk, particularly through improved borrower screening, stakeholder trust, and reputational stability (Baker et al., 2021; Henn et al., 2020). However, much of this evidence is derived from developed financial markets with well-established ESG reporting standards and mature regulatory environments. The extent to which these findings are transferable to the Kenyan context remains unclear, given contextual differences in institutional capacity, regulatory enforcement, and market maturity.

Moreover, most prior studies in Kenya have examined isolated elements of sustainability, such as corporate social responsibility (Mwangi et al., 2020) or green lending practices (Wambua, 2021), without offering a holistic analysis of how ESG dimensions collectively influence credit risk. Others have relied predominantly on qualitative approaches, limiting generalizability and empirical validation. There is also a methodological gap in terms of longitudinal, sector-wide studies that quantitatively assess the relationship between ESG practices and credit risk across Kenya's commercial banking sector. This study addresses these gaps by providing a comprehensive, empirical analysis of the effect of environmental, social, and governance practices on credit risk, using panel data from all licensed commercial banks in Kenya over a five-year period.

1.2 Research Objective

The objective of this study was to determine the effect of sustainability practices on credit risk of Kenyan commercial banks

II. Literature Review

2.1 Theoretical Literature Review

This study is anchored on the Triple Bottom Line Theory and supported by Stakeholder Theory and Legitimacy Theory. Together, these frameworks provide a robust theoretical foundation for understanding the potential relationship between sustainability practices and credit risk in the banking sector.

The Triple Bottom Line (TBL) Theory, advanced by Elkington (1994), emphasizes the need for organizations to balance three key dimensions of performance: profit (economic), people (social), and planet (environmental). According to TBL, sustainable organizations do not only pursue financial returns but also consider the social and environmental impacts of their operations. Within the context of banking, this implies that institutions integrating environmental stewardship, social responsibility, and sound governance into their business models may foster long-term stability and lower risk exposure. By actively managing environmental and social risks through sustainable lending and ethical governance, banks can reduce the likelihood of borrower default and improve credit portfolio quality (Meyer & Rowan, 2021). Thus, the TBL framework offers a comprehensive lens through which the influence of ESG practices on credit risk can be assessed.

Stakeholder Theory, developed by Freeman (1984), argues that organizations must consider the interests of a broad set of stakeholders, including customers, regulators, communities, and employees—not just

shareholders. This theory is particularly relevant to sustainability practices, as it highlights the role of inclusive decision-making, transparency, and ethical engagement in fostering organizational legitimacy and long-term value. In the banking sector, addressing stakeholder expectations through strong ESG practices may enhance trust, improve reputational standing, and foster customer loyalty—all of which can reduce credit risk. For instance, environmentally conscious lending and socially inclusive financing may attract more responsible borrowers and reduce default rates (Jones, 2021). Stakeholder Theory therefore reinforces the view that ESG adoption is not merely ethical but strategic in managing credit-related exposures.

Legitimacy Theory, as articulated by Suchman (1995), posits that organizations seek legitimacy by aligning their actions with the norms, values, and expectations of society. In practice, this means that banks that disclose their sustainability commitments and demonstrate responsible governance are more likely to gain societal approval, regulatory support, and investor confidence. Legitimacy enhances institutional stability and may indirectly influence credit risk by improving a bank's public image and reducing reputational damage during periods of financial distress (Bebbington et al., 2021). From this perspective, sustainability practices are viewed as tools for securing external validation and mitigating non-financial risks that could ultimately affect loan repayment behavior.

Together, these theories suggest that sustainability practices, far from being peripheral concerns, are strategically central to risk management in modern banking. They frame ESG integration not only as a moral imperative but also as a rational response to emerging forms of credit risk in dynamic financial environments.

2.2 Empirical Literature Review

Empirical studies exploring the link between sustainability practices and credit risk have grown in recent years, reflecting increased interest in how ESG initiatives influence financial stability. However, findings remain mixed and context-dependent, with considerable variation in the scope, methodology, and measurement approaches used across studies.

Global evidence suggests a generally positive relationship between sustainability practices and reduced credit risk. Scholtens and Dam (2007), in a study of European banks, found that institutions with robust corporate social responsibility (CSR) programs experienced lower default rates, attributing this to improved stakeholder relationships and borrower quality. Similarly, Weber, Scholz, and Michalik (2010) examined German banks and concluded that comprehensive sustainability reporting reduced credit risk by enhancing transparency and attracting more creditworthy borrowers. In South Korea, Kim and Li (2021) analyzed the effect of green finance on credit exposure and observed that banks offering green loans faced lower default rates, particularly from borrowers involved in renewable energy and environmentally responsible sectors.

In the **African context**, studies are more limited but increasingly emerging. Baguma and Nalukenge (2020) examined sustainability disclosures among Ugandan banks and found that institutions with detailed ESG reporting frameworks had lower levels of non-performing loans (NPLs), suggesting improved credit appraisal and risk oversight. Similarly, in Nigeria, Lawal and Adetula (2020) linked ESG practices to enhanced loan portfolio performance, particularly in banks that integrated social impact assessment into their lending processes.

In Kenya, empirical studies have focused on selected sustainability dimensions rather than a comprehensive ESG framework. Wambua (2021) found that banks financing green projects such as sustainable agriculture and renewable energy experienced a decline in NPLs, suggesting that borrowers aligned with environmental goals may exhibit stronger repayment behavior. Kamau (2020) investigated the role of CSR and governance on financial performance and risk management, reporting that sustainability integration improved both profitability and credit quality. Mwangi (2019) also examined ESG factors in credit evaluation and concluded that banks incorporating ESG metrics—particularly governance—reported fewer credit defaults in sectors like manufacturing and agriculture. However, these studies often relied on small samples, limited timeframes, or focused on individual ESG components, thus providing a fragmented understanding of sustainability's overall effect on credit risk.

While the general consensus points toward a favorable influence of ESG practices on credit risk, several gaps persist. Conceptually, most studies fail to holistically examine the combined effect of environmental, social, and governance practices. Methodologically, few adopt panel data techniques or apply rigorous diagnostic tests to validate findings. Contextually, research specific to Kenyan commercial banks remains sparse, despite regulatory emphasis on sustainability and the sector's exposure to credit risk volatility.

This study contributes to existing literature by addressing these gaps through a comprehensive, quantitative assessment of how ESG practices influence credit risk in Kenyan commercial banks. By using multi-year panel data and incorporating firm-specific controls, the study offers empirical insights relevant to scholars, practitioners, and regulators in the sustainable finance space.

2.3 Conceptual Framework

Figure 1 shows the study's conceptual framework which shows the interrelation between the independent variable and the dependent variable.

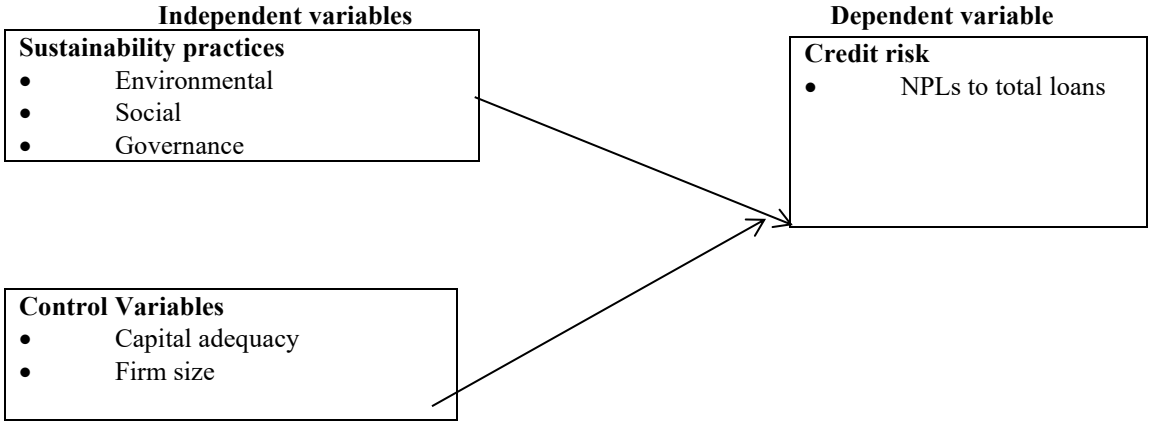


Figure 1: Conceptual Framework

III. Research Methodology

This study adopted a causal research design to examine the effect of sustainability practices on credit risk among commercial banks in Kenya. The causal design was appropriate as it enabled the investigation of cause-and-effect relationships between environmental, social, and governance (ESG) practices and the credit risk exposure of banks, measured through non-performing loan ratios.

The target population consisted of all 39 commercial banks licensed by the Central Bank of Kenya as of December 2023. A census approach was employed, allowing for comprehensive coverage of the entire population and enhancing the generalizability of the findings. The study utilized secondary panel data collected from annual reports, sustainability disclosures, and Central Bank publications over a five-year period from 2019 to 2023. This timeframe was selected to reflect recent regulatory shifts and the increasing integration of ESG practices across the sector.

The dependent variable was credit risk, proxied by the ratio of non-performing loans (NPLs) to total loans. The independent variables were ESG practices operationalized through disclosure indices: the Environmental Disclosure Index, Social Disclosure Index, and Governance Disclosure Index, each derived from structured content analysis of annual reports. Two control variables—capital adequacy (core capital to risk-weighted assets) and firm size (log of total assets)—were included to account for firm-level financial characteristics.

Data analysis involved descriptive statistics, correlation analysis, and a random-effects panel regression model. Diagnostic tests were conducted to ensure the robustness of the model, including checks for multicollinearity (Variance Inflation Factor), heteroscedasticity (Breusch-Pagan test), autocorrelation (Durbin-Watson statistic), normality (Shapiro-Wilk test), and model specification (Hausman test). These procedures ensured that the regression estimates were statistically valid and reliable.

IV. Results and Discussion

4.1 Descriptive Statistics

Descriptive analysis was conducted on data from 195 firm-year observations, covering 39 commercial banks over five years (2019–2023). The mean credit risk, measured by the ratio of non-performing loans (NPLs) to total loans, was 0.180, indicating that on average, 18% of the loan portfolio was classified as non-performing. Environmental practices had a mean disclosure score of 0.306, social practices 0.443, and governance practices 0.554, suggesting that Kenyan commercial banks engaged more consistently in governance-related sustainability practices than in environmental or social initiatives. The control variables—capital adequacy and firm size—had a mean of 0.183 and KES 156 billion respectively, reflecting moderate capitalization and considerable variation in bank sizes across the sector. The results are as shown in Table 1

Table 1: Summary of Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Credit risk	195	.009	.883	.18014	.150994
Environmental Practices	195	.143	.571	.30553	.179569
Social Practices	195	.286	.714	.44333	.173174
Governance Practices	195	.429	.857	.55406	.180610
Capital adequacy	195	-.745	.531	.18289	.134562

Firm size (Kes, '000)	195	2882182	1425369827	156479910	229826137
Valid N (listwise)	195				

4.2 Correlation Analysis

Correlation results revealed a negative association between governance practices and credit risk, indicating that banks with stronger governance structures were more likely to manage credit risk effectively. Environmental and social practices showed weak or non-significant correlations with credit risk, while capital adequacy and firm size were negatively correlated with NPLs, aligning with existing theoretical expectations that well-capitalized and larger institutions bear lower credit risk. The results are as shown in Table 2

Table 2: Correlation Results

		Credit risk	Environmental Practices	Social Practices	Governance Practices	Capital adequacy	Firm size
Credit risk	Pearson Correlation	1					
	Sig. (2-tailed)						
Environmental Practices	Pearson Correlation	-.118	1				
	Sig. (2-tailed)	.100					
Social Practices	Pearson Correlation	-.121	.386**	1			
	Sig. (2-tailed)	.091	.000				
Governance Practices	Pearson Correlation	-.211**	.339**	.443**	1		
	Sig. (2-tailed)	.003	.000	.000			
Capital adequacy	Pearson Correlation	-.502**	-.186**	-.184*	-.164*	1	
	Sig. (2-tailed)	.000	.009	.010	.022		
Firm size	Pearson Correlation	-.329**	.576**	.578**	.597**	.058	1
	Sig. (2-tailed)	.000	.000	.000	.000	.418	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
c. Listwise N=195

4.3 Regression Results

A random-effects panel regression model was employed based on Hausman test results. The overall model was statistically significant ($F = 6.41$, $p < 0.01$) with an R-squared of 0.389, indicating that approximately 39% of the variation in credit risk could be explained by the model variables. Key results are summarized as follows:

- **Governance practices** had a statistically significant negative effect on credit risk ($\beta = -0.450$, $p = 0.047$), suggesting that improvements in governance mechanisms, such as board oversight and transparency, are associated with lower levels of non-performing loans.
- **Environmental practices** ($\beta = 0.336$, $p = 0.182$) and **social practices** ($\beta = 0.103$, $p = 0.721$) were not statistically significant, implying that their impact on credit risk is limited or indirect within the study period.
- **Capital adequacy** had a strong negative effect on credit risk ($\beta = -0.447$, $p < 0.001$), confirming that well-capitalized banks are better positioned to absorb credit losses.
- **Firm size** was also negatively associated with credit risk ($\beta = -0.073$, $p = 0.038$), indicating that larger banks with broader diversification and stronger internal systems face lower credit exposure. The results are as shown in Table 3.

Table 3: Regression Results

Random-effects GLS regression		Number of obs		=	195	
Group variable: Bank ID		Number of groups		=	39	
R-sq:		Obs per group:				
within = 0.1142		min		=	5	
between = 0.5010		avg		=	5	
overall = 0.3890		max		=	5	
		Wald chi2(5)		=	53.07	
corr(u_i, X) = 0 (assumed)		Prob > chi2		=	0.000	
Credit risk	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Environmental Practices	0.3362322	0.3	1.34	0.182	-0.1572	0.829662
Social Practices	0.1032988	0.3	0.36	0.721	-0.46327	0.669868

Governance Practices	-0.4497522	0.2	-1.98	0.047	-0.8944	-0.0051
Capital adequacy	-0.4471794	0.1	-5.61	0	-0.60338	-0.29098
Firm size	-0.0725448	0	-2.07	0.038	-0.14109	-0.004
_cons	0.9233975	0.2	3.98	0	0.468693	1.378102

The finding that governance practices significantly reduce credit risk aligns with the tenets of both Stakeholder Theory and Legitimacy Theory, which suggest that effective governance enhances stakeholder trust and institutional legitimacy, thereby reducing borrower defaults. These results are consistent with studies by Mwangi (2019) and Kamau (2020), who noted that governance-focused sustainability efforts improve loan performance in Kenyan banks.

The non-significant effect of environmental and social practices may reflect the long-term nature of these initiatives or the absence of regulatory enforcement mechanisms that tie such practices directly to lending risk. This finding echoes global observations by Weber et al. (2010) and regional insights by Wambua (2021), who acknowledged that the short-term impact of environmental and social factors on credit performance may be difficult to isolate in emerging markets.

The significance of capital adequacy and firm size as control variables confirms established literature that links strong financial fundamentals to reduced credit risk (Basel Committee, 2022). Larger and well-capitalized banks likely benefit from better risk assessment systems, diversified portfolios, and enhanced resilience during economic shocks.

V. Conclusion

This study set out to examine the effect of sustainability practices on credit risk among commercial banks in Kenya, using panel data from 39 licensed banks over the period 2019 to 2023. Sustainability practices were operationalized through environmental, social, and governance disclosures, while credit risk was measured by the ratio of non-performing loans to total loans. The findings offer empirical evidence that governance practices play a significant role in credit risk mitigation. Specifically, banks that demonstrated stronger governance—through transparent reporting, ethical conduct, and sound board oversight—were associated with lower credit risk. This supports the theoretical perspective that good governance enhances stakeholder confidence and institutional stability, thereby reducing loan default rates.

On the other hand, the results indicated that environmental and social practices did not have a statistically significant effect on credit risk within the study period. This suggests that while such practices may be important for long-term sustainability and reputational benefits, their immediate impact on credit quality is less pronounced, particularly in developing economies where ESG integration is still evolving. These findings highlight the need for deeper institutionalization of environmental and social policies within banking frameworks, supported by appropriate incentives and regulatory standards.

Additionally, the study confirmed that financial fundamentals—specifically capital adequacy and firm size—remain critical determinants of credit risk. Well-capitalized and larger banks exhibited lower levels of credit risk, underscoring the importance of maintaining strong financial buffers and scalable risk management systems.

VI. Recommendations

In light of the study's findings, several recommendations are proposed to enhance credit risk management and promote sustainable banking practices in Kenya.

First, there is a need to strengthen governance standards across the banking sector. Regulatory bodies such as the Central Bank of Kenya should continue to emphasize ethical conduct, transparency, and board effectiveness by embedding governance requirements within credit risk management regulations. Enhanced supervisory oversight and routine assessments of governance disclosures could help banks internalize these practices more effectively.

Second, while environmental and social practices did not show statistically significant effects on credit risk within the study period, they remain vital in the broader sustainability agenda. Policymakers should consider creating incentives for banks to integrate these dimensions more meaningfully. Such incentives may include tax reliefs, sustainability-linked financing guidelines, or differentiated capital requirements for banks investing in green or socially inclusive projects.

Third, the introduction of standardized ESG disclosure frameworks tailored to the Kenyan banking context is recommended. Harmonized reporting guidelines would improve data consistency, comparability, and usability in risk analysis. Regulatory agencies like the Capital Markets Authority and Central Bank of Kenya could lead this initiative by issuing sector-specific ESG disclosure templates and compliance checklists.

Additionally, banks should be encouraged to leverage their scale and financial strength to advance sustainable lending practices. Larger institutions with stronger capital buffers are better positioned to adopt advanced risk management systems, diversify loan portfolios, and support ESG-driven innovations in credit evaluation. Smaller banks should receive targeted support to strengthen capital adequacy and develop capacity for sustainability integration.

From a research perspective, future studies should consider extending the time horizon beyond five years to better capture the long-term effects of ESG practices—particularly environmental and social initiatives—on credit risk. Comparative studies across regions or economies with varying institutional environments could also offer valuable insights into how context influences ESG-credit risk dynamics. Furthermore, incorporating qualitative approaches such as interviews or case studies would enrich understanding of the motivations, challenges, and internal processes that shape ESG implementation within banking institutions.

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