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FINANCE AND ACCOUNTING

CLIMATE FINANCE PRACTICES AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA: THE MODERATING ROLE OF REGULATORY FRAMEWORKS

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ABSTRACT

The purpose of the study was to examine the effect of climate finance practices on the financial performance of commercial banks in Kenya, specifically evaluating the influence of green financing, climate risk disclosure, and climate related investment policies, while establishing the moderating role of regulatory frameworks. The study was grounded in the Resource Based View Theory, Stakeholder Theory, Modern Portfolio Theory, and Institutional Theory. A descriptive correlational research design was adopted, targeting 234 banking professionals drawn from all 39 licensed commercial banks in Kenya, spanning credit, environmental social governance, risk, and investment functions. Using the Yamane formula, a sample of 148 respondents was determined and selected through proportionate stratified random sampling, with 123 questionnaires returned and analysed, representing a response rate of 83 percent. A structured questionnaire was used as the primary data collection instrument, and data was analysed using descriptive and inferential statistics through multiple and moderated regression. The findings revealed that climate finance practices had a significant combined effect on financial performance, explaining 69.5 percent of the variance (. Green financing recorded the strongest effect, followed by climate related investment policies and climate risk disclosure. The moderated analysis demonstrated that regulatory frameworks significantly enhanced the effectiveness of green financing and climate related investment policies, but not climate risk disclosure. The study recommends that institutions should entrenchment climate finance practices within a supportive regulatory environment for essential optimization of financial performance in commercial banks.

Keywords: *Climate Finance Practices, Green Financing, Climate Risk Disclosure, Climate Related Investment Policies, Regulatory Frameworks, Financial Performance, Commercial Banks, Kenya.*

1. INTRODUCTION

In an increasingly climate sensitive financial landscape, the sustainability and financial performance of commercial banks increasingly depend on their ability to adopt and integrate effective climate finance practices. These practices, including green financing, climate related risk disclosures, and environmentally sustainable investment policies, play a critical role in enhancing institutional resilience and aligning banking operations with global climate goals (Grijalvo & García-Wang, 2023; Mangwa & Jagongo, 2022). Financial performance, often measured through profitability indicators, asset quality, and capital adequacy, is now influenced by how banks manage climate related risks and leverage green opportunities (Adu et al., 2024). Poor adoption of climate finance strategies can lead to mispriced risk, stranded assets, regulatory penalties, and reputational harm, ultimately threatening long term profitability and operational viability (Ameli et al., 2020). However, despite growing awareness, many banks still face challenges in aligning climate finance with core operations due to limited institutional capacity, regulatory gaps, and insufficient data (Sun et al., 2022).

Globally, the integration of climate finance practices in commercial banks has gained significant traction, driven by rising concerns over environmental degradation and financial exposure to climate related risks. Banks in Europe and North America have increasingly adopted green financing models and sustainability linked lending frameworks, leading to improved risk management and stronger asset performance (IMF, 2022). However, disparities persist across regions, as some banks in South and Southeast Asia continue to face implementation barriers due to regulatory fragmentation and limited technical capacity (Asian Development Bank, 2023). In contrast, countries such as Germany and the Netherlands have embedded climate risk assessment within mainstream financial supervision, maintaining strong financial performance amidst green transitions (Brühl, 2021). Despite these advancements, the global financial system remains vulnerable to systemic risks posed by climate change, especially in jurisdictions lacking consistent disclosure standards or transition finance instruments (IMF, 2023).

Regionally, the adoption of climate finance practices among commercial banks in Sub Saharan Africa remains fragmented, with institutions facing persistent challenges in aligning environmental sustainability with financial performance. In Ghana, the financial exposure of banks to climate vulnerable sectors such as agriculture and energy has contributed to asset volatility and impaired loan performance (Bank of Ghana, 2023). Similarly, in Nigeria, financial institutions continue to experience difficulties incorporating climate related risks into their lending frameworks due to limited regulatory guidance and insufficient data infrastructure (Doku et al., 2021). Conversely, South Africa has made notable progress, implementing advanced climate risk stress testing protocols and encouraging financial institutions to adopt green lending standards, which has contributed to improved asset quality and enhanced long term financial performance (Bracking & Leffel, 2021).

In Kenya, the integration of climate finance practices within commercial banks is gaining momentum, yet concerns persist regarding the sector's readiness to effectively manage climate

related financial risks. While several banks have taken steps toward environmental sustainability through green bonds and climate aligned lending, the sector still lacks comprehensive climate risk assessment frameworks (CBK, 2023). Notably, the introduction of the Climate Related Risk Management Guideline in 2023 marked a regulatory shift, requiring commercial banks to embed climate risk into governance structures, strategy, and disclosures. However, implementation remains uneven, with many banks struggling to integrate these requirements into existing risk management systems due to capacity gaps and limited climate data (Mungai et al., 2022). It is against this background that this study sought to examine the extent to which climate finance practices influence the financial performance of commercial banks in Kenya.

1.1 Problem Statement

In an ideal financial environment, commercial banks should integrate climate finance practices to mitigate climate related risks and promote sustainable financial performance, with green financing, climate related disclosures, and investment in low carbon sectors enhancing risk adjusted returns and institutional resilience (CBK, 2023). Regulatory expectations, particularly the Climate Related Risk Management Guideline issued by the Central Bank of Kenya in October 2023, require all banks to embed environmental considerations in governance, risk assessment, and credit allocation. However, actual adoption remains limited. As of December 2023, only 11 of the 39 licensed commercial banks had submitted full implementation reports in line with the guideline, indicating slow institutional uptake. The green bond market remains underdeveloped, with just two corporate green bonds issued locally since 2019, representing under 0.1 percent of total outstanding bonds (Nairobi Securities Exchange, 2023). Data further indicate that less than 7 percent of total bank credit is allocated to green or sustainability linked sectors, leaving banks exposed to environmental and transition risks, particularly in agriculture and manufacturing, which together account for over 45 percent of bank credit exposure yet remain highly vulnerable to climate shocks (Kenya Bankers Association, 2023).

Despite growing global interest in climate finance, significant gaps persist in the literature, particularly within Kenya's commercial banking context. Contextually, most existing studies have focused on developed economies or generalized sustainability practices, with limited attention to country specific challenges such as weak regulatory enforcement and low green finance penetration (Kouwenberg & Zheng, 2023; Bracking & Leffel, 2021). Conceptually, insufficient empirical clarity exists on how individual climate finance practices jointly or separately affect financial performance metrics (Grijalvo & García-Wang, 2023; Adu et al., 2024). Methodologically, prior research has largely relied on descriptive or cross sectional designs, lacking rigorous econometric approaches capable of establishing causality (Venturini, 2022; Sun et al., 2022). Local studies by Wabwile (2023), Omare (2023), Mangwa and Jagongo (2022), and Kitonga et al. (2023) each examined aspects of climate finance in Kenyan banks but collectively failed to establish comprehensive empirical linkages between specific practices and financial outcomes, excluded unlisted institutions, or lacked methodological robustness. This study

addressed these gaps by assessing the effect of climate finance practices on the financial performance of commercial banks in Kenya.

1.2 Research Objectives

The general objective of the study was to determine the effect of climate finance practices on the financial performance of commercial banks in Kenya.

The following were the specific objectives;

i. To examine the effect of green financing on the financial performance of commercial banks in Kenya.
ii. To assess the influence of climate risk disclosure on the financial performance of commercial banks in Kenya.
iii. To analyze the impact of climate related investment policies on the financial performance of commercial banks in Kenya.
iv. To determine the moderating effect of regulatory frameworks on the relationship between climate finance practices and the financial performance of commercial banks in Kenya.

1.3 Research Hypotheses

The study tested the following null hypotheses;

H_{01}: Green financing has no significant effect on the financial performance of commercial banks in Kenya.

H_{02}: Climate risk disclosure has no significant effect on the financial performance of commercial banks in Kenya.

H_{03}: Climate related investment policies have no significant effect on the financial performance of commercial banks in Kenya.

H_{04}: Regulatory frameworks do not have a significant moderating effect on the relationship between climate finance practices and the financial performance of commercial banks in Kenya.

2. LITERATURE REVIEW

This section presents the theoretical and empirical literature underpinning the study. It begins with a review of the theories that guided the study, followed by an examination of empirical studies related to the study variables. The section concludes with a conceptual framework illustrating the relationship between climate finance practices and the financial performance of commercial banks in Kenya.

2.1 Theoretical Review

The Resource Based View Theory, initially conceptualized by Penrose (1959) and subsequently elaborated by Barney (1991), establishes a foundational analytical framework for comprehending how commercial banking institutions harness distinctive resources and competencies to secure competitive positioning. This perspective asserts that organizations achieve superior performance through the cultivation of resources characterized as valuable, rare, inimitable, and non-substitutable. Hart (1995) broadened the theory through his Natural Resource Based View, proposing that environmentally conscious practices constitute strategic assets capable of generating simultaneous ecological and economic advantages. Although critics such as Priem and Butler (2001) argue that the theory is tautological, Abad-Segura et al. (2023) affirm its ongoing applicability in elucidating the relationship between environmental capabilities and banking financial performance. The theory was used in this study to underpin green financing, explaining how distinctive competencies in environmental risk assessment and sustainable lending may contribute to superior financial performance (Barney & Hesterly, 2015).

Stakeholder Theory, originally articulated by Freeman (1984) and refined by Donaldson and Preston (1995), establishes a framework for examining organizational interactions with diverse stakeholder constituencies and how these associations shape decision making and institutional performance. The theory advocates that enterprises should generate value across all stakeholder categories rather than exclusively prioritizing shareholder interests. Clarkson (1995) enhanced this conceptualization by differentiating primary stakeholders, whose engagement remains vital for organizational continuity, from secondary stakeholders. Although Jensen (2002) argues that the theory provides an ambiguous objective function for managers, Flammer (2021) confirms that addressing stakeholder concerns remains central to organizational legitimacy and long term performance in environmentally sensitive sectors like banking. The theory was used in this study to underpin climate risk disclosure, illuminating how banks adopt disclosure practices to address the information demands of investors, regulators, and civil society regarding environmental exposures (Sun et al., 2022).

Modern Portfolio Theory, developed by Markowitz (1952) and expanded by Sharpe (1964), presents a quantitative framework for constructing asset portfolios that optimize expected returns relative to specified risk parameters. The theory articulates that rational investors pursue return maximization while achieving risk minimization through diversification across assets exhibiting imperfect return correlations, introducing the efficient frontier concept. Although Roll (1977) questions the testability of the theory and behavioral economists challenge its assumptions about investor rationality, Fabozzi et al. (2021) have expanded the theory to incorporate climate risks as a distinct factor affecting asset correlations and returns. The theory was used in this study to underpin climate related investment policies, helping to explain why banks incorporate climate factors into investment decisions, recognizing that climate risks represent a systematic risk factor that affects asset correlations and returns (Huang et al., 2022).

Institutional Theory, conceptualized by DiMaggio and Powell (1983) and elaborated by Scott (1995), establishes a framework for examining how organizations implement practices in response to institutional forces rather than exclusively efficiency driven motivations. The theory contends that organizations operating within identical fields demonstrate progressive convergence through institutional isomorphism processes, encompassing coercive, mimetic, and normative mechanisms. Meyer and Rowan (1977) introduced the concept of ceremonial conformity, where organizations formally adopt institutional practices to gain legitimacy. Although Oliver (1991) argues that the theory underestimates strategic agency, Daddi et al. (2020) confirm its continued relevance in explaining the adoption of environmental practices within financial sectors. The theory was used in this study to underpin the moderating variable of regulatory frameworks, explaining why banks adopt climate finance practices in response to pressure from international organizations such as the Task Force on Climate related Financial Disclosures and regulators such as the Central Bank of Kenya.

2.2 Empirical Review

Several studies have documented the benefits of green financing on financial performance. Mangwa and Jagongo (2022) examined the connection between green financing and financial performance among Kenyan listed commercial banks, using structured questionnaires to gather primary data from 11 listed banks, and discovered that the return on assets of institutions with comprehensive green financing frameworks averaged 3.6 percent, significantly higher than the 2.1 percent recorded by those with limited environmental considerations, with renewable energy financing showing the strongest correlation with profitability. Similarly, Chen et al. (2022) investigated how green banking policies affected the green financing of 126 Chinese banks, revealing a substantial positive connection between structured green finance frameworks and financial performance and finding that environmental risk assessment explained 38.7 percent of the variance in profitability. Lian et al. (2022) analysed panel data from 24 listed Chinese commercial banks, finding that banks with strong green credit frameworks recorded a 27 percent increase in return on assets, while Grijalvo and García-Wang (2023) established through structural equation modeling of 142 institutions that green financing intensity explained 53.6 percent of the variation in profitability. Despite these findings, most reviewed studies relied on descriptive approaches, focused on listed banks, or were conducted in contexts different from Kenya's commercial banking sector, creating gaps that this study sought to address.

The relationship between climate risk disclosure and financial performance has been widely investigated across different contexts. Sun et al. (2022), employing data from 94 banks across multiple jurisdictions, found that institutions implementing comprehensive climate risk disclosure frameworks demonstrated superior financial stability, establishing a statistically significant positive correlation between disclosure quality and return on assets. Venturini (2022), through a meta analysis of 47 empirical studies, found consistent evidence that high quality climate risk disclosures enhanced risk adjusted returns by 0.31 Sharpe ratio points compared to minimal disclosure practices, with clear transition risk reporting showing the strongest relationship with

improved cost of capital. Huang et al. (2022) analysed 2,024 firm bank relationships and established a significant negative relationship between disclosure quality and non performing loan ratios, while Brühl (2021) found that comprehensive disclosure practices among 68 European banks were associated with cost income ratios 6.2 points better than low disclosure counterparts. These findings affirm the role of disclosure in enhancing financial performance, though contextual and methodological gaps necessitated further investigation within Kenya's commercial banking sector.

Research on climate related investment policies consistently demonstrates their positive influence on financial performance. Schütze and Stede (2024) examined 112 European Union banks and established a significant positive relationship between taxonomy aligned investment ratios and return on assets, with climate related investment policies explaining 32.6 percent of the variance in profitability. Huang et al. (2022) found a significant negative correlation between climate aligned investment stringency and non performing loan ratios, indicating that environmentally screened investments demonstrate enhanced credit quality. Abad-Segura et al. (2023), through a bibliometric analysis of 643 studies, revealed that banks implementing science based climate targets experienced cost of equity reductions averaging 18 basis points. Locally, Kitonga et al. (2023) found that Kenyan banks implementing structured climate related investment frameworks demonstrated return on equity exceeding industry averages, with environmental screening criteria showing significant positive associations with asset quality indicators. However, most of these studies were conducted outside Kenya, focused on listed banks, or lacked robust statistical modeling, creating gaps that this study sought to bridge.

The moderating influence of regulatory frameworks on climate finance relationships has attracted growing scholarly attention. Brühl (2021) found that banks operating in jurisdictions with well established climate finance regulatory frameworks demonstrated cost of capital advantages, with regulatory clarity explaining 33.7 percent of the variance in intermediation profitability. Kouwenberg and Zheng (2023), through a meta analysis of 187 empirical studies, found that the correlation between green financing and profitability was significantly stronger in jurisdictions with mandatory climate risk disclosure requirements than in voluntary regimes. Schütze and Stede (2024) demonstrated through difference in differences analysis that following taxonomy implementation, banks with high alignment recorded return on equity exceeding low alignment peers by 1.68 percentage points, while Daddi et al. (2020) found that the positive relationship between climate related policies and financial performance was significantly stronger in banks operating under clear regulatory regimes. Despite these findings, most studies focused on developed market regulatory environments, leaving a gap in understanding how regulatory frameworks moderate climate finance relationships in Kenya's emerging banking context.

2.4 Conceptual Framework

A conceptual framework is a diagrammatic representation that illustrates the relationship between the independent and dependent variables in a study. The conceptual framework demonstrates the

relationship between climate finance practices (independent variables) and financial performance (dependent variable) of commercial banks in Kenya, with regulatory frameworks operating as a moderating variable. Figure 1 presents the conceptual framework showing the relationship between these variables. basis of this study.

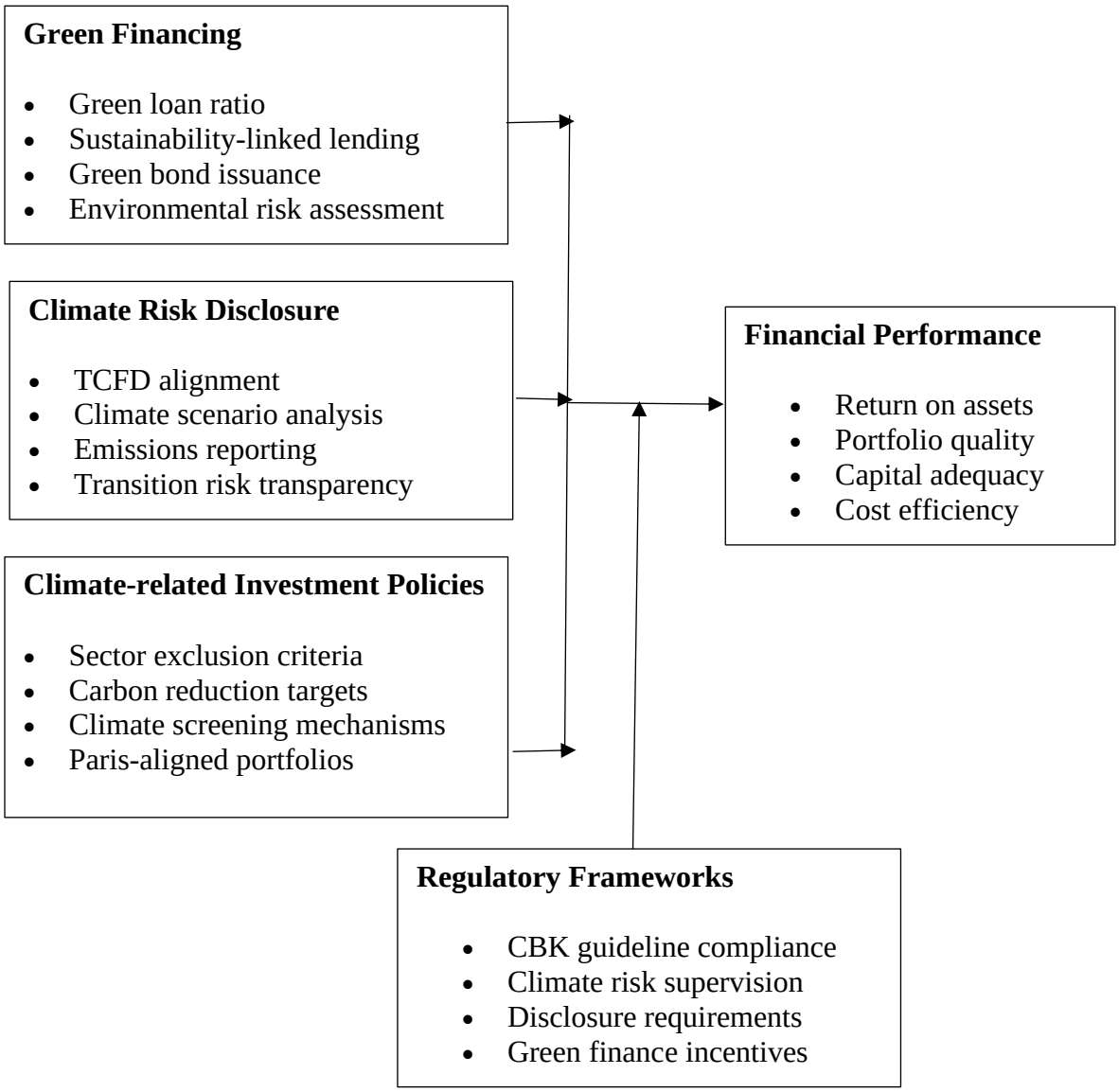

Figure 1: Conceptual Framework

The framework depicts three key climate finance practices as independent variables, namely green financing, climate risk disclosure, and climate related investment policies. These practices are hypothesized to influence financial performance, measured through return on assets, portfolio quality, capital adequacy, and cost efficiency. Regulatory frameworks moderate the relationship between climate finance practices and financial performance, with effective implementation of

these practices within a supportive regulatory environment expected to result in improved financial performance outcomes.

3. METHODOLOGY

The study adopted a descriptive correlational research design, which enabled the researcher to examine the relationship between climate finance practices and the financial performance of commercial banks in Kenya without experimental manipulation of the independent variables. The target population comprised 234 banking professionals drawn from all 39 licensed commercial banks in Kenya, spanning credit, environmental social governance, risk and compliance, and investment functions (CBK, 2023). Using the Yamane (1967) formula, a sample size of 148 respondents was determined and selected through proportionate stratified random sampling to ensure representativeness across all respondent categories.

A structured questionnaire was used as the primary data collection instrument, comprising five sections measuring respondent demographics and the four study constructs through five point Likert scale items. Validity was ascertained through face and content validity tests, while reliability was confirmed through Cronbach's Alpha, which yielded coefficients ranging from 0.801 to 0.856 across all constructs, exceeding the recommended threshold of 0.7. Data was analysed using descriptive and inferential statistics, including correlation, multiple regression, and moderated regression analysis, with diagnostic tests for normality, multicollinearity, and heteroscedasticity conducted to ensure conformity with classical linear regression assumptions.

1. RESULTS AND FINDINGS

This section presents the findings from the data collected and analysed in the study. A total of 148 questionnaires were distributed to banking professionals across all 39 commercial banks in Kenya, of which 123 were returned and found suitable for analysis, representing a response rate of 83 percent. This response rate was considered adequate for analysis, conclusions, and recommendations, as it surpassed the 70 percent threshold recommended by Mugenda and Mugenda (2003). The findings are presented in accordance with the study objectives, covering demographic background, descriptive statistics, diagnostic tests, correlation analysis, and regression analysis.

4.1 Response rate

The demographic characteristics of the study respondents were examined from the perspectives of position, length of service, academic qualification, and departmental affiliation. Findings revealed that credit officers constituted the largest proportion of respondents at 33.3 percent, closely followed by risk and compliance officers at 32.5 percent, while investment officers and environmental social governance managers accounted for 17.9 percent and 16.3 percent respectively. In terms of experience, 87.8 percent of respondents had more than five years of banking experience, with 61.8 percent having over ten years, indicating substantial professional expertise. Regarding academic qualifications, 88.6 percent of respondents held university level

qualifications, with 35.7 percent possessing postgraduate qualifications, reflecting a highly educated sample with relevant expertise in climate finance practices. The distribution confirmed that participants were drawn from functional areas directly relevant to the implementation of climate finance practices within commercial banks.

4.2 Descriptive Statistics

Descriptive statistics were used to analyse the data collected through the survey questionnaire, measuring central tendency and dispersion through means and standard deviations. Respondents were required to rate various statements on a five point Likert scale, where a score of 1 indicated strong disagreement and a score of 5 indicated strong agreement. The findings across the three climate finance practice variables, the moderating variable, and the dependent variable of financial performance are summarised in Table 1 below.

Table 1: Descriptive Statistics

Variable	Overall Mean	Std. Deviation	Interpretation
Green Financing	2.63	1.26	Low
Climate Risk Disclosure	2.38	1.15	Low
Climate Related Investment Policies	2.31	1.13	Low
Regulatory Frameworks	2.78	1.13	Moderate
Financial Performance	2.86	1.11	Moderate

Source: Survey Data (2025)

The descriptive findings indicate that regulatory frameworks recorded the highest mean score of 2.78, reflecting moderate development of the policy environment governing climate finance, with relatively strong reported compliance with the Central Bank of Kenya guideline. Financial performance registered a moderate mean of 2.86, driven largely by strong capital adequacy positions, even as the perceived financial benefits from climate finance practices remained limited. Green financing recorded a low mean of 2.63, indicating that while some banks have begun implementing basic elements such as preferential terms and environmental risk assessment, sophisticated instruments like green bonds remain underdeveloped. Climate risk disclosure and climate related investment policies recorded the lowest means of 2.38 and 2.31 respectively, reflecting limited adoption of internationally recognized frameworks such as the Task Force on Climate related Financial Disclosures and minimal integration of climate considerations into investment decision making across the sector.

4.3 Correlation Analysis

A Pearson Product Moment correlation analysis was conducted to establish the nature and strength of the relationship between the climate finance practices and the financial performance of commercial banks in Kenya. Table 2 displays the correlation test analysis results.

Table 2: Correlation Matrix

	Financial Performance	Green Financing	Climate Risk Disclosure	Climate Investment Policies	Regulatory Frameworks
Financial Performance	1.000				
Green Financing	.742**	1.000			
Climate Risk Disclosure	.718**	.412	1.000		
Climate Investment Policies	.769**	.385	.428	1.000	
Regulatory Frameworks	.701**	.356	.394	.467	1.000

Source: Survey Data (2025)

The findings revealed that all four independent variables exhibited strong positive and statistically significant correlations with financial performance. Specifically, climate related investment policies recorded the strongest correlation with financial performance ($r = 0.769$, $p < 0.05$), followed by green financing ($r = 0.742$, $p < 0.05$), climate risk disclosure ($r = 0.718$, $p < 0.05$), and regulatory frameworks ($r = 0.701$, $p < 0.05$). Based on conventional classification thresholds, whereby correlation coefficients ranging from 0.5 to 0.9 are considered substantial or strong, all four variables demonstrated strong positive correlations with financial performance, exceeding the 0.5 threshold. These findings imply that improvements in any of the climate finance practices would be associated with enhanced financial performance, and that commercial banks investing in robust green financing, climate risk disclosure, and climate related investment policies are more likely to experience improved financial performance outcomes.

4.4 Regression Analysis

A multiple linear regression analysis model summary presented in Table 3 indicates that the three independent variables had a strong combined relationship with the dependent variable.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.834a	0.695	0.685	0.28647

Source: Survey Data (2025)

The coefficient of determination (R^2) of 0.695 indicates that 69.5 percent of the variance in financial performance is explained by the three climate finance practices, while the adjusted R^2 of 0.685 confirms the model's robustness and goodness of fit.

Table 4: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	22.186	3	7.395	90.108	.000b
Residual	9.769	119	0.082		
Total	31.955	122			

Source: Survey Data (2025)

The ANOVA results presented in Table 4 reveal that the overall regression model was statistically significant, with an F statistic of 90.108 and a p value of 0.000, which is less than the 0.05 significance level, providing strong evidence that climate finance practices collectively have a significant effect on the financial performance of commercial banks in Kenya.

Table 5: Regression Coefficients

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	0.482	0.286		1.685	0.095
Green Financing	0.387	0.074	0.365	5.230	0.021
Climate Risk Disclosure	0.298	0.081	0.287	3.679	0.000
Climate Investment Policies	0.341	0.076	0.324	4.487	0.000

Source: Survey Data (2025)

The regression coefficients presented in Table 5 indicate that all three climate finance practices demonstrated statistically significant positive effects on financial performance. Green financing had the strongest effect ($B = 0.387$, $\beta = 0.365$, $t = 5.230$, $p = 0.021$), followed by climate related investment policies ($B = 0.341$, $\beta = 0.324$, $t = 4.487$, $p = 0.000$), and climate risk disclosure ($B = 0.298$, $\beta = 0.287$, $t = 3.679$, $p = 0.000$).

Based on these findings, the regression equation was expressed as follows: $Y = 0.482 + 0.387X_1 + 0.298X_2 + 0.341X_3$, where Y represents financial performance, X_1 green financing, X_2 climate risk disclosure, and X_3 climate related investment policies. These results provide strong empirical evidence that climate finance practices, when implemented collectively, significantly enhance the financial performance of commercial banks in Kenya, affirming the need for commercial banks to invest in comprehensive climate finance systems.

4.5 Moderated Regression Model

The moderated regression coefficients presented in Table 6 reveal the differential moderating effects of regulatory frameworks across the climate finance practices.

Table 6: Moderated Regression Coefficients

Variable	B	Beta	t	Sig.
(Constant)	0.425		1.568	0.120
Green Financing	0.354	0.334	5.130	0.000
Climate Risk Disclosure	0.276	0.266	3.632	0.000
Climate Investment Policies	0.318	0.302	4.417	0.000
Regulatory Frameworks	0.189	0.181	2.277	0.025
Green Financing × Regulatory Frameworks	0.142	0.135	2.448	0.016
Climate Risk Disclosure × Regulatory Frameworks	0.098	0.094	1.607	0.111
Climate Investment Policies × Regulatory Frameworks	0.127	0.121	2.309	0.023

Source: Survey Data (2025)

A hierarchical regression analysis was conducted to examine the moderating effect of regulatory frameworks on the relationship between climate finance practices and financial performance. The moderated model demonstrated improved explanatory power, with the multiple correlation coefficient (R) increasing to 0.857 and the R^2 rising to 0.734, indicating that 73.4 percent of the variance in financial performance is explained when regulatory frameworks and interaction terms are included. The ANOVA results confirmed the model was statistically significant, with an F statistic of 45.844 and a p value of 0.000.

The interaction terms reveal differential moderating effects across the climate finance practices. Green financing by regulatory frameworks showed a significant positive interaction effect (β = 0.135, t = 2.448, p = 0.016), indicating that regulatory frameworks strengthen the relationship between green financing and financial performance. Climate related investment policies by regulatory frameworks also demonstrated a significant interaction ($\beta = 0.121$, $t = 2.309$, $p = 0.023$), suggesting that regulatory frameworks enhance the positive effect of climate related investment policies on financial performance. However, climate risk disclosure by regulatory frameworks showed a non significant interaction effect (β = 0.094, t = 1.607, p = 0.111), indicating that regulatory frameworks do not significantly moderate the relationship between climate risk disclosure and financial performance.

5. DISCUSSIONS

The findings revealed that green financing had the strongest positive and statistically significant effect on financial performance (B = 0.387, p = 0.021). These findings are consistent with Chen et al. (2022), who established that Chinese banks with structured green finance frameworks achieved return on assets 1.8 percentage points higher than industry averages. Similarly, Lian et al. (2022)

found that banks with comprehensive green credit frameworks experienced 27 percent increases in return on assets. Locally, Mangwa and Jagongo (2022) affirmed that institutions with comprehensive green financing frameworks achieved significantly higher return on assets than those with limited environmental considerations. These findings resonate with the Resource Based View Theory, which posits that distinctive environmental capabilities constitute strategic resources capable of generating superior financial performance (Barney, 1991; Hart, 1995).

Climate related investment policies (B = 0.341, p = 0.000) and climate risk disclosure (B = 0.298, p = 0.000) both demonstrated significant positive effects on financial performance. Schütze and Stede (2024) established a significant positive relationship between taxonomy aligned investment ratios and return on assets, while Huang et al. (2022) found that climate aligned investment stringency was negatively associated with non performing loan ratios, consistent with Modern Portfolio Theory. Regarding climate risk disclosure, Sun et al. (2022) and Venturini (2022) affirmed that disclosure practices enhance investor confidence and improve financial performance through reduced information asymmetry, consistent with Stakeholder Theory (Freeman, 1984). The researcher observed, however, that despite these demonstrated benefits, adoption of both practices remained low across the sector, with mean scores of 2.31 and 2.38 respectively, reflecting capacity constraints and the early stage of regulatory implementation in Kenya.

Regulatory frameworks demonstrated a significant but differential moderating influence on the climate finance and performance relationship. The significant moderation of green financing (β = 0.135, p = 0.016) and climate related investment policies (β = 0.121, p = 0.023) aligns with Brühl (2021) and Kouwenberg and Zheng (2023), who found that robust regulatory frameworks amplify the financial benefits of climate finance practices, consistent with Institutional Theory (DiMaggio & Powell, 1983; Daddi et al., 2020). However, the non significant moderation of climate risk disclosure (β = 0.094, p = 0.111) reflects the nascent stage of climate disclosure regulation in Kenya, where the Central Bank of Kenya Climate Related Risk Management Guideline was only introduced in October 2023, limiting the regulatory framework's ability to enhance disclosure effectiveness compared to the more established European environments examined by Schütze and Stede (2024).

6. CONCLUSIONS

The study concludes that climate finance practices have a significant positive effect on the financial performance of commercial banks in Kenya. Green financing, climate related investment policies, and climate risk disclosure all demonstrated statistically significant positive effects on financial performance, with green financing emerging as the strongest contributor, followed by climate related investment policies and climate risk disclosure respectively. The study further concludes that regulatory frameworks exercise a significant but differential moderating influence, amplifying the positive effects of green financing and climate related investment policies, but not climate risk disclosure, reflecting the early stage of Kenya's disclosure regulation. These findings affirm that commercial banks that entrench robust climate finance practices within a supportive regulatory

environment are better positioned to achieve sustainable financial performance, regulatory compliance, and long term organizational stability. The findings also reveal substantial implementation gaps across the sector, with current performance benefits accruing largely to a narrow group of early adopters while most banks forgo readily available gains.

7. RECOMMENDATIONS

The study recommends that commercial banks develop comprehensive green financing policies with clear environmental lending criteria and establish dedicated green financing units to capitalize on the demonstrated financial benefits. Banks should adopt climate risk disclosure frameworks aligned with the Task Force on Climate related Financial Disclosures and integrate climate related information into annual financial reports to enhance transparency and stakeholder confidence. Financial institutions should formalize climate related investment policies that include sector exclusion criteria and systematic climate risk screening procedures to optimize portfolio performance. From a policy perspective, the Central Bank of Kenya should enhance the clarity of climate related regulatory requirements through detailed implementation guidelines, strengthen supervisory oversight, develop targeted incentive mechanisms such as preferential reserve requirements for green loans, and establish a comprehensive green taxonomy for the Kenyan market to accelerate sustainable finance adoption across the banking sector.

CONFLICT OF INTEREST

The authors declare no conflict of interest. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The study was conducted independently, and the findings reflect the authors' objective analysis, free from any commercial, financial, or personal relationships that could have influenced the work.

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