SUSTAINABLE FINANCE AND FINANCIAL PERFORMANCE OF SELECTED COMMERCIAL BANKS IN KENYA

BY

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DECLARATION

This research project is my original work and has not been handed over to any institution of higher learning for the award of a degree.

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I confirm that this research work was done by the student under my direction and has been handed over for examination with my approval as his supervisor.

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DEDICATION

I dearly dedicate this research to my lovely mother Mrs. Mokami Chacha, My sisters; Elizabeth Matinde and Susan Nyakorema, my Lovely Brothers John Wankio and Kennedy Mokami for the great aid both morally and otherwise in my entire academic journey. I pray that God would grant them success in their endeavors and be inspired by this research work to achieve their goals.

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OPERATIONAL DEFINITION OF TERMS

Bank Size: Bank Size is the scale of a financial institution often measured in terms of total assets, equity, employees, deposit levels, and even loans (Kibet, 2023). In this study, bank size will refer to market capitalization, total assets, income levels, customer base, and employees.

Credit Risk Sustainability Assessment: Refers to the incorporation of social, and governance (ESG) factors into traditional credit risk assessment methodologies in a bid to assess a borrower's long-term ability to repay debt (Nyamongo, 2019; International Monetary Fund, 2023). In this research, credit risk sustainability assessment will entail the inclusion of new material risks and opportunities that can impact a borrower's financial performance and the lender's overall portfolio stability. It entails sustainability and credit risk rating.

Credit Risk Sustainability: Refers to a bank's capacity to maintain a stable and manageable level of credit exposure over time by integrating sustainability principles (Marimira & Gumel, 2025). In this study, credit risk sustainability will include aspects like responsible lending, robust risk assessment, and environmental, social, and governance (ESG) considerations. Therefore, the bank's ability to minimize default risks while ensuring long-term financial viability and alignment with sustainable finance objectives will be assessed.

Financial Performance: Financial performance is the level of a banks effective utilization of resources to generate revenues, control costs, and achieve profitability over a given period (Kweh et al., 2024). It reflects the bank's overall financial health, efficiency, and capacity to create value for its shareholders and other stakeholders. In this study, financial performance will be the banks' financial efficiency and profitability, measured using key financial ratios derived from audited financial statements, including Net Interest Margin (NIM), profitability, ROA, and ROE.

Sustainable Finance: Sustainable is the integration of environmental, social, and governance (ESG) considerations into financial decision-making processes to promote

responsible investments and long-term economic stability (Thiruma, 2024). It involves aligning banking operations, lending, and investment portfolios with sustainability principles that minimize environmental harm, foster social inclusion, and uphold strong governance practices. In this study, sustainable finance will be operationalized through measurable indicators that reflect how commercial banks implement ESG principles in their financial practices like environmental practices, social responsibility, ethical governance, and sustainability reporting.

Green Banking: Green banking is a modern-day financing trend that entails investments in sustainable technologies and initiatives that result in environmentally-friendly activities (Prasad, 2025; Ondiwa et al., 2024). In this research, green banking will refer to sustainable financial initiatives that focus on promoting clean energy and activities that aid in combating climate change. Such aspects include green loans, green credit cards, green credit policies, and green savings accounts.

Impact Investment: Impact investment is the dedication of funds by firms into activities that are set to earn the entities financial returns and create positive impacts on society and the environment as well (United Nations Development Programme, 2024; Berk & Binsbergen, 2024). In this study, impact investments refer to commitments by commercial banks that have a positive societal impact and environmental benefit by avoiding the generation of and distribution of harmful products.

Net Interest Margin: Net interest margin (NIM) refers to the efficiency with which a bank generates income from its interest-bearing assets relative to the interest it pays on customer deposits and borrowed funds (Saksonova, 2024). It reflects the bank's core profitability from lending and investment activities, and in this study, it will refer to the difference between the interest income earned by a commercial bank from its lending and investment activities and the interest paid to depositors and other creditors, expressed as a percentage of the bank's average earning assets.

Profitability: Profitability is the capability of generating surplus income after deducting all the operating and non-operating expenses (Jayathilaka, 2020). In this study, profitability will be a measure of the financial efficiency and success of the banks in terms of income, net of taxes and expenditure.

Return on Assets: Return on assets (ROA) is a measure how efficiently a bank's management utilizes total assets to generate net income (Karadayi, 2023). It reflects the bank's operational efficiency and asset productivity. In this study, return on assets will refer to the ratio of a bank's net income to its total assets, measuring how effectively the bank's management utilizes its assets to generate earnings. A higher ROA will indicate better operational efficiency and asset productivity.

Return on Equity: Return on Equity (ROE) is the rate of return earned on the shareholders' invested capital. It indicates the profitability of a bank relative to the equity contributed by its owners (Gupta & Mahakud, 2020). In this study, ROE will refer to the ratio of net income to total shareholders' equity, reflecting the rate of return earned on the owners' investment in the bank. It measures the bank's ability to generate profit from the equity capital provided by its shareholders.

ABBREVIATION AND ACRONYMS

CBK:	Central Bank of Kenya
CERCLA:	Comprehensive Environmental Response, Compensation, and Liability Act
CFP:	Corporate Financial Performance
CSP:	Corporate Social Performance
CSR:	Corporate Social Responsibilities
EMS:	Environmental Management Systems
ESG:	Environmental, Social & Governance
EU:	European Union
FP:	Financial Performance
GABV:	Global Alliance for Banking on Values
IBA:	Indian Banks Association
IFC:	International Financial Corporation
IRIS:	Impact Reporting and Investment Standards
NII:	Net Interest Income
NIM:	Net Interest Margin
ROA:	Return on Assets
ROI:	Return on Investment
SBN:	Sustainable Banking Network
SME:	Small and Micro Enterprises
SPSS:	Statistical Package for Social Sciences
SRI:	Socially Responsible Investment
SSA:	Sub-Saharan Africa
TAE:	Total Assets Earning
UK:	United Kingdom
UNEP:	United Nations Environmental Program
UNPRI:	United Nations Principles for Responsible Investment
US:	United States
VIF:	Variable Inflation Factor

ABSTRACT

This study generally aimed at examining sustainable finance and financial performance of identified Kenyan commercial banks. The specific objectives were to examine the effect of impact investments on the financial performance of selected commercial banks in Kenya; assess how green banking affects the financial performance of selected commercial banks in Kenya; examine the effect of credit risk sustainability assessment on the financial performance of selected commercial banks in Kenya; determine the moderating effect of bank size on the relationship between sustainable finance and financial performance of selected commercial banks in Kenya. A causal research design was employed in answering the pertinent questions. Particularly, 10 commercial banks that have complied with the regulations of sustainable finance within Nairobi City County were targeted. All of the commercial banks which have initiated and adopted sustainable finance programs in their activities were purposively selected. Data was gathered out of the two sources, primary and secondary. Therefore, original evidence collected from surveys, while existing materials from previous research, print media and the internet sources were also gathered. Questionnaires were utilized in the collection of raw information from 41 participants, after which it was refined and structured for analysis using numerical numbers. The data was then uploaded into SPSS software for analysis. Measurement of how the variables related to each other entailed the analysis of distributions, as well as predictive data. Content analysis technique enhanced qualitative data analysis. The outcome established that the regression model for this study was highly significant, with an F-statistic of 213.407 ($p < 0.05$) and an adjusted R-squared of 0.671, indicating the model explained 67.1% of the variance in bank financial performance. Impact investment and credit risk sustainability assessment ($\beta = 0.109$, $p = 0.001$) have a statistically significant and positive effect on the financial performance of commercial banks in Kenya ($\beta = 2.682$, $p = 0.045$, and $\beta = 0.109$, $p = 0.00$, respectively). In contrast, green banking exhibited a significant negative relationship with financial performance ($\beta = -3.702$, $p = 0.000$). The moderating effect of bank size produced mixed outcomes, with no significant moderation for impact investment ($\beta = -0.014$, $p = 0.269$) and green banking ($\beta = -0.147$, $p = 0.156$), but a strong positive moderation for credit risk sustainability assessment ($\beta = 0.575$, $p = 0.005$), showing that larger banks derive greater financial benefits from sustainability-linked risk management practices. It was concluded that while impact investments and sustainability-linked credit risk assessments enhance financial performance, green banking currently poses short-term financial challenges for commercial banks in Kenya due to high implementation costs and low market uptake. The study recommends that banks should strategically allocate capital to measurable impact investments, adopt phased and cost-effective green banking initiatives, and integrate ESG criteria into credit risk assessment processes to improve portfolio quality and profitability. Future studies should explore sustainable finance practices across other sectors to assess comparative outcomes and identify strategies for aligning financial sustainability with broader corporate performance goals. This study contributes to knowledge by demonstrating that sustainable finance is multidimensional, producing distinct financial effects depending on the specific practice and institutional context.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Financial performance reflects a bank's ability to generate profits and enhance shareholder value over time (Tudose, Rusu, & Avasilcai, 2022). In commercial banking, it is commonly measured through profitability ratios. Such ratios include Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) (Arbelo, Arbelo-Pérez, & Pérez-Gómez, 2020). Beyond profitability, financial performance also encompasses other capacities of the banks (Gleißner, Günther, & Walkshäusl, 2022). Such capabilities are the ability to manage costs, maintain liquidity, and respond effectively to risks arising from economic and environmental factors.

In the modern financial landscape, banks are increasingly required to balance profit objectives with sustainability imperatives. This balance has given rise to the concept of Sustainable Finance, which integrates environmental, social, and governance (ESG) principles into financial decision-making (Migliorelli, 2021). Sustainable finance emphasizes investment in environmentally sound and socially beneficial projects while ensuring robust governance and financial stability. For banks, this approach translates into the adoption of instruments such as impact investments, green banking products, and credit risk sustainability assessments (Odongo, Misati, Kageha, & Wamalwa, 2023). Each of the listed aspects contributes uniquely to long-term performance and resilience.

Impact investments focus on generating measurable positive societal and environmental outcomes alongside financial returns. These investments channel capital toward environmentally beneficial ventures, socially inclusive enterprises, and the avoidance of financing harmful industries (Shahzad, 2023). In this way, they not only enhance a bank's reputation but can also expand market opportunities and reduce exposure to reputational and regulatory risks, ultimately improving ROA and ROE. Separately, green banking, which encompasses instruments such as green loans, green credit cards, and green savings accounts, facilitates the financing of projects that mitigate climate change and promote sustainability (Kumar & Prakash, 2019). By aligning lending and deposit products with environmental goals, banks can attract sustainability-conscious customers and investors, improving long-term profitability and market competitiveness (Halimatussadiah et al., 2018).

Additionally, credit risk sustainability assessment allows banks to integrate sustainability considerations into credit evaluation processes through criteria such as environmental risk screening and ESG-based credit ratings. Such assessments can reduce the likelihood of defaults associated with environmentally or socially risky ventures, thus stabilizing financial performance (Moufty, Clark, & Naijjar, 2021). The relationship between sustainable finance practices and financial performance, however, may depend on bank size, which moderates how effectively these strategies are implemented. Larger banks, with greater capitalization, assets, and branch networks, are often better positioned to absorb implementation costs, adopt ESG frameworks, and diversify risk compared to smaller banks (Vashst, 2023). Therefore, bank size can influence the strength and direction of the relationship between sustainable finance and financial performance.

Empirical evidence underscores that sustainable finance enhances financial resilience and long-term profitability. For instance, Guttierez-Ponce and Wibowo (2023) found that integrating ESG practices into risk management frameworks significantly improved commercial bank performance in Southeast Asia. Similarly, Odongo et al. (2023) observed that sustainable finance practices in Kenya enhance banks' ability to manage climate-related risks, leading to improved financial stability. For instance, globally, banks that integrate sustainability have shown stronger recovery and performance post-crisis periods compared to those that do not. For instance, U.S. banks achieved pre-financial crisis profitability levels faster than European counterparts, partly due to strategic diversification and sustainability-aligned investments (Deutsche Bank Research, 2013; Schildbach, 2013).

In Kenya, commercial banks play a critical role in advancing sustainable economic growth. Their financing activities influence both environmental quality and social inclusion. Banks that prioritize sustainable finance practices. The prioritization is done through impact investing, green lending, and responsible credit assessment, are better positioned to achieve stable financial performance while supporting national sustainability goals (Weston & Nnadi, 2021; Rocha et al., 2019). Therefore, understanding how sustainable finance practices affect financial performance, and the moderating role of bank size, provides valuable insights for policy, investment, and strategic management in the banking sector.

1.1.1 Financial Performance of Commercial Banks

Financial performance refers to the ability of a financial institution to utilize its assets effectively and efficiently to generate revenue and enhance shareholder value (Shabbir & Wisdom, 2020). It reflects the financial health and operational efficiency of a bank within a given period and serves as a key benchmark for comparing institutions across industries. Busch, Bauer, and Orlitzky (2015) classify financial performance measures into three broad categories: market-based indicators, accounting-based indicators, and survey-based indicators. Market-based measures evaluate a firm's perceived value and performance in the marketplace, such as stock returns, market valuation, and shareholder satisfaction (Homburg, Artz, & Wieseke, 2012). Accounting-based measures include ratios such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM), which assess how effectively management uses assets to generate earnings. Survey-based indicators are subjective but capture managerial or stakeholder perceptions of profitability and performance (Busch et al., 2015).

In banking, ROA measures the efficiency of asset utilization in generating income. On the other hand, ROE captures the returns shareholders receive on their investment. NIM indicates how well a bank manages its core business of interest-earning activities. Newer measures such as Economic Value Added (EVA), Market Value Added (MVA), and Cash Flow Return on Investment (CFROI) complement these traditional ratios (Obamuyi, 2013; Bolarinwa, Obembe, & Olaniyi, 2019). The reason is that they incorporate capital costs and value creation perspectives.

In the African context, financial performance has been linked to profitability, cost efficiency, and capital adequacy (Simba, Tajeddin, Dana, & Ribeiro, 2023). However, contextual challenges such as regulatory volatility, low financial literacy, and underdeveloped markets continue to constrain bank performance. For example, Sub-Saharan African banks face elevated credit risk due to weak contract enforcement and limited credit data infrastructure. In East Africa, profitability remains concentrated in larger commercial banks that leverage mobile banking innovations like M-Pesa to boost operational efficiency and financial inclusion (Jjagwe, Kirabira, Mukasa, & Amanya, 2024; Kumar, Ademe, Srivastava, & Singh, 2023).

In Kenya, financial performance is largely evaluated through ROA, ROE, and NIM (Mulwa, 2015). The sector's profitability has been shaped by digital innovation (M'mata & Weda, 2022). Regulatory reforms such as interest rate capping under the Banking Act and macroeconomic shifts have also

played a role. The emphasis on financial sustainability has shifted attention toward non-financial determinants of performance. Particularly, sustainable finance practices, which integrate environmental, social, and governance (ESG) principles into lending and investment decisions to enhance resilience and long-term profitability are of critical interest.

1.1.2 Sustainable Finance

Sustainable finance refers to the integration of environmental, social, and governance (ESG) considerations into financial decision-making to promote long-term economic growth, social inclusion, and environmental protection (Sommer, 2020). It represents a transition from traditional, profit-centered finance toward climate finance, green finance, and inclusive finance (Kalas, Milecevic, & Djakovic, 2023). In the banking sector, sustainable finance entails aligning lending, investment, and operational activities with sustainability objectives, such as carbon reduction, ethical governance, and community development (Marwa & Aziakpono, 2015). According to Gebreysus (2024), sustainable finance integrates four key components: Green Lending, Corporate Social Responsibility (CSR) Initiatives, Environmental Disclosure, and Renewable Energy Financing. Each component contributes to financial performance by mitigating risk, strengthening stakeholder confidence, and unlocking new market opportunities.

Green lending involves offering preferential loans and credit facilities to projects that meet sustainability criteria, such as renewable energy, energy efficiency, or pollution control (Kalas, Milecevic, & Djakovic, 2023). It aligns with global climate objectives and allows banks to diversify portfolios toward low-carbon sectors. Green loans and green credit policies reduce exposure to environmentally risky industries, thereby stabilizing long-term returns (Sadiq et al., 2021). Empirical studies support the positive association between green lending and financial performance. For instance, Subedi and Bhattarai (2024) found that banks financing renewable projects in Asia improved ROA and reduced credit risk. Similarly, Mangwa and Jagongo (2022) established that Kenyan banks implementing green finance reported significant increases in ROE and profitability. Green lending is typically measured through the ratio of green loans to total loans, the number of financed green projects, or the financial value of green portfolios relative to total lending (Jain & Sharma, 2023).

CSR initiatives refer to voluntary actions taken by banks to support social welfare, community development, and ethical governance. They encompass activities such as financial literacy programs, donations, fair labor practices, and social inclusion programs (Haanaes et al., 2013). CSR has become a strategic instrument for enhancing reputation, customer loyalty, and employee motivation, all of which improve financial outcomes. Empirical evidence shows that CSR positively influences bank profitability. For example, Khan, Muttakin, and Siddiqui (2013) found that banks with robust CSR programs experienced stronger ROA and ROE due to enhanced stakeholder trust. In Kenya, CSR is increasingly institutionalized through sustainability reports mandated by the Central Bank and the Kenya Bankers Association (KBA, 2024). Measures of CSR initiatives include expenditure on social projects, number of CSR programs, and CSR disclosure scores (Adams, 2022). Environmental disclosure refers to the extent to which banks publicly report on environmental policies, carbon emissions, and sustainability strategies (Nwobu, 2017). Such transparency strengthens investor confidence and regulatory compliance, mitigating reputational risks. Disclosure also signals long-term strategic alignment with sustainable practices, thereby attracting ESG-focused investors (Weber, 2005). Clarkson et al. (2011) show that environmental disclosure enhances firm valuation and reduces capital costs. In Kenya, leading banks like KCB and Co-operative Bank disclose sustainability information aligned with the Global Reporting Initiative (GRI) standards, promoting both market competitiveness and accountability. Disclosure is commonly measured using disclosure indices, the number of sustainability reports issued, or compliance with frameworks such as GRI and the Nairobi Securities Exchange (NSE) ESG guidelines (Marwa & Aziakpono, 2015).

Renewable energy financing entails investment and credit provision to projects in solar, wind, hydro, and bioenergy sectors. This component of sustainable finance supports the transition toward a low-carbon economy and offers banks new growth frontiers (Tridos Bank, 2019). It reduces long-term environmental liabilities while aligning banks with global climate policies such as the Paris Agreement. Empirical evidence indicates that renewable energy financing contributes to both environmental sustainability and profitability. For instance, Appah, Tebepah, and Eburunobi (2024) reported that Nigerian banks financing renewable projects achieved enhanced ROA and stronger market stability. In Kenya, renewable energy financing has expanded through partnerships with organizations like the Kenya Climate Innovation Center (KCIC), facilitating green energy startups

and small-scale solar projects (Yaşar, 2021). Indicators include the share of renewable projects in total investments or the total financing value of green energy projects.

Through the listed four dimensions, sustainable finance fosters banks' long-term stability and profitability. This is achieved by reducing the risk exposure of the banks. It also enhances compliance and improves brand image. It has been shown that integrating ESG practices into core banking activities strengthens financial performance and resilience. This is evidenced by finidngs and inferences from global and local studies by Odongo, Misati, Kageha, and Wamalwa (2023) and Weston and Nnadi (2021). 1.1.3 Bank Size

Bank size represents the scale and capacity of a bank's operations. It is measured through total assets, capitalization, branch network, market share, and number of employees (Wuryani, Handayani, & Mariana, 2021). It significantly moderates the relationship between sustainable finance and financial performance. Larger banks tend to have greater financial flexibility. Consequently, such banks can absorb sustainability-related costs, diversify risk, and invest in green technologies.

According to Chen, Mirza, Huang, and Umar (2022), bank size positively influences financial performance. Particularly, the influence is through economies of scale, risk diversification, and superior access to capital markets. Large banks can implement complex sustainability frameworks, conduct thorough credit risk sustainability assessments, and finance large-scale green projects. Conversely, smaller banks may face constraints in adopting such initiatives due to limited capital and expertise. Therefore, large banks tend to have a better competitive edge over smaller ones.
Empirical studies confirm bank size's moderating role on the relationship between sustainable finance and the financial performance of banks. Ford (2022) found that large banks in East Africa outperform smaller ones in implementing impact investments due to their broader resource base and higher risk tolerance. Similarly, in Kenya, the Kenya Bankers Association (2024) noted that tier-one banks, such as KCB, Equity, and Co-operative, lead in ESG integration and sustainability reporting. Therefore, large banks are likely to exhibit excellent financial performance due to their robust asset base, wide branch networks, and strong capitalization. On the other hand, smaller banks grapple with sustainability due to financial constraints, and this may affect their financial performance.

Measures of bank size include total assets, total deposits, market capitalization, number of branches, and number of employees (Mulwa, 2015; Wuryani et al., 2021). These indicators are used in moderating analyses to test how institutional capacity influences the relationship between sustainable finance and financial performance. In the Kenyan context, larger banks' digital infrastructure, sustainability budgets, and advanced credit analytics make them better positioned to operationalize green lending, CSR, environmental disclosure, and renewable energy financing than smaller banks. Therefore, it is expected that bank size will likely have a positive moderation effect on the relationship between sustainable finance and financial performance in the case of larger banks. The moderation influence may be insignificant in the case of smaller banks.

1.1.3 Commercial Banks in Kenya

At present, the Kenyan financial industry is composed of the Central Bank of Kenya (CBK) as the main regulatory authority overseeing forty-four commercial banks, one mortgage finance institution, seven foreign banks, nine microfinance entities, two credit reference bureaus, and one hundred and one forex bureaus (Banking Survey, 2009). The main laws governing the industry include the Banking Act CAP 488 and the CBK Prudential Guidelines, which define regulatory, risk, and operational standards. As the principal component of Kenya's financial system, commercial banks play a pivotal role in mobilizing savings, facilitating credit, and supporting trade and investment, which are the foundations of economic development. When the banking sector underperforms, the ripple effects across other economic sectors can be detrimental, leading to reduced capital flow, constrained business expansion, and slower GDP growth (Ongore & Kusa, 2013).

Commercial banks are therefore central to Kenya's economic growth and financial stability. They act as intermediaries between savers and borrowers, channeling funds to productive sectors such as agriculture, infrastructure, and manufacturing. However, despite their importance, the sector continues to face significant performance challenges, including rising non-performing loans (NPLs), high operating costs, and increased competition from non-traditional players such as fintech firms and digital lenders. Moreover, macroeconomic shocks, including currency depreciation, inflationary pressures, and global financial volatility, continue to strain liquidity and profitability. These challenges underscore the need for new financing approaches that promote stability and resilience.

In response to these pressures, the Kenya Bankers Association (KBA), in collaboration with the Central Bank of Kenya, introduced the Sustainable Finance Principles (2015) and aligned them with Global Reporting Initiatives (GRI) to guide banks in embedding sustainability into their operations (Kenya Bankers Association, 2015; 2020). These principles emphasize integrating environmental, social, and governance (ESG) considerations into financial decision-making to achieve balanced and long-term value creation. Globally and locally, the concept of sustainable finance has gained traction due to its recognition of the interdependence between financial outcomes and ESG factors (Gangi et al., 2019). By incorporating ESG factors into lending and investment decisions, commercial banks aim to promote responsible and ethical financial practices that contribute to the lasting viability of the economy. This includes refraining from financing projects with adverse social or environmental effects, while proactively supporting those aligned with the Sustainable Development Goals (SDGs) (Nizam et al., 2019).

In the Kenyan context, sustainable finance has become particularly relevant. This is because the is facing persistent climate-related risks, income inequalities, and governance challenges. Integrating sustainability into financial decision-making enables banks to reallocate resources towards resilient, green, and socially inclusive projects. Therefore, these financial institutions are able to mitigate long-term systemic risks (Brooks & Oikonomou, 2018). By incorporating ESG factors into their credit assessments and investment strategies, commercial banks enhance their risk management frameworks. They also strengthen public trust and investor confidence, which are essential for long-term performance and competitiveness.

Saputra and Fathihani (2022) argue that banks evolve through four stages toward sustainability. The first phase is that of followers of regulatory standards. It is followed by preventive banking where ESG concepts are used for internal cost management. The third stage entails aggressive banking, which is usually focused on minimizing investment risks. Finally, the banks achieve strategic sustainability integration. For Kenyan banks, most institutions are transitioning between preventive and aggressive banking stages, showing a growing acknowledgment of sustainability as a core strategic priority rather than a compliance requirement.

Furthermore, sustainable finance enhances the allocation of funds toward durable and environmentally conscious initiatives, signifying a shift in the sector's strategic orientation toward

reducing long-term risks linked to climate change, social inequality, and governance failures (Brooks & Oikonomou, 2018). By doing so, banks position themselves as key agents of inclusive economic transformation. Research further highlights that asset quality, bank size, and ownership structure are essential in understanding sustainable finance practices and their impact on financial performance (Makarenko et al., 2020). Asset quality serves as an indicator of a bank's commitment to funding sustainable projects while avoiding socially or environmentally harmful investments. Larger banks tend to have greater resources and institutional capacity to implement sustainability initiatives and are also subject to higher stakeholder scrutiny. Ownership structure, whether public or private, also affects the level of accountability, transparency, and long-term orientation in sustainability commitments. Consequently, these factors jointly influence a bank's ability to translate sustainable finance practices into improved financial performance (Makarenko et al., 2020). Therefore, considering the current risk facing the Kenyan banking industry, such as profit margin pressures, credit risk exposure, and increased competition, the adoption of sustainable finance is necessary and strategically indispensable.

1.2 Statement of the Problem

In 2023, the Kenyan banking sector recorded a decline in pre-tax profits, dropping from KES 187 billion in 2022 to KES 177.8 billion in 2023 (National Commercial Bank of Africa [NCBA], 2024). This downturn was mainly attributed to higher expenses outweighing income. Interestingly, despite this fall in profitability, the sector had experienced a notable improvement in Return on Equity (ROE) in 2022, with an increase of 0.263 units compared to the previous 0.22 units. Nonetheless, the overall profits realized by Kenyan banks remained lower than in preceding years (Kenya National Bureau of Statistics [KNBS], 2023). This apparent mismatch between improved equity returns and declining profitability raises practical concerns about the sustainability of financial performance in the region's banking sector.

Although sustainable finance has gained global attention, there remains limited empirical evidence on its link to financial performance, particularly in African banking institutions. In Kenya, for instance, Okoth (2012) examined the effects of Corporate Social Responsibility (CSR) on banks' financial performance, while Gichana (2004) focused on CSR and the performance of firms listed on the Nairobi Securities Exchange. These studies, however, failed to address how sustainable finance

practices, a broader construct beyond CSR, affect the financial performance of banks. The Kenya Bankers Association also conducted a study on financial sustainability strategies employed by local banks (Kariuki, 2015), but this work remained largely descriptive and failed to link specific sustainability practices to measurable financial outcomes.

Globally, most research on sustainable finance and financial performance has concentrated on developed economies. For example, Simpson and Kohers (2002) found a positive link between Corporate Social Performance (CSP) and financial performance in the UK financial services sector. Similarly, Thompson and Cowton (2004) examined the integration of environmental data in banks' lending decisions across five UK financial institutions, while Cuesta-Gonzalez (2006) assessed socio-environmental performance among Spanish banks. Pomering and Dolnicar (2009) investigated CSR activities and their financial implications in Australian banks, and Scholtens (2009) developed a framework for assessing CSR in multinational banking institutions, revealing cross-country and institutional disparities.

Despite these studies, it remains uncertain whether sustainable finance practices that have been effective in developed contexts can yield similar results in developing economies. The gap is even wider in Kenya, where no known studies have empirically examined how sustainable finance influences the financial performance of commercial banks. Given Kenya's growing financial sector and its increasing emphasis on green and sustainable growth, this knowledge gap presents both a practical and scholarly problem. Addressing it is crucial for informing policy, guiding investment strategies, and strengthening the integration of sustainable finance within the country's banking institutions. Therefore, this study sought to bridge this gap by examining the effects of sustainable finance on the financial performance of banking institutions in Kenya.

1.3 Objectives of the Study

1.3.1 General Objective

The general aim of this study was to examine sustainable finance and financial performance of selected commercial banks in Kenya.

1.3.2 Specific Objectives

The study sought to achieve the following specific objectives:

i. Examine the effect of impact investments on the financial performance of selected commercial banks in Kenya.
ii. Assess how green banking affects the financial performance of selected commercial banks in Kenya.
iii. To examine the effect of credit risk sustainability assessment on the financial performance of selected commercial banks in Kenya.
iv. To determine the moderating effect of bank size on the relationship between sustainable finance and financial performance of selected commercial banks in Kenya.

1.4 Research Hypothesis

The following null hypotheses were tested during the study:

H_{01}: Impact investments have no significant effect on the financial performance of selected commercial banks in Kenya.

H_{02}: Green banking practices do not significantly affect the financial performance of selected commercial banks in Kenya.

H_{03}: Credit risk sustainability assessment has no significant impact on the financial performance of selected commercial banks in Kenya.

H_{04}: Bank size has no significant moderating effect on the relationship between sustainable finance practices and the financial performance of selected commercial banks in Kenya.

1.5 Significance of the Study

Findings from this study will have important theoretical and practical implications. Inferences and assertions from the study will contribute to the growing body of finance theory by providing empirical evidence on the relationship between sustainable finance and financial performance in developing economies like Kenya. For instance, it is expected that the study will extend the traditional finance theory, which emphasizes profit maximization and shareholder value. This will be attained through the incorporation of environmental, social, and governance (ESG) considerations as determinants of long-term financial sustainability. The integration will ultimately enrich existing theoretical frameworks by illustrating how sustainable finance practices can enhance value creation while mitigating risk exposure and promoting responsible investment behavior, and eventually, contribute to excellent financial performance.

For bank managers, the study's findings will be informative in supporting improved decision-making in credit allocation and investment prioritization. Therefore, banks that fund large-scale projects will be better positioned to implement sustainable financing initiatives and manage brand-related and reputational risks. This way, managers will be able to mitigate risks associated with ventures that have adverse environmental or social impacts, courtesy of the input from this study. In addition, banks will be encouraged to strengthen socio-environmental and economic evaluations of projects with potential risks to their investment portfolios, leading to more resilient financial performance.

For regulators in the banking industry, such as the Central Bank of Kenya (CBK), the study's insights will be helpful in formulating and refining prudential policies. For instance, the regulators can use the study's assertion to make policies that integrate sustainable banking practices within the banking industry operation's framework. This will help in the strengthening of compliance mechanisms and ensure the stability of the financial sector through enhanced sustainability oversight.

For policymakers, the study will provide practical guidance that is based on evidence for the design of comprehensive sustainable finance frameworks. It is expected that the new sustainable approaches will align with Kenya's economic, environmental, and social development objectives. The findings can also inform national policies aimed at fostering responsible financing, environmental stewardship, and social inclusivity within the banking sector.

Finally, for academicians and scholars, this study will offer a valuable empirical foundation for further research on sustainable finance in emerging markets. By analyzing how ESG-driven financing practices influence banks' financial performance, the study contributes to the academic discourse on the intersection between sustainability and financial management, helping to bridge gaps in existing literature and stimulating future theoretical and empirical investigations.

1.6 Scope of the Study

This study focused on examining the relationship between sustainable finance practices and the financial performance of selected commercial banks in Kenya. The content scope covered three independent variables, namely, impact investment, green banking, and credit risk sustainability assessment, and one dependent variable, financial performance, measured using ROA, ROE, and NIM). Bank size was considered as a moderating variable. \the study targeted commercial banks

licensed by the CBK that had adopted sustainable finance principles. From this population, ten commercial banks were purposively selected based on their compliance with the Kenya Bankers Association's Sustainable Finance Initiative (SFI) principles of 2015. The institutions represent a mix of local and international banks with diverse asset bases and ownership structures, offering a reliable representation of the Kenyan banking industry. The units of analysis were the commercial banks, while the units of observation were departmental heads and managers responsible for sustainability, risk management, and credit operations. Data were collected from departmental heads and managers responsible for sustainability, risk, and credit operations.

The research was geographically limited to Nairobi City County, where the headquarters of most commercial banks are located, ensuring accessibility to relevant information. The time frame covered financial data from 2015 to 2019, the period following the introduction of KBA's Sustainable Finance Principles, allowing for the evaluation of trends and outcomes over time. Data collection was carried out over a period of two months and two weeks in 2019, which included both primary and secondary data sources such as questionnaires and banks' annual reports. A causal research design was adopted to determine the effect of sustainable finance practices on financial performance. A census approach was applied to the ten selected banks to ensure comprehensive representation. Overall, the study was delimited to assessing how sustainable finance, through impact investment, green banking, and credit risk sustainability assessment, influences the financial performance of commercial banks in Kenya, considering the moderating effect of bank size.

1.7 Limitations and Delimitations

Some of the limitations of the study include the non-disclosure of certain financial details, leading to partial reliance on secondary data from published financial statements and regulatory reports. Secondly, the research was characterized by time and resource constraints, and this contributed to the restriction of the study to a sample of ten commercial banks located primarily in Nairobi City County. Additionally, the study depended on self-reported data collected through structured questionnaires, which may be subject to response bias if participants provided socially desirable answers rather than accurate reflections of institutional practices. Lastly, the research covered the period between 2015 and 2019, immediately after the adoption of the Kenya Bankers Association's Sustainable Finance Initiative (SFI). Since some banks may not have fully implemented sustainable finance frameworks

during that period, the observed relationship between sustainable finance and financial performance may have not been a full reflection of the banks' status. Despite the listed limitations, measures such as triangulating primary and secondary data, assuring confidentiality, and validating responses through consistency checks were employed to minimize their impact and enhance the validity and reliability of the findings.

1.8 Organization of the Study

The inquiry contains five sections. An introduction to the investigation is presented by the first chapter by outlining the contextual factors, intentions, and importance of the research. Additionally, the inquiry's scope and limitations are presented. The next section focuses on the literature review. In this case, the theories underpinning the inquiry are explaining. Next, previous research conducted by various scholars is examined in the empirical review part. The subsequent section details the methods of inquiry, including the study design, the selected group of informants, data collection methods, data analysis procedures, and ethical considerations. In the next section, the data analysis, key findings, and discussions are presented. As a final point, a brief recap of the inquiry, conclusions, and practical suggestions are provided.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter analyzes the literature that is relevant to the topic of study. It entails a crucial examination of existing scholarly works in the field. It provides an in-depth synthesis of prior studies to establish what is already known and to identify emerging patterns and inconsistencies in the research. The review further explores key theoretical and philosophical foundations that underpin the relationship between sustainable finance and financial performance. In addition, it evaluates empirical evidence from both local and international contexts to highlight how similar studies have been conducted and what their findings imply. Finally, the chapter identifies existing research gaps and developed a conceptual framework to guide the current study's analysis and interpretation of results.

2.2 Theoretical Review

This section explored the theoretical framework facilitated by various authors' views on sustainable finance.

2.2.1 Stakeholders Theory

The stakeholder's theory was developed by Freeman (1984), and expanded by Evan and Freeman (1988). The theory's main assumption is that organizations exist to serve the interests of multiple stakeholders, and not just shareholders. It is also presumed that the firm's success depends on its ability to balance and satisfy the diverse interests of its stakeholders. There is also an assumption that ethical responsibility, transparency, and responsiveness to societal needs are central to long-term business sustainability.

Therefore, according to this conception, the key objective of a company is to generate shareholders value by converting their stakes into commodities and offering services to all other stakeholders (Clarkson, 1995) or to coordinate the stakeholder's interest (Evan & Freeman, 1988). Stakeholder theory was first introduced as a management theory. In this regard, it is in the interest of the stakeholders that a firm is run for their benefit and to support its sustainability (Evan & Freeman, 1988). The firm design is attached to the decision of the senior level management, and the board of directors and governance should consider every stakeholder. The theory is alike to the belief that firms have a basic role to play for numerous categories of interested parties in society separate

from stockholders and beyond that expected from statutory regulatory agencies or relevant unions (Husted & Rahman, 2017). In this regard henceforth, stakeholder theory considers individuals or groups that are interested in the firm. Such people include those with their shares, its workers, clients, the community where it operates, and those who provide supplies.

Hubbard (2009) applied this theory to demonstrate the Triple Bottom Line approach of determining performance across several perspectives in a company. In this regard, the approach comprises the wide interests of society at large. It is pegged on the notion that companies need to determine and measure performance from the idea of economic and socio- environmental benefits. It has great capacity to create awareness of the company's entire performance before its management and boosts accountability of firms. In the same line Scagnelli and Mio (2017) recently argued that companies need to implement a shared value mechanism that inspires the generation of profits and value addition to society. The views of Triple Bottom Line, Michael Porters and Kramer's are among a string of dialogues within the management literature by corporates, business firms, society, and scholars in the field of CSR. According to these academicians, a business enterprise should not only think about economic value for itself but also how it affects the society within which it operates.

A detailed roadmap for assessing the influence of sustainable finance practices on a wide array of stakeholders, beyond just shareholders is provided, making this model relevant to the study. It supports the first objective, which is to examine the effect of impact investments on the financial performance of selected commercial banks in Kenya. As far as commercial banking is concerned, understanding how sustainable finance initiatives affect various stakeholder groups, including customers, regulators, employees, local communities, and environmental organizations, is critical. This theory provides a lens through of evaluating how a bank's engagement with stakeholders and responsiveness to their varying preferences may influence their financial metrics, brand popularity and continued good performance. It underscores the significance of considering a holistic approach to sustainable finance, especially when aspects such as ethical standards, environmental concerns, and social issues are considered, all of which are essential in the alignment of banking goals with global sustainability goals.

2.2.2 Social Impact Theory

The social impact theory, also referred to as the good management theory, was introduced by Preston and Bannon (1997), and further supported by Waddock and Graves (1997). The main assertion of the model is that productivity is determined by a firm's concern and efforts to address the issues affecting its stakeholder. Similarly, Waddock and Graves (1997) support the idea that entities which promote utility by creating and supporting good associations with interested parties such as workers, authorities, suppliers, and the community, realize excellent financial performance, increased reputational brand, and growth in revenues while reducing operational costs. It presupposes that social responsibility and financial success are mutually reinforcing

Using this theory Wu and Shen (2013) are of the opinion that firms should pursue sustainable finance strategies within and outside their organizations. At the general level, it is essential that any social injustices are reduced, and environmental longevity supported. On the other hand, the internal focus should delve into ensuring the firm's brand image is enhanced as a result of sustainable finance practice. Sustainability strategies and activities thus result to monetary gains that surpass the expenses, hence enhancing the ultimate financial performance of the organization. Sustainable finance is usually advantageous to all of the interested parties at large, thus beneficial to everyone (Wu & Shen, 2013. p. 3529). Therefore, the social impact theory argues that sustainable finance boosts the brand image of the firm, resulting in a great financial return.

Simpson and Kohers (2002) evaluated US-based commercial banks. The duo came to the conclusion that social concerns contribute positively to monetary performance. The inquiry's outcomes are aligned with the tenets of being wary of social issues and executing caution in management. Therefore, the management of organizations, especially banks, should not be slow in allocating funds to engage in activities that are responsible socially. The reason is that such finances cannot diminish the organizations' profits.

The theory provides support for the research variables in this study, which include socially responsible investments, green banking, and credit risk sustainability assessment. It supports the second objective, which sought to assess how green banking affects the financial performance of selected commercial banks in Kenya. It explains how integrating sustainability into financial operations, through green lending, environmental screening, and CSR, creates goodwill and long-

term profitability. Banks that reduce environmental harm and support sustainable projects strengthen their brand and attract ethically conscious clients, ultimately improving their financial outcomes.

2.2.3 Theory of Financial Intermediation

The financial intermediation theory was put forth by Diamond and Dybvig (1983). The theory assumes that financial markets are imperfect due to information asymmetry, and that banks act as intermediaries to bridge the gap between surplus and deficit units. It also assumes that financial intermediaries' lower transaction costs, manage risk, and allocate capital efficiently to promote economic growth. Banks, according to the theory, exist to combat information asymmetry transform liquidity and lower transaction costs, all of which are important for economic efficiency (Leland & Pyle, 1977). In order to mobilize savings to allocate capital and to minimize risk, financial intermediaries are an indispensable component of an effective financial system. The theory implies for commercial banking that banks have a crucial role to play in economic systems by ensuring efficient allocation of financial resources. Through intermediation, banks mobilize deposits from individuals and firms with excess money and lend them to borrowers who need it for investment or consumption.

Market liquidity and economic growth are enhanced through intermediation. Since it reduces transaction costs and provides risk assessment and diversification services, financial intermediation removes market imperfections and increases the stability of the financial system. Economic intermediaries now not only facilitate but also stimulate financial growth by using credit score centers and investment products that inspire industrialization entrepreneurship and infrastructure development (Scholtens & Van Wensveen, 2003). Banks act as a protection internet in opposition to recessions and shield the economic markets from systemic shocks by retaining credit score and liquidity. Their monitoring of debtors lowers the threat of default while their cooperation with regulatory bodies guarantees compliance with economic rules. as a result, the theory of economic intermediation bolsters the essential characteristics that commercial banks carry out in promoting financial growth resilience and balance in dynamic economic structures.

The assumptions of the theory of financial intermediation emphasise the crucial function of commercial banks in bridging the gap between surplus and deficit units in the economy. Such

institutions facilitate efficient capital allocation. Therefore, the theory supports the third objective of the study that sought to examine the effect of credit risk sustainability assessment on the financial performance of selected commercial banks in Kenya. It justifies the role of banks in channeling funds toward environmentally and socially responsible investments. By assessing credit risk through a sustainability lens, banks can minimize default rates and enhance long-term profitability. It also underscores the importance of responsible intermediation, where banks reduce information asymmetry by disclosing ESG-related risks and ensuring transparent financing of sustainable projects.

2.2.4 Theory of Dynamic Lending

The theory if dynamic lending was developed by Stiglitz and Weiss (1981) and later expanded by Green and Liu (2021). According to the dynamic lending theory, it is presumed that credit history borrower-lender relationships and economic conditions all have an impact on the continuous and dynamic process of lending (Stiglitz &Weiss 1981). The theory states that lenders dynamic credit risk management strategies entail routinely evaluating borrower creditworthiness in light of both the state of the market and their prior performance. Additionally, the theory encourages the establishment of long-term borrower relationships in order to prevent moral hazard and adverse selection (Green & Liu, 2021). The dynamic lending policy is used by commercial banks to manage their credit portfolio profitably and control risk. In order to determine whether to offer another loan banks closely monitor financial data loan repayment patterns and macroeconomic indicators. Because banks have flexible lending policies, they can disclose loan terms and interest rates that are specific to borrowers' risk tolerance and financial stability.

Banks are better able to offer financial products that cater to their customers' evolving needs by doing this, which promotes economic growth financial inclusion and business expansion. Moreover, dynamic lending guarantees financial stability by encouraging responsible lending and borrowing (Fishman, Parker, & Straub, 2020). Banks that employ dynamic risk analysis models can ensure they are protected from financial crises by aligning their credit policies with the state of the economy in good time. The theory also refers to technological innovations like artificial intelligence and machine learning as sources of improving lending decisions and real-time risk analysis. By embracing the innovations financial institutions improve loan monitoring and lower default rates. The need for flexible credit policies for responsible and sustainable bank lending,

which is linked to long-term financial system stability and profitability; is the concern of dynamic lending theory.

The theory of dynamic lending supports the third objective, which focused on examining the effect of credit risk sustainability assessment on the financial performance of selected commercial banks in Kenya. It provides the basis for understanding how banks can dynamically integrate environmental and social risk factors into lending decisions to minimize default rates. By adapting credit policies to sustainability considerations, banks strengthen risk resilience, promote responsible borrowing, and enhance profitability through reduced credit losses.

2.2.5 Schumpeter's Innovation Theory of Profit

Schumpeter's innovation theory for profit was put forth by Joseph Schumpeter in 1943. The main assumption of the theory is that one of the determinants of business profitability and economic growth is innovation (Croitoru, 2012). As a result of process financial and technological innovation, the theory has an assumption that innovation offers firms competitive advantage and raises profits. The theory stresses the need for firms to innovate on a continuous basis so as to open new markets improve the efficiency of operations and distinguish themselves from competitors (Śledzik, 2013). Green banking, socially responsible investments, credit risk sustainability ratings, and the application of the theory to sustainable finance are some of the new methods of creating long-term profitability. Not only do financial institutions that integrate sustainability into their financial models achieve social and regulatory expectations but also appeal to morally driven investors and customers with a sense of concern for the environment and society.

Schumpeter's view shows that sustainable finance is a financial innovation that generates new sources of revenue and minimizes long-term financial risks related to social instability and climate change. The reason is that green strategies lead to the adoption of socially and environmentally sound practices by firms that hedge risks over time (Govindan et al., 2020). Therefore, sustainable finance promotes economic resilience. Financial institutions that integrate sustainability considerations into their operations. The factors include impact investing and ESG considerations. The considerations help banks demonstrate better market position, client retention, and investor confidence. Financial institutions are able to align their operations with global sustainability

agendas by promoting regulatory compliance and proactive risk management through sustainable finance.

Schumpeter's innovation theory aligns with sustainable banking as an essential innovation that enhances better performance. It supports the fourth objective, which focused on determining the moderating effect of bank size on the relationship between sustainable finance and financial performance of selected commercial banks in Kenya. Larger banks, with greater resources, can more easily adopt innovative sustainable finance practices such as green products, ESG-linked loans, and impact investments. By embracing these innovations, they enhance competitiveness, profitability, and compliance with global sustainability standards.

2.3 Empirical Review

2.3.1 Impact Investment and Financial Performance

The concept is about the linkage of social environmental and governance factors with the decision-making activities related to investments in the hope that these practices will result to increased profitability for the firm, especially within mid and long-range basis (Nachyła & Justo, 2024). Impact investment is an upcoming concept in the financial markets all over the world. This form of investment incorporates shareholders' profit goals with socio-environmental considerations, based on how the operational activities of a company affect the society at large.

Empirical studies by Cho, Chung, and Young (2019), Bouichou, Wangi, and Zulficar (2022), Licandro et al. (2024), and Sharma and Chakraborty (2024) found that the two concepts, corporate social performance and corporate financial performance, are positively associated. The study was geared towards examining if considering the positive Impact Investments to the society would boost the firm's results. The research applied Corporate Social Performance reporting, brand rankings, risk assessments, processes reviews, and management of Corporate Social Performance regulations and guidelines. This research adopted a meta-analysis model. However, the study was applied in different sectors apart from banking hence the findings could not be generalized.

A review by Robles-Elorza and San-Jose (2023) also applied the method of meta-analysis in order to examine the link with CFP, CSP and size three hundred and seventy-one studies from whose majority were on the correlation with financial and social performance. A positive link for both was revealed, strengthening the former results. The key variables used in the study include;

conducting social audits, Corporate Social Performance (CSP) processes and environmental screening. This study did not specifically address the effects of responsible investment on financial performance but instead looked at CSP as a whole.

Chen, Yu, and Gao (2023), in their study, noticed that environmental performance as a result of investing in a socially friendly way and performance in financial terms are positively correlated. Their research adopted an in-depth review of literature methodology and corporate environmental performance and environmental sustainability being used as the main variables. The same outcomes were identified in studies performed by Coelho, Jayantilal, and Ferreira (2023), where they suggested a mechanism to determine the variation in the company's share value with regard to variations in the environmental indicators.

Impact investments in the banking sector influence performance by aligning financial objectives with socially and environmentally responsible goals (Stauropoulou et al., 2023). When banks incorporate impact investment strategies, they not only focus on profitability but also prioritize investments that yield positive outcomes for society like supporting renewable energy projects, affordable housing, and small business growth. Research suggests that banks engaging in impact investment can experience enhanced brand reputation, customer loyalty, and a stronger competitive edge, which can translate into long-term financial resilience (Rane, Achari, & Choudhary, 2023). Some research revealed great positive linkage with corporate environmental and financial performance (Albertini, 2013). The M-analysis assessments failed to address the principal variables of this research being responsible and impactful investment and monetary performance.

Shabbir and Wisdom (2020) aimed to explore the how CSR, investments on the environment, and monetary performance in Nigerian manufacturing firms. This analysis aims to provide an explanation of the variables used and determine whether the investments made to support internal environmental issues that concern workers and those that deal with the external aspects such as sources of funds influence the monetary performance of a company. The results leaned to the affirmative, meaning investments in internal environmental factors contribute to improved financial performance. However, the external efforts in addressing issues did not exhibit a substantial correlation with monetary performance, though it was positive.

The Africa-wide study by Bridgespan Group (2023) sought to establish how impact investment flows affect organizational returns and social outcomes. The authors adopted market surveys, fund-level performance analysis, and case studies. The main finding from the research was that there is a growing trend of impact investments exhibited in Africa. Most African companies report improved market returns due to the adoption of impact investments, a measurable impact. However, institutional banking participation remains limited. Despite the study's notable findings, it exhibits a contextual gap in the sense that most impact investment evidence comes from funds, rather than organizational strategies, and this resulted in limited bank-level causal evidence. Methodologically, fund-level results cannot be directly translated into bank lending product impacts as asserted in the study. The current study sought to fill the gaps by brining bank-level empirical evidence from Kenyan commercial banks, and this connects impact investment practices inside banks to bank performance metrics.

In Kenya, in their study, Mangwa and Jagongo (2022) assessed the link between green finance practices and financial performance of Kenyan banks. The study's methodology entails panel data analysis of information from Kenyan commercial banks. The researchers executed a regression analysis on variables like ROA and ROE. The key finding was that banks, which have explicit green finance products and policies, have usually exhibited substantial improvements in ROA and ROE, and that the effect is stronger for larger banks. Although the study's focus was relevant and applicable to the topic under review, it had some pitfalls. For instance, conceptually, impact investment was loosely defined and merged with other ESG activities. There were limited controls for endogeneity, creating a possibility of reverse causality because profitable banks can adopt green products. Contextually, the study only focused on tier-one banks and limited coverage on mid-tier institutions. Considering the identified gaps in the Mangwa and Jagongo (2022) study, the current research isolates impact investment as a distinct construct, which includes positive societal impact, allocation for environmental benefit, and avoidance of harmful products, and tests causal links with financial performance while controlling for endogeneity and bank size as moderator.

In another Kenyan study by Odongo, Misati, Kageha, and Wamalwa (2023), the researchers explored the nexus between sustainable finance, climate risk and financial stability in Kenyan banks. The study adopted mixed methods, entailing a review of regulatory reports and an

econometric analysis of bank performance metrics. It was established that the adoption of sustainable finance improves the resilience to climate shocks and correlates with better asset quality. However, linkage to traditional profitability metrics was mixed. The main weakness of the study, despite its relevance to the issue under analysis, included the short time window and limited micro-level bank product measures. The research also blended many sustainable finance elements, and this made it hard to identify specific channels to explain how impact investment and green product affect financial performance. The current study addresses this gap by disaggregating sustainable finance into impact investment, green banking, and credit risk sustainability assessment and measuring each of these variables with specific indicators. This way, it can be identified which channel drives financial outcomes.

The Equity Group Foundation (2023) executed a survey that involved practitioners. Specifically, the research assessed **s**ocial impact investments and their operational outcomes for Equity Bank. The survey adopted a program monitoring and outcome analysis methodology. Therefore, social indicators were observed and internal financial analysis done. It was found that targeted social investments strengthened client base and regional reach. The indirect benefits were deposit mobilization and customer retention. However, the study had a methodological gap in that the internal monitoring adopted lacks counterfactual and formal econometric testing. Secondly, the study's findings cannot be generalized across population since it is a single-group case that limits wider inference. In this case, the current applied a multi-bank design with statistical models such as regression and interaction terms and control groups, and this involved banks with varying levels of impact investment activity, thus an improvement of causal inference and generalizability was expected.

2.3.2 Green Banking and Financial Performance

Green has gained momentum as a key indicator of Eco consciousness globally. According to Umamaheswaria and Elangovan (2024), green banking considers socio-ecological considerations in a bid to protect and conserve the natural resources (also referred to as ethical bank). The main aim of these institutions is to provide normal banking services besides protecting ecology and all-natural resources including biodiversity. This section of literature review explored the past research carried out around green banking with effects on financial performance worldwide.

A study by Jain and Sharma (2023) established a positive link with environmental and monetary performance. Inegbedion (2024) identified that despite in the short term the consequence of adoption of the green concept is negatively associated with increased profitability but in the long term it changes to positive. Similarly, Subedi and Bhattarai (2024) identified a positive correlation in implementing green banking initiative and monetary performance and consequently achieving client satisfaction. Therefore, green banking and profitability are positively correlated.

Persakis and Al-Jallad (2024) carried out a study on corporate social responsibilities initiatives by key banking institutions and revealed that CSR results to the firm's performance boosts the brand image of the company. Sahoo (2024) established that banks in India have embraced green banking. The author highlighted the exhibited collaborative efforts between financial institutions, governmental bodies, and the private sector to drive sustainable energy projects. The approach emphasizes the dual benefits of green capital. Consequently, the strategies contribute to environmental conservation while generating long-term economic returns. In agreement these findings, Parikh, Kumari, Johann, and Mladenović (2023) indicate that by integrating ESG factors into financial decision-making processes, banks are able to mitigate risks and promote sustainable practices. The studies advocate for the Indian banking industry's pivotal role in reshaping the economic landscape through responsible and sustainable financial practices, aiming to guide stakeholders in navigating the evolving green finance domain and fostering a resilient, eco-friendly future for the sector.

A review of literature established that some studies revealed opposing results. This includes a study by Cerciello, Busato, and Taddeo (2022), which found out that companies that embraced pollution control and management of carbon reported less profitability. Jansson (2022) also came out with similar conclusions. Therefore, there may exist a negative correlation between financial and environmental performance. The overall implication is that it is not in all instances that investments in green banking results in improved economic performance among firms.

Mishra and Aithal (2023), in their study, concluded that green banking is critical in reducing and managing all risks associated with lending brand image. Therefore, the approach gives rise to high financial results for the company that has embraced the concept. The authors recommended a few of the green banking initiatives such as carbon reduction initiatives and green products. The

strategies are all aimed at bettering society at large. However, the reviewed study used a qualitative approach, while this research used a quantitative strategy in the research.

Taneja & Özen (2023) sought to analyze the correlation between a bank's green financing and its environmental performance through an inquiry. The impact of green financing activities on a bank's performance in relation to environmental protection was the inquiry's main aim. An analysis using AMOS was conducted to examine the correlation between green financing activities and the promotion of environmental sustainability. The study indicated that the bank's environmental performance is significantly influenced by environmental support strategies and policies. As per the results of the inquiry, banks should prioritize the adoption of sustainable environmental technologies in order to enhance their performance and reputation among customers. Abdi and Nobanee (2021) established that sustainability in the financial institutions took either varying routine operations such as regeneration programs and paper free banking. Others are the adoption of efficient energy resources, and enhancement of the community activities aimed at reducing and or minimizing pollution. Besides, Agrawal, Agrawal, Samadhiya, and Kumar (2023) found that lending and investment initiatives can be adopted to enhance environmentally friendly projects and ventures. This way, the firms can also implement favorable products to enhance the sustainability in the main business, consequently leading to improved financial performance. The listed strategies were the main variables of this research which adopted a qualitative methodology. The study, however, did not quantitatively address the use of these strategies and financial performance.

In Nigeria, Appah, Tebepah, and Eburunobi (2024) examined the impact of green banking adoption on long-term sustainability and profitability of Nigerian banks. The researchers adopted a quantitative methodology design. They analysed quantitative data using bank financials and green loan portfolio measures. Majorly, it was found that banking institutions that actively financed renewable energy and green projects reported lower non-performing loan ratios over time and marginally higher ROE, compared to those that did not. However, the measurement of variables adopted by researchers could distort the inferences because green banking proxies are often limited to green loan amounts. The risk of endogeneity was apparent because banks that select green projects may already be better managed, meaning excellent financial performance may not be absolutely attributed to the adoption. The current study addressed this gap by measuring

green banking with multiple indicators, such as green loans, green credit cards, green policies, and green savings accounts. Additionally, control variables and moderator tests like bank size were included to reduce selection bias. Mangwa and Jagongo (2020; 2022) assessed the correlation between green banking and Kenyan commercial banks' financial performance. They utilized already published information available from the Central Bank of Kenya. During the inquiry, Kenyan commercial banks' capital adequacy and liquidity was evaluated to determine if green banking and financial performance were associated in any way. A noteworthy correlation between green banking and the financial performance of commercial banks in Kenya was revealed. The study made a unique contribution to theory, practice, and policy by providing valuable insights to commercial banks in Kenya that relied on new business opportunities to enhance their revenues, as well as to relevant governmental and non-governmental agencies focused on sustainable economic development. Additionally, the article contributed to documented knowledge not only within the Kenyan context but also regionally and globally.

The study by Omare (2023) examined the effects of ESG sustainability on the performance of banks, drawing on agency, stakeholder, and legitimacy theories. A descriptive research design was employed. Senior finance managers were sampled and data collected from them. As per the results, banks in Kenya actively engaged in various sustainability activities, such as producing sustainability reports, issuing environmental policy statements, providing staff training, and maintaining a board that has directors with diverse characteristics. This way, the senior administrators are compelled to adhere to ethical requirements and ensure they are responsible. In such cases, the firm becomes successful in generating revenue for a long time. However, it is noted that future inquiries should involve more informants with diverse traits.

2.3.3 Credit Risk Sustainability Assessment and Financial Performance

Banking institutions are incorporating environmental risk and climate change issues into their lending processes, and this affects financial performance. Because of the introduction of regulatory requirements on the environment in the US and environmental statutory regulations on water, soil and air in Europe, banks are confronted with liability issues and financial risks connected with environmental issues of their clients (Bank for International Settlements, 2021). Consequently, they developed and implemented environmental credit risk assessment and management systems.

Monasterolo, Mandel, Battiston, and Mazzocchetti (2022) assessed credit policies of banking institutions in first world nations like the US and the UK around environmental issues. The authors established that there was limited evidence of banks capitalizing on opportunities arising from the greening of the sector. The researchers cited the downside risk of lending to environmental factors was more probable than the upside risk thus putting off banks from dwelling on environmental concerns. This study focused on lending policies and environment as the key variables. The research methodology adopted was qualitative. However, the study was focused on the UK and other markets, thus the findings are not applicable in a different context such as Kenya.

Recent literature suggests that capital lenders, such as banks, are becoming more environmentally conscious, as seen through the rise of green financing. For instance, the study by Siwela and Ngwakwe (2024) examined the short- and long-term relationship between environmental performance and banks' loan pricing, using data from 21 FTSE/JSE RII listed companies over six years. Results showed a significant positive link between environmental performance and loan pricing, highlighting the importance of sustainability in financial decision-making. It is noted that financial institutions now grapple with balancing sustainability efforts with profit maximization. However, limited research exists on whether corporate environmental performance influences bank support.

The literature highlights the influence of climate change-related regulatory risks on credit reallocation by banks (Mueller & Sfrappini, 2022). The impact varies depending on the borrower's region, with US firms facing more stringent lending conditions if they are negatively affected by regulatory interventions. In contrast, European banks tend to support firms that may benefit from environmental regulations (Mueller & Sfrappini, 2022). This suggests that the laws pertaining to the regional regulation of environment issues influence that strategies for lending that banks adopt. Additionally, banks' responses are influenced by the composition of their loan portfolios. Those with portfolios dominated by firms vulnerable to environmental regulations tend to increase their support for these firms, possibly to mitigate risk. The financial implications of climate-related regulations seem to be a driving factor behind these reallocation decisions. Overall, the findings illustrate how banks are navigating the challenges posed by climate change through strategic credit allocation adjustments, balancing regulatory pressures with financial considerations.

There is a critical role played by sustainable finance in reducing production-generated emissions. Literature shows that constraints in borrowing hinder firms' ability to invest in technologies that can reduce pollution because such firms are supposed to provide security assets with high value, and this often shifts investment priorities toward tangible assets, which banks prefer as security (Zhang, 2021). Using survey data from firms in ten EU member states, an examination of how environmental performance influences bank lending decisions and collateral requirements was carried out. As per the results, firms with initiatives that cater for the environment are easily loaned with flexible security requirements (Zhang, 2021). Furthermore, for collateralized loans, organizations that have better environmental performance rarely face high collateral-to-loan value ratios. The impact of sustainable finance is also tied to the economic and financial development level within a country. Interestingly, the newer EU member states' (NMS') financial institutions do seem to recognize a firm's involvement in conservation as a collateral for lending them money. Based on the inferences, policymakers that want to enhance sustainable finance practices can gain crucial information, particularly in aligning financial incentives with environmental performance. Overall, the study highlights the uneven consideration of environmental factors in lending practices across different EU regions and underscores the importance of continued policy development.

A study by Bellon, Kopytov, and Miller (2021), examined the impact of lenders' environmental liability on the behavior of debtor firms. The researchers used U.S. Census Bureau micro-data and the Lender Liability Act as a key identification tool. The findings revealed that some lenders are less responsible for cleanup costs. Therefore, they increase on-site pollution, reduce investments in abatement technologies, and experience a significant rise in environmental regulatory violations (Bellon, Kopytov, & Miller, 2021). These effects are particularly pronounced in firms nearing bankruptcy or those with higher environmental risks. Interestingly, while reduced lender liability leads to slight gains in employment, it does not seem to affect earnings or productivity. Firms do not get motivated to invest in pollution mitigation or boost output due to the constraints put in place to compel compliance with conservation. Instead, the decrease in liability weakens banks' incentives to push for environmentally responsible behavior from their debtors. These findings highlight how regulatory changes in lender liability can significantly alter corporate environmental practices, particularly for financially vulnerable firms.

Naili and Lahrichi (2022) carried out a study in Morocco. Their focus was to examine how improved credit data infrastructure affects bank performance and non-performance loans. Panel data analysis was carried out, based on data pertaining to improved credit bureau coverage as a variable. The study found that with better credit data, non-performance loans reduce while profitability goes up. However, the study lacks contextual relevance because Morocco is different from East Africa. Also, there were no ESG-specific risk adjustments incorporated into the study. Considering the gaps, the current research combined credit-data improvements with ESG-based sustainability assessment to test if sustainability-adjusted credit criteria yield additional performance gains in Kenya.

In Ghana, Rowland et al. (2023) evaluated responsible management in banks. The focus was to find if such administrative approaches affect credit risk and bank performance. The researchers adopted a survey. Data on bank financials was collected and analyzed. It was found that responsible credit management is correlated with lower default rates and improved profitability metrics. However, reliance on cross-sectional associations and adoption of unstandardized sustainability criteria were the study's main weaknesses. The current study addressed the gaps by operationalizing sustainability assessment criteria clearly and applying regression models that include interaction terms with bank size to test moderation effects.

Wachira and Achieng (2023) assessed how the use of modern credit-scoring and data analytics influences bank performance in Kenya. One of the indicators under review was non-performing loan reduction. Using bank-level information like credit data and performance ratios, the researchers carried out a regression analysis. As per the results, banks that instituted advanced credit-scoring systems have lower non-performing loans. Also, the profitability ratios exhibited improvement. Therefore, with better risk management, profitability is supported. However, the sustainability criteria or ESG-based credit evaluation was not explicitly modelled. Also, the study focused on credit scoring rather than sustainability-adjusted credit ratings. To address these gaps, the current study included sustainability assessment criteria and credit risk rating criteria explicitly. This way, it was efficiently tested whether or not adding ESG screens during loaning improves credit outcomes and financial performance.

2.3.4 Bank Size and Financial Performance

In this section, studies on how bank size influences performance are explored, focusing on profitability, efficiency, and resilience while identifying gaps in each study. Bank size, often determined by metrics such as total assets or number of branches, is usually linked with bulk production advantages, risk diversification, and creditworthiness. However, the impact of bank size varies across studies due to differences in regional context, regulatory conditions, and economic factors.

An international scale study by Gržeta, Žiković, and Žiković (2023) focused on the influence of Basel II and Basel III regulatory changes on bank performance. The researchers assessed bank size as well as bank-specific and macroeconomic factors. In this case, data from 433 European commercial banks was reviewed from 2006 to 2015 (Gržeta, Žiković, & Žiković, 2023). It was found that the regulation of banks has varying effects on banks of different sizes. Specifically, regulation positively influences efficiency and profitability in large and medium-sized banks. The reason is that such banks can easily adapt to new regulatory demands. However, smaller banks face challenges in efficiency and profitability. The probable reason for this scenario is that such banks face significant administrative burdens due the regulatory changes. Consequently, the systematic risk increases, and this lowers performance. However, this study's focus on the European banking sector may not reflect the impact of such regulations in other regions, such as Kenya, where banking dynamics, regulatory environments, and adaptation capacities may differ significantly.

Neves, Gouveia, and Proença (2020) examined the determinants of profitability and efficiency among 94 listed commercial banks in Eurozone countries. The focus was to understand the factors that influence bank performance within a European context from 2011 to 2016. The authors assessed bank-specific characteristics that could impact profitability. Among the issues reviewed was the role of managerial decisions and macroeconomic conditions in resource allocation, which are determined largely by bank size. The findings indicated that banking efficiency varies with specific characteristics and is sensitive to broader economic conditions. However, the study's exclusive focus on Eurozone banks, limits the generalizability of its findings to other regions with different regulatory, economic, and market environments, such as Kenya.

Asongu and Odhiambo (2019) conducted a study on African banks to investigate how size impacts performance, finding that larger banks benefit from bulk production advantages that enhance profitability and efficiency. The study shows that size enables banks to spread fixed costs across a wider range of transactions, thus increasing profit margins. Although the study is applicable in the African context, it focused on well-established banks. Additionally, the authors did not integrate a discussion on technology and digital banking, which could affect bulk production advantages in modern banking. The study's focus on traditional, branch-based banking operations may not align with the digitization trends in banking globally.

In East Africa, a study by Ford (2022) examined how bank size conditions the adoption and outcomes of impact investments in banks within the region. Using mixed methods, the researchers carried out interviews and analyzed the selected organization's balance-sheets. The study found that larger banks are able to absorb initial costs, adopt sustainability frameworks, and finance larger green projects, better than small ones. The reason is that small banks face resource constraints. The gaps in these study include the use of few formal moderator tests with interaction terms and a lack of a clear explanation heterogeneity by demarcating large from small banks. However, the current study's regression models formally tested moderation and measured bank size with multiple indicators, such as assets, capitalization, employees, and branches, to capture heterogeneity.

In Tanzania, Lotto (2019) studied the relationship between bank size and operational efficiency. The findings indicated that larger banks achieve higher efficiency due to their scale. For instance, larger banks have better bank liquidity and capital adequacy, which enhance bank operating efficiency. The findings concur with existing literature about developed markets, where large banks typically lead in both efficiency and customer service. However, the study was only limited to banks in Tanzania. Therefore, the findings cannot be generalized in the Kenyan context, given the differences in regulation and economic statuses.

In Kenya, Muhindi (2023) found a connection between bank size and financial performance. However, the study highlighted that previous research has produced mixed results regarding the impact of bank size factors, such as total net assets, bank capital, and customer deposits, on financial performance. By analyzing these factors along with the moderating effect of the Gross

Domestic Product (GDP) growth rate, the study concluded that bank size variables positively correlate with financial performance. In sum, banks with larger customer deposits, higher capital, and greater net assets exhibit superior financial performance. An earlier study by Muhindi and Ngaba (2018), had also established that bank size is among the key determinants of bank performance. However, the studies did not address how smaller, less capitalized banks might adapt to maintain or improve performance, especially under challenging economic conditions or when access to customer deposits and capital is limited.

In another study executed by Kenya Bankers Association (2024), the capacity differences between Kenyan banks that have adopted ESG frameworks were reviewed. During the study, an industry survey was carried out. Additionally, secondary data was reviewed. It was found that tier-one banks show higher ESG reporting and structured sustainability teams while smaller banks lag. However, the research lacked a formal analytical econometric test for how bank size can moderate performance outcomes. Additionally, there was no causal inference made. The current study fills these gaps by combining the existing descriptive evidence with causal models testing how and when bank size strengthens or weakens the sustainable finance- performance link.

Another study by Munene (2022) assessed how loan quality affects bank performance. It was established that large banks offer high-quality loans due to their resource endowment. Therefore, such banks enjoy competitive advantages due to bulk production advantages and customer reach. The study attributes these advantages to the extensive branch networks and capital access enjoyed by larger banks. In this case, bank size indirectly influences the financial performance of banks in Kenya. However, the researchers seemed to focus on large banks, leaving out an analysis of smaller banks, which could provide a more holistic view of bank performance as influenced by bank size in Kenya's diverse banking sector.

Existing literature exhibits some gaps that should be filled. For instance, there is no conceptual disaggregation of variables, such as ESG activities in many of the previous studies. Additionally, only few studies measure green banking at the product level, namely, green credit cards and green savings accounts. It is also noted that many prior works use cross-sectional or descriptive designs. Generally, Kenyan bank-level evidence limited in the studies. Finally, most of the existing studies point to size effects but rarely include rigorous moderator tests.

In sum, the literature reviewed shows that while studies generally support a positive relationship between bank size and performance. However, the degree and nature of this impact vary considerably depending on market conditions, regulatory frameworks, and technological trends. Although research on developed markets is common, gaps remain regarding how bank size influences performance in emerging markets, particularly in African countries like Kenya. Therefore, there is a need to execute a study that focuses on these areas, considering local market characteristics and regulatory environments. This way, there will be an understanding of the impact of bank size dynamics on performance in diverse contexts.

The current study fills the identified gaps in various ways. For example, in this study, sustainable finance is clearly disaggregated into impact investments, green banking, and credit risk sustainability assessment. Each of the variables has defined sub-indicators. Green banking is operationalized with four product or policy indicators, and their individual associations with ROA, ROE, and NIM measured. A causal research design and regression models with controls and interaction terms are adopted in this study. Diagnostic tests for normality, VIF, and heteroscedasticity are carried out. The study is bank-level, Kenya-focused, and integrates industry reports with primary survey data from bank managers and secondary financial statements. Model bank size is explicitly modelled as moderator in the regression.

2.4 Summary of Literature Review and Research Gaps

Table 2.1: Summary of Research Gaps

Author(s) & Year	Topic	Key Findings	Research Gap	Focus of Current Study
The Bridgespan Group (2023)	Impact Investments and Financial Performance (Africa-wide)	A growing trend of impact investments in Africa leads to improved market returns and measurable social impact, though institutional banking participation remains limited.	**Contextual and Methodological:** Evidence is primarily from fund-level data, creating a gap in bank-level causal evidence. Fund-level results cannot be directly translated to bank lending products.	Provide bank-level empirical evidence from Kenyan commercial banks, directly connecting internal impact investment practices to bank performance metrics.
Mangwa and Jagongo (2022)	Green Finance and Financial Performance (Kenya)	Banks with explicit green finance products/policies	**Conceptual and Contextual:** Impact investment was loosely defined and merged with	Isolate impact investment as a distinct construct, test causal links with

		show substantial improvements in ROA and ROE, with a stronger effect for larger banks.	other ESG activities. Limited controls for endogeneity and a focus only on tier-one banks, excluding mid-tier institutions.	financial performance while controlling for endogeneity, and use bank size as a moderator.
Odongo, Misati, Kageha, and Wamalwa (2023)	Sustainable Finance, Climate Risk and Financial Stability (Kenya)	Adoption of sustainable finance improves resilience to climate shocks and correlates with better asset quality, but the link to traditional profitability is mixed.	**Methodological and Conceptual:** Short time window and limited micro-level product measures. Blending of various sustainable finance elements makes it hard to identify specific performance channels.	Disaggregate sustainable finance into specific variables (impact investment, green banking, credit risk sustainability) and measure each with specific indicators to identify which channel drives financial outcomes.
Equity Group Foundation (2023)	Social Impact Investments and Operational Outcomes (Kenya)	Targeted social investments strengthened client base and regional reach, with indirect benefits in deposit mobilization and customer retention.	**Methodological and Generalizability:** Internal monitoring lacks a counterfactual and formal econometric testing. A single-case study design limits wider inference and generalizability.	Apply a multi-bank design using statistical models (regression, interaction terms) and control groups to improve causal inference and generalizability across the banking sector.
Appah, Tebepah, and Eburunobi (2024)	Green Banking and Financial Performance (Nigeria)	Banks financing renewable energy and green projects reported lower non-performing loan ratios and marginally higher ROE over time.	**Methodological (Measurement and Endogeneity):** Green banking is poorly proxied by green loan amounts only. Risk of endogeneity, as better-managed banks may select green projects.	Measure green banking with multiple indicators (green loans, credit cards, policies, savings accounts) and include control variables/moderator tests to reduce selection bias.
Mangwa and Jagongo (2020)	Green Banking Practices and Bank Performance (Kenya)	A positive correlation exists between green banking adoption and profitability, especially for larger banks.	**Methodological (Design and Granularity):** Cross-sectional design limits causal claims. Lacks granularity by not testing product-level evidence (e.g., green loans vs. green credit cards) separately.	Implement a causal research design and operationalize separate green banking sub-components to allow for product-level inferences and interaction analysis with bank size.
Naili and Lahrichi (2022)	Credit Data Infrastructure and Bank	Better credit data infrastructure reduces non-performing loans	**Contextual and Conceptual:** The context of Morocco is different from East Africa. The study lacks	Combine credit-data improvements with ESG-based sustainability

	Performance (Morocco)	and increases profitability.	the incorporation of ESG-specific risk adjustments into credit assessment.	assessment to test if sustainability-adjusted credit criteria yield additional performance gains in Kenya.
Rowland et al. (2023)	Responsible Management, Credit Risk and Performance (Ghana)	Responsible credit management correlates with lower default rates and improved profitability.	**Methodological (Design and Measurement):** Reliance on cross-sectional associations (limiting causality) and the use of unstandardized sustainability criteria.	Operationalize clear sustainability assessment criteria and apply regression models with interaction terms (e.g., with bank size) to formally test moderation effects.
Wachira and Achieng (2023)	Credit-Scoring, Data Analytics and Bank Performance (Kenya)	Banks with advanced credit-scoring systems have lower non-performing loans and improved profitability.	**Conceptual:** The study did not explicitly model sustainability criteria or ESG-based credit evaluation, focusing instead on traditional credit scoring.	Explicitly include and test sustainability assessment criteria within credit risk rating to determine if adding ESG screens during lending improves outcomes.
Ford (2022)	Bank Size as a Moderator in Impact Investment (East Africa)	Larger banks are better able to absorb costs and adopt sustainability frameworks than smaller, resource-constrained banks.	**Methodological:** Used few formal moderator tests with interaction terms and lacked a clear explanation of heterogeneity by not clearly demarcating bank sizes.	Formally test moderation in regression models and measure bank size with multiple indicators (assets, capitalization, etc.) to better capture heterogeneity.
Kenya Bankers Association (2024)	Capacity Differences in ESG Adoption (Kenya)	Tier-one banks show higher ESG reporting and have structured sustainability teams, while smaller banks lag.	**Methodological:** Lacked formal econometric testing of how size moderates performance outcomes and did not make causal inferences.	Combine descriptive evidence with causal models to formally test how and when bank size strengthens or weakens the link between sustainable finance and performance.
Shabbir and Wisdom (2020)	Correlation between CSR, environmental investments, and financial performance in Nigerian manufacturing firms.	The findings suggest a clear and substantial correlation between investments in internal environmental factors and the financial	**Contextual:** The study was conducted on Manufacturing firms in Nigeria and focused on CSR and environmental investments.	The focus of the current study is commercial banks in Kenya and impact investment.

		performance of the company.		
Taneja and Özen (2023)	Correlation green financing and mental performance in India.	The study indicated that the bank's environmental performance is significantly influenced by environmental support strategies and policies.	**Contextual:** The study was conducted in India and focused on green banking.	The focus of the current study is commercial banks in Kenya.

2.5 Conceptual Framework

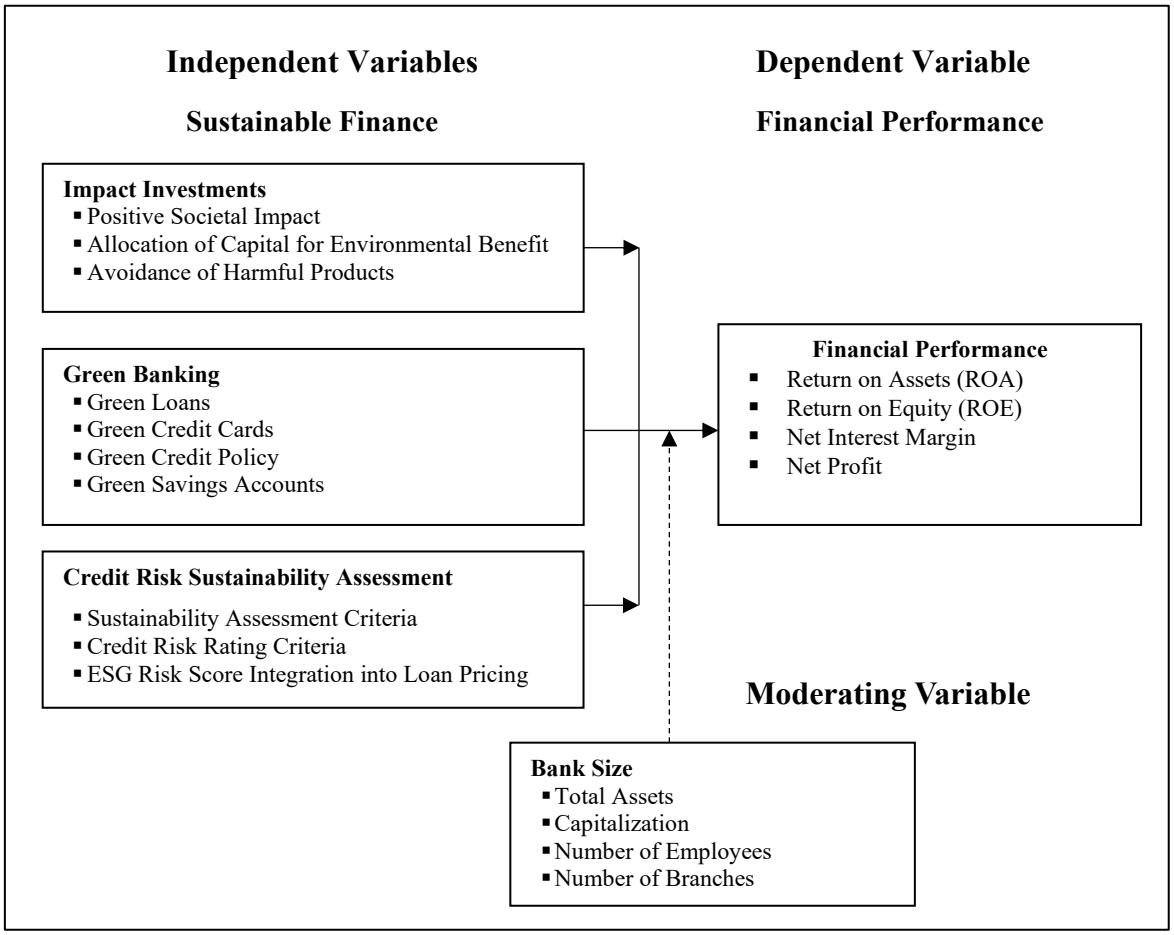

Figure 2.1: Conceptual Framework

Source: Researcher (2025)

As shown in the figure, various aspects of sustainable finance impact financial performance. Practices such as impact investments, green banking, and credit risk sustainability assessments are the key variables. Impact investments entail positive societal effects, environmental benefits, and avoiding harmful products. Green banking involves initiatives like green loans, green credit cards, green credit policies, and green savings accounts. Credit risk sustainability assessment pertains to sustainability criteria and credit risk rating. Financial performance is measured using Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin. In this case, bank size is expected to act as a moderating variable that will potentially influence how sustainable finance practices affect financial performance.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, a comprehensive overview of the methodological framework employed to investigate the research problem is provided. The section begins by detailing the research design and justifying its selection as the most appropriate for establishing causal relationships and testing the proposed hypotheses. The next part clearly defines the study's target population and outlines the sampling strategy used to select a representative subset for data collection. Additionally, the chapter describes the data collection procedures and the specific time frame from which it was gathered. Data analysis techniques are then explicated by specifying the statistical tests applied to process the data and draw meaningful inferences. Finally, the chapter concludes by addressing the ethical considerations and limitations inherent in the chosen methodology.

3.2 Research Design

The study employed causal research design. The use of causal research design in a study helped to explore the causal linkage between study variables (Mugenda & Mugenda, 2011). The independent variables were impact investments, green banking, and credit risk sustainability, while bank size was the moderator variable. Financial performance was the dependent variable. In this research, impact investments were measured through positive societal impact initiatives, capital allocation for environmental benefit, and the avoidance of harmful products. Green banking was defined by the presence of green loans, green credit cards, formal green credit policies, and green savings accounts. Credit risk sustainability assessment was gauged through sustainability assessment criteria, credit risk rating criteria, and ESG risk score integration into loan pricing. Bank size was measured through total assets, capitalization, number of employees, and number of branches. Finally, the dependent variable, financial performance, was quantified using ROA, net profit, ROE, and NIM.

The indicated design was thus appropriate for this study as it aimed to determine the impact of sustainable finance on the banks' financial performance. The reason is that the design has the capacity to describe the state of sustainable finance practices critically and simultaneously establish the nature and direction of their relationship with financial performance. A causal design goes further than just establishing correlation because it determines if the changes in independent variables are the direct causes of changes in the dependent variable (Hoffman et al., 2024). This is

achieved through the use of statistical controls like bank size to isolate the unique effect of sustainable finance practices. Although the research profiled the extent of sustainable finance adoption across banks, its fundamental strength was in its ability to rigorously test the hypothesized causal relationships central to the study's objectives.

3.3 Target Population

The population targeted for study included 10 commercial Banks that have complied with the regulations of sustainable finance within Nairobi City County. In 2019, there were 41 registered commercial banks in Kenya (Central Bank of Kenya, 2019). The ten banks that were selected were appropriate for the study because they meet the bank size, location, and data availability criteria. Therefore, the unit of analysis was the commercial banks that have adopted the concept of sustainable finance. The units of observation were the departmental heads and managers of the commercial banks. Nairobi City County was selected due to its status as the capital of Kenya and economic zone of the country harboring the Headquarters of most Banking institutions. Nairobi City County was selected because as the capital and primary economic hub of Kenya, it houses the headquarters of most banking institutions. Additionally, the Kenyan banking sector provides a uniquely appropriate context for examining sustainable finance because the country is a regional pioneer in formalizing sustainable finance. Not long ago, the Central Bank of Kenya (CBK) issued the guidance on climate-related risk management. Therefore, most banks have integrated ESG factors into their operations. Furthermore, the banking sector in Kenya is exposed to climate-related risks like droughts and floods, which end up threatening the loan portfolios. Therefore, studying risk-resilient banking practices was academically interesting and critically urgent for the sake of suggesting policies that can enhance financial stability. Given the significant heterogeneity in Kenyan banks in terms of size and capacity, there was a need to assess the link between sustainable finance and financial performance to offer insights that can be helpful in diverse banking environments

3.4 Sampling Frame and Sampling Design

3.4.1 Sampling Frame

The study targeted banking institutions in Kenya who have adopted the concept of sustainable finance. The study targeted the departmental heads and managers of the commercial banks as the respondents.

Table 3.1 Sampling Frame

Bank	Managers	Department Heads	Total Population
Kenya Commercial Bank	9	5	14
Cooperative Bank	5	6	11
Family Bank	6	5	11
Equity Bank	5	8	13
National Bank of Kenya	7	5	12
Barclays Bank	4	7	11
Standard Chartered Bank	5	7	12
Commercial Bank of Africa	6	6	12
Eco Bank	8	4	12
I&M Bank	6	6	12
TOTAL	**61**	**59**	**120**

Source: Kenya Bankers Association (2022)

3.4.2 Sample Determination and Sampling Design

The sample size for this group was determined using the Taro Yamane formula, which provides a simplified calculation for a finite population. The formula is:

$n = N / (1 + N(e)^2)$

Where:

n = required sample size

N = population size (120 staff)

e = margin of error (0.05, representing a 95% confidence level)

Therefore,

$n = 120 / (1 + 120(0.05)^2)$

$n = 120 / (1 + 120 \times 0.0025)$

$n = 120 / (1 + 0.3)$

$n = 120 / 1.3$

$n = 92.3$

The Yamane formula suggested a sample of 92. Attaining this sample was logistically challenging. Therefore, the study targeted a robust sample instead, based on pragmatic and theoretical considerations. The sample size was determined by applying the principle of data saturation, where respondents were selected until no new information was forthcoming. The final sample of 41

respondents was deemed sufficient because it exceeded the minimum threshold of 30 respondents prescribed by the Central Limit Theorem for statistical analysis and aligns with common practices purposive sampling where the focus is on information-rich cases rather than numerical representation.

A purposive sampling technique was applied to select all the commercial banks which have initiated and adopted sustainable finance programs in their activities. Since there were only 10 commercial banks, a census was conducted on all of them. According to Saunders, Lewis and Thornhill (2007), the census technique is utilized due to the manageable amount of data that could be included in the research. Purposive sampling was used to select the department heads and managers of the said banks within Nairobi City County since they are the strategic decision-makers directly involved in implementing sustainable finance initiatives. Mugenda and Mugenda (2003) indicated that at a minimum 10% of the sample size is acceptable representation of the population, and using the central limit theorem N=30, data was gathered from 41 respondents chosen purposively from the 120 staff which formed the target population.

Table 3.2: Sample Size

Bank	**Population Frequency of Managers and department Heads**	**Percentage (30%)**	**Sample Size**
Kenya Commercial Bank	14	30%	4
Cooperative Bank	11	30%	3
Family Bank	11	30%	3
Equity Bank	13	30%	4
National Bank of Kenya	12	30%	4
Barclays Bank	11	30%	3
Standard Chartered Bank	12	30%	4
Commercial Bank of Africa	12	30%	4
Eco Bank	12	30%	4
I&M Bank	12	30%	4
TOTAL	**120**		**41**

3.5 Data Collection Procedure and Instruments

Direct interaction technique was adopted to administer the data collection instrument, the questionnaire, to explain to the participants the aim of carrying out the research and to enable good relationships to enhance interviews with the participants. The researcher employed drop and pick technique where it was deemed necessary if other methods failed as a result of fixed timelines on the participants. Facilitation of research assistance was also sought where necessary. Secondary information was drawn from the bank's annual financial reports.

The primary data collection instrument was a structured questionnaire designed to quantitatively measure the study variables as defined in the conceptual framework. The questionnaire was divided into sections that directly correspond to the key constructs, utilizing a five-point Likert scale (from 1=Strongly Disagree to 5=Strongly Agree) to capture respondents' perceptions and the extent of implementation for each item. The first section of the questionnaire entailed details on demographic characteristics. The section measured the independent variable of Impact Investment through items assessing the bank's strategic allocation of capital toward positive societal and environmental outcomes. Specific statements included the bank's focus on positive societal impact, capital allocation for environmental benefit, and the avoidance of harmful products.

The third section operationalized the second independent variable, green banking, by evaluating the presence of specific green financial products and policies. Respondents indicated their agreement with statements regarding the availability of green loans, green credit cards, green savings accounts, and the implementation of formal green banking policies. The fourth section captured the third independent variable, Credit Risk Sustainability Assessment, by gauging the integration of sustainability criteria into the bank's core credit risk management. Items focused on the use of sustainability assessment criteria, dedicated training for staff, and post-disbursement monitoring for environmental risks. The fifth section measured the dependent variable, financial performance, by collecting perceptual data on key profitability and efficiency metrics. Respondents provided their assessment of the bank's profitability, trends in Return on Assets (ROA) and Return on Equity (ROE), and operational efficiency. Finally, the sixth section captured data on the moderating variable, bank size, through perceptual measures of the bank's scale and capacity, including items on total assets, market capitalization, and branch network.

3.6 Pilot Test

Rahi (2017) explains that pilot testing involves administering research instruments to a small sample that closely resembles, but is not part of, the actual study population. This process is essential for testing the data collection instrument. Additionally, the pilot study population was selected based on accessibility and similarity to the main study participants in terms of background characteristics. For this study, a sample of 10 individuals from the target population was used for the pilot test. Notably, these participants were excluded from the final study to prevent any potential bias.

3.6.1 Validity of the Instrument

Validity pertains to the extent to which the data obtained from a tool accurately and meaningfully reflects the underlying theoretical concept, particularly with regard to how the data represents the variables. When validity is established, the conclusions derived from the data are both precise and meaningful (Mugenda & Mugenda, 2003). Incorporating various sources of evidence improves the credibility of a study (Yin, 2003). The questionnaire was distributed to supervisors, colleagues, and lecturers for testing in order to evaluate its content validity. The university supervisor analysed, made some slight changes, and approved the questions (Table 3.3). This assessed the questionnaire's validity.

Table 3.3: Validity Results

Construct	Number of Items	Item-Level CVI (I-CVI) Range	Scale-Level CVI (S-CVI/Ave)	Expert Recommendations
Impact Investment	10	0.8 - 1.0	0.92	Wording simplified for two items to enhance clarity.
Green Banking	9	0.8 - 1.0	0.93	One item on "green bonds" was added to improve comprehensiveness.
Credit Risk Sustainability Assessment	9	1.0 - 1.0	1.0	No changes required.
Bank Size	7	1.0 - 1.0	1.0	No changes required.
Financial Performance	7	1.0 - 1.0	1.0	No changes required.
Overall Instrument	42	0.8 - 1.0	**0.94**	The instrument was deemed excellent for data collection.

3.6.2 Reliability of the Instrument

The reliability of a research instrument refers to its ability to produce consistent results or data when used repeatedly (Mugenda and Mugenda, 1999). According to Cortina (1993), an instrument is considered reliable when it accurately measures a variable and consistently yields similar results over time. In this study, the reliability of the data will be evaluated using Cronbach's alpha as a measurement. To assess the instrument's reliability, an independent sample pilot test was conducted using the collected data. According to Heir et al. (1998), a Cronbach's alpha reliability value higher than 0.7 is considered appropriate for the study. The results are presented in Table 3.4.

Table 3.4: Cronbach's Alpha Results

Study Variable	# of Items	C. Alpha	Rating
Impact Investment	10	0.899	Good
Green Banking	9	0.807	Good
Credit Risk Sustainability Assessment	9	0.807	Good
Bank Size	7	0.823	Good
Financial Performance	7	0.815	Good
Overall	42	0.851	Good

Based on the Cronbach's alpha (α) results, impact investments, green banking, credit risk sustainability assessment, bank size, and financial performance had (α) values as follows; 0.899, 0.807, 0.807, 0.823, and 0.815, respectively. The overall reliability was 0.851. Since all the reliability values were above the cut off of 0.70, there was good reliability.

3.7 Data Analysis and Presentation

3.7.1 Data Preparation and Preliminary Analysis

Collected data was cleaned, sorted, and coded numerically before being uploaded into SPSS software (Version 28) for analysis. The analysis employed both descriptive and inferential statistics, a standard approach for quantitative research in social sciences (Saunders et al., 2019).

Descriptive Statistics**,** which entailed frequencies, means, and standard deviations, were used to summarize the demographic characteristics of the respondents and to describe the central tendency and distribution of the main study variables. In this study, the study variables were impact investments, green banking, credit risk sustainability assessment, bank size, and financial performance. Therefore, descriptive statistics provided a profile of the data and the level of adoption of sustainable finance practices.

Inferential statistics were used to test the study's hypotheses and establish relationships between variables. First, Pearson's correlation analysis was conducted to assess the strength and direction of the linear relationships between the independent variables and the dependent variable. This provides a preliminary understanding of bivariate relationships before controlling for other factors (Pallant, 2020).

3.7.2 Hypothesis Testing

The following analytical approaches were used to address each research objective and its corresponding hypotheses:

Objective 1: To examine the effect of impact investment on the financial performance of commercial banks.

Analysis: Multiple Linear Regression (Based on Model I).

Hypothesis Test: The significance of the coefficient β_1 in Model I was tested. A statistically significant value ($p < 0.05$) would lead to the rejection of the null hypothesis, confirming that Impact Investment (X_1) has a significant effect on Financial Performance (Y).

Objective 2: To assess the effect of green banking on the financial performance of commercial banks.

Analysis: Multiple Linear Regression (Based on Model I).

Hypothesis Test: The significance of the coefficient β_2 in Model I was tested. A statistically significant value ($p < 0.05$) would lead to the rejection of the null hypothesis, confirming that Green Banking (X_2) has a significant effect on Financial Performance (Y).

Objective 3: To determine the effect of credit risk sustainability assessment on the financial performance of commercial banks.

Analysis: Multiple Linear Regression (Based on Model I).

Hypothesis Test: The significance of the coefficient β_3 in Model I was tested. A statistically significant value ($p < 0.05$) would lead to the rejection of the null hypothesis, confirming that Credit Risk Sustainability Assessment (X_3) has a significant effect on Financial Performance (Y).

Objective 4: To establish the moderating effect of bank size on the relationship between sustainable finance practices and financial performance.

Analysis: Hierarchical Multiple Regression.

Hypothesis Test: This involved comparing regression models with and without the interaction terms. The moderating effect was tested by evaluating the significance of the interaction terms (β_5, β_6, β_7) and the change in R-squared (ΔR^2)**.** A significant interaction term ($p < 0.05$) and a significant ΔR^2 would confirm a moderation effect, following the procedures outlined by Hayes (2018).

3.7.3 Regression Models

The following regression models were estimated to test the hypotheses, with model specification informed by the principles of causal inference in non-experimental research (Angrist & Pischke, 2009):

Direct Effects Model: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

Moderated Model (with main effect of moderator): $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_m + \varepsilon$

Full Moderated Model (with interaction terms): $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_m + \beta_5 (X_1 * M) + \beta_6 (X_2 * M) + \beta_7 (X_3 * M) + \varepsilon$

Where: Y = Financial Performance, X_1 = Impact Investment, X_2 = Green Banking, X_3 = Credit Risk Sustainability Assessment, M = Bank Size, and ε = Error Term.

3.8 Operationalization of Variables

Table 3.5: Operationalization of Variables

Variable	Type	Indicators	Measurement	Data analysis
Impact Investment	Independent variable	Positive societal impact allocation of capital for environmental benefit Avoidance of Harmful products	Likert scale	Descriptive (mean and standard deviation Inferential (linear regression)

Green Banking	Independent variable	Green Loans Green Credit Cards Green Credit policy Green Savings accounts	Likert scale	Descriptive (mean and standard deviation Inferential (linear regression)
Credit Risk Sustainability Assessment	Likert scale	Sustainability assessment criteria Credit risk rating criteria	Likert scale	Descriptive (mean and standard deviation Inferential (linear regression)
Bank Size		Total Assets Capitalization Number of Employees Number of Branches	Likert scale	Descriptive (mean and standard deviation Inferential (hierarchical regression)
Financial Performance	Dependent Variable	Return on Asset, Return on Equity. Net Interest Margin	ROA= Net profit/Average Total Assets*100 ROE=Net Profit/ Total Shareholders' Equity *100% NIM= (Investment Returns-Interest) Expenses/Average Earning Assets Net Profit=Total Revenue- Cost of Goods Sold+Operating Expenses+ Interest+Taxes)	Descriptive (mean and standard deviation Regression analysis

3.9 Diagnostic Tests

3.9.1 Test for Multicollinearity

Multicollinearity was assessed to ensure the independence of the predictor variables. This study utilized the Variance Inflation Factor (VIF) to quantify the severity of multicollinearity, following the established guidelines in the field (e.g., Hair et al., 2019). The VIF measures how much the variance of an estimated regression coefficient increases due to collinearity. A VIF value exceeding 10 indicates severe multicollinearity that may destabilize the model (Kutner, Nachtsheim, & Neter, 2004). In this study, all VIF values for the independent variables were found to be below the threshold of 10, confirming that multicollinearity was not a concern for the model's integrity.

3.9.2 Test for Heteroscedasticity

The assumption of homoscedasticity, meaning constant variance of the error terms, is crucial for generating unbiased standard errors. To test for heteroscedasticity, this study employed the White test (White, 1980), a standard method for detecting heteroscedasticity in cross-sectional data. The test regresses the squared residuals on the original predictors and their cross-products. The results of the White test were not statistically significant ($p > 0.05$), leading to a failure to reject the null hypothesis of homoscedasticity. Therefore, the assumption was deemed met, and no corrective measures were required.

3.9.3 Test for Normality

The normality of the regression residuals was examined to validate the use of statistical inference based on the t and F distributions. While OLS estimators remain unbiased without normality, it is essential for the validity of hypothesis tests (Fields, 2017). This was assessed both graphically and statistically. The graphical analysis used a Normal Q-Q (Quantile-Quantile) plot, and the statistical assessment employed the Shapiro-Wilk test (Shapiro & Wilk, 1965). The points in the Q-Q plot closely followed the diagonal line, and the Shapiro-Wilk test was non-significant ($p > 0.05$), indicating no substantial deviation from normality. Thus, the assumption of normally distributed residuals was satisfied.

3.10 Ethical Considerations

Ethics helps to determine acceptable and unacceptable conduct (Resnik, 2011). The researcher sought permission to undertake the study from the Ministry of Educations National Council of Science and Technology (NACOSTI), after which a letter describing the goal and nature of the study will be obtained from the university. Standard ethical norms in interacting with participants such as voluntary participation in interviews, consent seeking, ensuring confidentiality of the information provided, keeping respondents anonymous as much as possible was applied. Informed consent was obtained from all individual participants in a two-stage process. First, potential respondents were provided with a detailed information sheet that outlined the study's purpose, the nature of their involvement, the voluntary nature of participation, and their right to withdraw at any time without penalty. Second, only those who agreed to proceed were asked to sign a written consent form before the questionnaire was administered. To ensure confidentiality and anonymity, all participants were assigned a unique numerical code, and no personally identifiable information like names or staff numbers was collected on the research instruments. The collected data was stored on a password-protected computer, and any physical documents were kept in a locked cabinet, accessible only to the principal researcher. In the reporting of findings, all data was aggregated to ensure that no individual or bank could be identified. These protocols were designed to protect participants from any potential physical or mental harm and to uphold the highest standards of ethical research conduct. Due consideration was provided to all participants without discrimination. Furthermore, only examination of relevant elements to the research was considered and participants were shielded from any physical or mental harm.

CHAPTER FOUR
DATA ANALYSIS, RESULTS, AND DISCUSSION

4.1 Introduction

This presents the analysis, findings, and interpretation of the data collected to investigate the relationship between sustainable finance practices and the financial performance of commercial banks. The presentation is structured according to the study's specific objectives, guiding the reader from a descriptive overview of the data to the inferential analysis that tests the research hypotheses. The chapter begins with a summary of the response rate, followed by demographic characteristics, and then descriptive statistics for the key variables, providing a profile of the data. It then presents the results of diagnostic tests conducted to ensure the robustness of the regression models. The core of the chapter details the inferential analyses, including correlation and multiple regression results, which examine the direct effects of impact investment, green banking, and credit risk sustainability assessment on financial performance. Finally, the results of the hierarchical regression analysis testing the moderating role of bank size are presented. Each section provides a clear interpretation of the findings, linking them back to the study's conceptual framework and the broader field of sustainable finance.

4.2 Analysis of Response Rate

Among the 41 self-administered questionnaires distributed, 36 were completed and collected on time, representing an 88% response rate, which exceeds the 70% threshold. The remaining five questionnaires were later retrieved, bringing the total response rate to 100%. As noted by McBurney (2001), a response rate above 70% is considered acceptable for research studies.

4.3 Bio Data/Respondents' Profile

The demographic attributes of the interviewees are described in this segment. The analysis focused on gender, educational Level, duration of working within the banking industry and designation. The background of the respondents influences their opinions on financial sustainability and monetary performance of banks in Kenya.

4.3.1 Gender Composition of the Respondents

It was important to involve both male and female participants in the study because it provided current and factual comprehension of activities that are grounded on gender, standards, and beliefs

thus enhancing the study. Besides, Men and women have different mindsets due to certain issues. It is also important to understand the source of any inequalities and improve average performance.

Males slightly exceeded females in this study, males were 23 in number representing fifty-six percent (56%) while females were 18 in number representing forty-four percent (44%) as shown in figure 4.1.

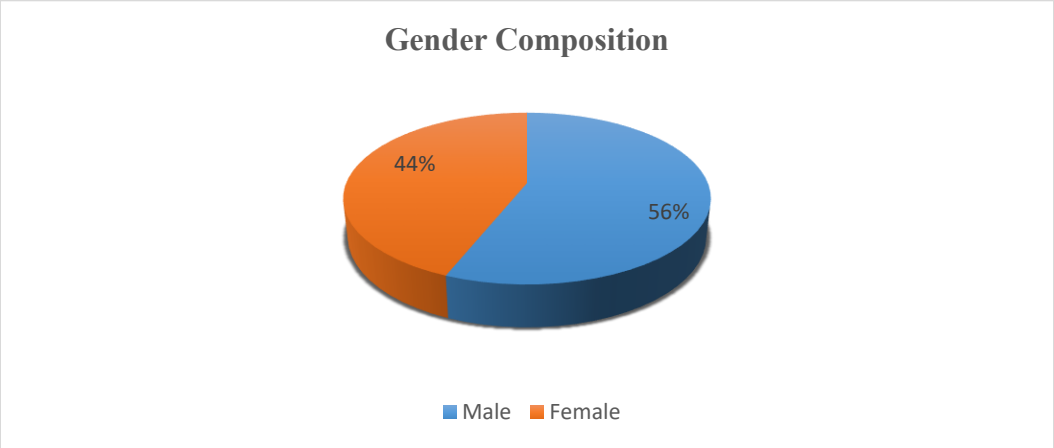

Figure 4.1 Gender Make-Up

4.3.2 Academic and Professional Experience

Further assessment showed that only 19 respondents were graduates representing 46.3% of the total sample size. This is represented by 11, 48% of male respondents and 8, 44% of females. This is shown in table 4.1 below.

Table 4.1: Academic level of the Participants

			Male	Female
Highest Academic Level	O level	F	0	0
		%	0.0%	0.0%
	A Level	F	0	0
		%	0.0%	0.0%
	Graduate	F	11	8
		%	48.0%	44.0%

	Masters	F	0	0
		%	0.0%	0.0%
	Others Specify	F	0	0
		%	0.0%	0.0%
	Other	F	3	7
		%	13.0%	39.0%

Source: (Survey Data, 2024)

As per the results, about 35% of the male employees had been in the industry for a period of between six and 10 years, compared to 33% of the females. Majority of the male employees, 65%, and 28% of the females had worked with the organizations for more than 10 years but not more than 15 years. None of the respondents indicated that they had only worked for the organizations for between one and five years or 16 and 220 years. The implication of the findings is that there are more men who have worked for banks for longer than women. See table 4.2 below;

Table 4.2: Duration of Working in the Banking Industry

			Gender	
			Male	Female
Duration of working within the Banking industry	1-5 years	F	0	0
		%	0.0%	0.0%
	6-10 years	F	8	6
		%	35.0%	33.0%
	11-15 years	F	15	5
		%	65.0%	28.0%
	16-20 years	F	0	0
		%	0.0%	0.0%

Source: (Survey data, 2024)

On average about 11 men or women or 52% in general, which is 43% of the males and 61% of the females indicated that they played the role of branch operations officers in the banks they work

for. On the other hand, business development managers were represented by 48% males and no females, as shown in table 4.3 below.

Table 4.3: Designations Held Within the Banking Industry by Participants

Designation		Gender		Average	STDEV
		Male	Female		
Branch Operations Officer	F	10	11	10.50	0.71
	%	43.0%	61.0%	52.0%	12.7%
Business Development Manager	F	11	0	5.50	7.78
	%	48.0%	0.0%	24.0%	33.9%
Credit Officer	F	5	0	2.50	3.54
	%	22.0%	0.0%	11.0%	15.6%
Branch Manager	F	0	0	0.00	0.00
	%	0.0%	0.0%	0.0%	0.0%
Cash and Operations Manager	F	9	0	4.50	6.36
	%	39.0%	0.0%	19.5%	27.6%
Other	F	3	7	5.00	2.83
	%	13.0%	39.0%	26.0%	18.4%

Source: (Survey data, 2024)

4.4 Descriptive Statistics Results

The test of descriptive statistics was conducted on the main variables via the SPSS software, and the outcome is stipulated in the table below.

Table 4.4: Combined Descriptive Statistics

Variable	Mean	STDEV	Skewness	Kurtosis	Jarque-Bera	P-Value
Impact Investment	3.18	1.46	-0.26	-1.10	2.25	0.104
Green Banking	3.32	1.31	-0.30	-0.91	2.25	0.071
Credit Risk Sustainability Assessment	3.06	1.21	-0.09	-0.68	2.25	0.111
Bank Size	4.02	1.12	-1.13	0.76	2.25	0.092
Financial Performance	3.65	1.25	-0.60	-0.66	2.25	0.121

Source: (Survey Data, 2024)

As per the descriptive statistics results, there was a moderate to high level of implementation of sustainable finance practices among the surveyed banks. Bank size had the highest mean score (M=4.02, SD=1.12). Therefore, the respondents generally perceived their institutions as large. They also viewed their banks as being in a sound financial position (M=3.65, SD=1.25). There were moderate levels of green banking adoption (M=3.32, SD=1.31), impact investment (M=3.18, SD=1.46), and credit risk sustainability assessment (M=3.06, SD=1.21). With the standard

deviations of above 1.0, there was a considerable spread of responses around the mean for all variables, and this implies a diversity of perceptions among the respondents. Therefore, the adoption of sustainable finance is not uniform across the banks in the sample. The negative skewness for all variables, except bank size, indicates that the distributions were slightly tilted towards the higher end of the scale (4 and 5). This is consistent with the high mean scores and suggests a concentration of responses agreeing with the statements. Bank size showed a notably negative skew (-1.13), confirming that a majority of respondents perceive their banks as being large. The kurtosis values for the sustainable finance and performance variables were negative, indicating that the data distributions were flatter and had lighter tails than a normal distribution. This suggests less clustering around the mean and more responses in the moderate ranges. Finally, the Jarque-Bera test p-values for all variables were greater than 0.05. Therefore, the data for all variables did not significantly deviate from a normal distribution, thus satisfying the normality assumption for subsequent parametric inferential analyses. In sum, the descriptive statistics show that the analysed banks were generally large, financially sound, and had moderately implemented sustainable finance practices, with significant variation in the degree of implementation across the sample.

4.5 Diagnostic Tests Results

4.5.1 Results of Multicollinearity Test

Multicollinearity happens if a predictor variable is hugely correlated with one or more of the other predictor variables in a multiple regression equation. The assessment of Multicollinearity in the data was conducted via the VIF methodology. In order to discover the R^2, a regression analysis of every predictor variable was carried out by employing the specific predictor variable as outcome variable and regressing it on every other predictor variable. The VIF was computed as one divided by the tolerance, which is interpreted as one minus R-squared ($1-R^2$). The VIF is applied to demonstrate that the regressors do not correspond to each other. In case VIF>10, collinearity exists, and thus regression analysis cannot be suitable. If VIF is <10, this implies that collinearity among variables does not exist thus regression analysis is acceptable.

Table 4.5*:* Results of Multicollinearity Test

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
Impact Investment	.852	1.174
Green Banking	.867	1.153
Credit Risk Sustainability Assessment	.660	1.514
Bank Size	.635	1.574

Source: (Survey Data, 2024)

The collinearity statistics results indicate that multicollinearity in the regression model is low. For Impact Investment, the VIF is 1.174, and the Tolerance is 0.852, both suggest very low multicollinearity. Similarly, Green Banking has a VIF of 1.153 and a Tolerance of 0.867, indicating minimal correlation with other predictors. The Credit Risk Sustainability Assessment variable shows a VIF of 1.514 and a Tolerance of 0.660, reflecting moderate multicollinearity but still within acceptable limits. Bank Size has the highest VIF at 1.574 and a Tolerance of 0.635, yet these values are well below the problematic threshold, suggesting that it also exhibits low multicollinearity. Overall, the VIF values across all predictors are below 2, indicating that multicollinearity is not a significant concern in this model. Therefore, in reference to the above table (Table 4.5) it is apparent that none of the variables were affected by multicollinearity and hence there was no treatment for multicollinearity of the data.

4.5.2 Results of Heteroskedasticity Test

Table 4.6: The White Test

F-statistic	0.446482	Prob. F	0.6506
R-squared	7.158444	Prob. Chi-Square	0.7284

Source; (Research data, 2024)

The outcome represented above showed that the F-statistic's P-value of 0.6506 exceeds the 5% ($p>0.05$) level of significance thus failing to reject the H_0 hypothesis and arrive at the conclusion that heteroscedasticity doesn't exist within the data. In light of the above, there wasn't any requirement for treating heteroscedasticity in the data set.

4.5.3 Results of Normality Test

The critical assumption for multiple linear regression is that the model's residuals are normally distributed. This assumption was tested using both the Kolmogorov-Smirnov and Shapiro-Wilk tests on the standardized residuals. Table 4.7 shows the Kolmogorov-Smirnov and Shapiro-Wilk tests results.

Table 4.7: Tests of Normality for Standardized Residuals

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Standardized Residuals	.075	41	.200*	.965	41	.241

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

As shown in Table 4.7, the p-values for both the Kolmogorov-Smirnov test (.200) and the Shapiro-Wilk test (.241) were greater than the 0.05 significance level. This led to a failure to reject the null hypothesis for both tests, confirming that there was no significant deviation from a normal distribution in the regression residuals.

The assumption of normality was also tested by examining the standardized residuals of the regression model, and the results summarized in Figure 4.2.

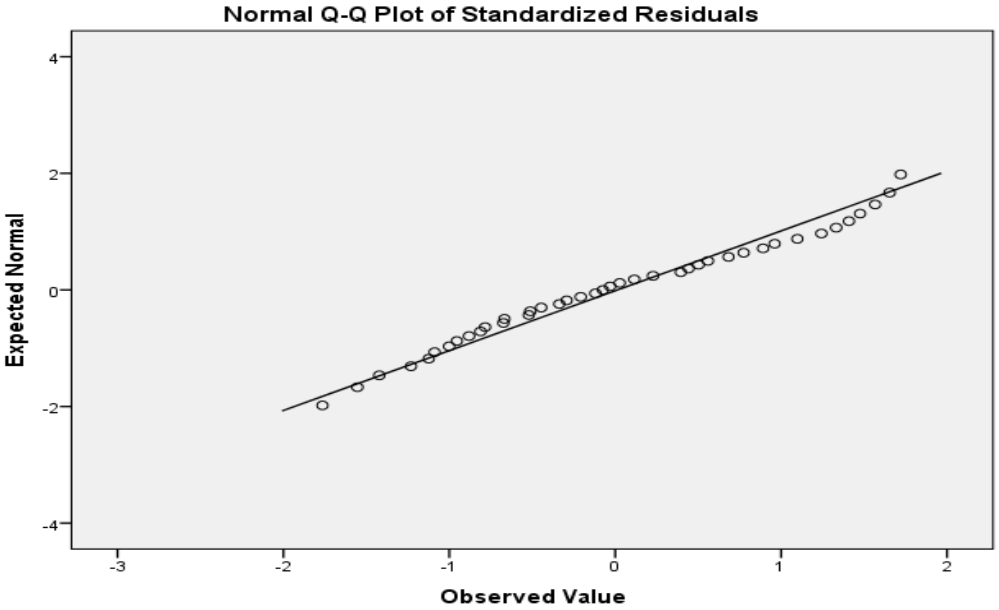

Figure 4.3: Normal Q-Q Plot

As shown in Figure 4.2, the Normal P-P Plot of the regression standardized residuals shows the points closely adhering to the diagonal line, suggesting no major deviation from normality. Therefore, the assumption of normally distributed residuals was met, validating the use of parametric inferential statistics for hypothesis testing

4.6 Item-Level Descriptive Analysis Findings

4.6.1 Impact Investment

Table 4.8 below summarizes variables related to Impact investment according to this study.

Table 4.8: Impact Investment

Factors		5	4	2	1	3	Mean	STDEV
The Bank's Investments have a positive impact to the society	Count	12	6	4	1	18	3.585	1.095
	%	29.27%	14.63%	9.75%	2.44%	43.90%		
The bank allocates capital for environmental benefit	Count	16	0	11	12	2	2.927	1.752
	%	39.02%	0.00%	26.83%	29.27%	4.88%		
The Bank avoids investing in Harmful products that would negatively impact on the health of citizens.	Count	6	13	12	9	1	2.878	1.453
	%	14.63%	31.71%	29.27%	21.95%	2.44%		
The Bank reviews the impact of its investment activities to the surrounding environment	Count	15	5	10	8	3	3.220	1.647
	%	36.58%	12.20%	24.3%	19.5%	7.32%		
Sustainable financial reporting framework has been adopted	Count	8	14	5	5	9	3.366	1.315
	%	19.51%	34.15%	12.20%	12.2%	21.95%		
Community development is Key in the Bank's agenda	Count	13	19	3	4	2	3.829	1.289
	%	31.71%	46.34%	7.32%	9.76%	4.88%		
Employees are well trained on responsible investment principles.	Count	21	8	11	1	0	3.902	1.357
	%	51.22%	19.51%	26.8%	2.44%	0.00%		
Responsible investment is clearly captured in the organization's mission statement	Count	13	16	0	5	7	3.780	1.241
	%	31.71%	39.02%	0.00%	12.2%	17.1%		
Post investment assessments are conducted to determine emerging risks to society resulting from the same.	Count	5	14	11	9	2	2.878	1.418
	%	12.20%	34.15%	26.83%	21.95%	4.88%		

Source: (Survey data, 2024)

The results indicate a varied perception of the bank's practices. A substantial majority (46.34%) agree that community development is a crucial priority, and a majority (51.22%) firmly believe that employees are well-versed in responsible investment principles. However, there is more doubt regarding the bank's avoidance of harmful products and allocation of capital for environmental benefit. Specifically, 31.71% firmly dissent that harmful products are avoided, and there is no consensus on the allocation of capital for environmental benefit. Furthermore, although a significant proportion (39.02%) firmly concur that the bank's investments have a beneficial influence on society, there is also considerable disagreement (29.27%) on this matter, indicating a lack of clarity or differing viewpoints regarding the overall societal effect of the bank's investments.

The results align with those of the Bridgespan Group (2023) that there is a growing trend of impact investments exhibited in Africa and that companies report improved market returns due to the adoption of impact investments. The results also agree with those of Mangwa and Jagongo, Odongo et al. (2023), and Equity Group Foundation (2023). This is in line with the principles of stakeholder theory, where the decision to make impact investments is perpetuated by stakeholders.

4.6.2 Green Banking

Table 4.9: Impact of Green Banking on Financial Performance

Factors		5	4	2	1	3	Mean	STDEV
The Bank offers Green Loan products to the public	Count	13	10	4	3	11	3.63	1.24
	%	31.71%	24.39%	9.76%	7.32	26.8%		
The Bank provides Green Credit Cards	Count	3	0	0	21	17	2.12	1.3
	%	7.32%	0.00%	0.00%	51.2%	41.5%		
Green Savings accounts, credit policy and overall green Banking policies have been established and implemented	Count	18	11	3	9	0	3.63	0.99
	%	43.90%	26.83%	7.32%	21.9%	0.00%		
The Bank has introduced green technology in its operations	Count	0	1	13	18	9	1.83	0.86
	%	0.00%	2.44%	31.7%	43.9%	21.9%		
There is pollution and effluent emission guidelines in place	Count	14	7	10	7	3	3.27	1.57
	%	34.15%	17.07%	24.4%	17.1%	7.32%		
Green banking is captured in the Bank's mission and or vision statement	Count	9	15	1	3	13	3.63	1.09
	%	21.95%	36.59%	2.44%	7.32%	31.7%		
The Bank emphasizes sustainable natural resources in all its activities.	Count	8	6	9	7	11	2.98	1.28
	%	19.51%	14.63%	21.9%	17.1%	26.8%		

Source: (Survey data, 2024)

Table 4.9 above summarizes variables related to green banking according to this study. The findings suggest a notable difference between the bank's stated green initiatives and their practical execution. Although a significant number of respondents firmly agree that green savings accounts, credit policies, and overall green banking policies have been established and implemented (43.90% firmly agree), there is a noticeable lack of alignment in other areas. For example, there is a significant amount of disagreement (85.37% firmly dissent) when it comes to providing green loans to the public, and a noticeable lack of adoption of green technology in operations (43.90% firmly dissent). The efforts to engage in green banking align with the assumptions of the theory of financial intermediation. Moreover, the absence of environmentally friendly credit cards and the lack of clear guidelines on pollution and effluent emissions highlights the disconnect between what is being said and what is actually being done. Although the bank's mission or vision statements

touch on certain aspects of green banking, there is a notable number of neutral responses, suggesting possible ambiguity or inconsistency in conveying the bank's dedication to sustainability. The findings echo those of Appah et al. ((2024), who found that banking institutions that actively financed renewable energy and green projects reported lower non-performing loan ratios over time and marginally higher ROE. The results also agree with Mangwa and Jagongo (2020; 2022) and Omare (2023). The results align with the social impact theory's assertion that organizations should reduce environmental harm and support sustainable projects to strengthen their brand and attract ethically conscious clients, ultimately improving their financial outcomes.

4.6.3 Credit Risk Sustainability Assessment

Table 4.10: Impact of Credit Risk Sustainability Assessment on Financial Performance

Factors		5	4	2	1	3	Mean	STDEV
Sustainability Assessment criteria have been adopted by the Bank	Count	15	6	0	11	9	3.34	1.62
	%	36.59%	14.63%	0.00%	26.8%	21.9%		
Credit risk rating criteria have been designed by the bank	Count	12	11	2	6	10	3.51	1.36
	%	29.27%	26.83%	4.88%	14.6%	24.4%		
The Bank Prohibits financing certain activities and establish restrictions for others i.e deforestation	Count	5	7	9	5	15	2.95	1.18
	%	12.20%	17.07%	21.9%	12.2%	36.6%		
Employees from the Risks, Business, Credit and Management Committee have been trained on Credit risk sustainability initiatives.	Count	5	7	11	6	12	2.85	1.24
	%	12.20%	17.07%	26.8%	14.6%	29.3%		
A dedicated individual ensures that sustainability principles are adhered to.	Count	21	6	8	0	6	3.98	1.56
	%	51.22%	14.63%	19.5%	0.00%	14.6%		
The Bank conducts post disbursement assessment to determine the emerging risks associated with the credit facilities granted on the environment.	Count	6	10	5	7	13	3.07	1.32
	%	14.63%	24.39%	12.2%	17.1%	31.7%		
Continuous monitoring of the financed projects is undertaken by the bank	Count	13	8	5	3	12	3.56	1.27
	%	31.71%	19.51%	12.2%	7.32%	29.3%		

Source: (Survey data, 2024)

Based on the results presented in table 4.10, it is evident that there is a significant level of dedication to certain aspects. For instance, a considerable percentage (36.59%) firmly concurs with the adoption of sustainability assessment criteria. Additionally, more than half (51.22%) of the respondents firmly correspond with the establishment of an appropriate approach to ensure adherence to sustainability principles. This is in line with the principles of Schumpeter's innovation theory. However, there are still areas that require enhancement. The bank has designed credit risk rating criteria, but the responses show a more balanced distribution across agreement levels. This indicates that there may be some ambiguity or variation in understanding, with 29.27% firmly agreeing. Similarly, although there is some level of effort in training employees on credit risk sustainability initiatives, a significant portion either dissent or remains neutral. This suggests possible gaps in awareness or alignment. In addition, there is a significant number of neutral responses and a lack of strong agreement when it comes to post-disbursement assessments and continuous monitoring of financed projects. This suggests that there may be some challenges in implementing or communicating these practices.

The assertions of this study agree with those of Siwela and Ngwakwe (2024) that there is a significant positive link between environmental performance, loan pricing, and financial performance. Similarly, the study supports the inferences by Naili and Lahrichi (2022), Rowland et al. (2023), and Wachira and Achieng (2023), who established that banks that instituted advanced credit-scoring systems have lower non-performing loans. The results align with with the theory of financial intermediation, which states that banks should funds toward environmentally and socially responsible investments. The results concur with the provisions of the theory of dynamic lending that banks can dynamically integrate environmental and social risk factors into lending decisions to minimize default rates.

4.6.4 Bank Size

Table 4.11: Bank Size and Financial Performance

Factors		5	4	2	1	3	Mean	STDEV
The bank's total assets limit or enable it to lend more, invest in new technologies, and absorb financial shocks effectively.	Count	18	14	5	3	1	4.10	1.04
	%	43.90%	34.15%	12.2%	7.32%	2.44%		
The market capitalization of the bank reflects its ability to attract investments and sustain growth in the financial market.	Count	15	10	11	2	3	3.78	1.21
	%	36.59%	24.39%	26.8%	4.88%	7.32%		
The bank's number of branches determines its access to customers, which influences its financial performance.	Count	22	11	4	2	2	4.20	1.12
	%	53.66%	26.83%	9.76%	4.88%	4.88%		
The size of the bank's deposit base directly influences its liquidity, lending capacity, and long-term financial sustainability.	Count	17	13	6	3	2	3.98	1.15
	%	41.46%	31.71%	14.6%	7.32%	4.88%		
The workforce size impacts the bank's operational efficiency and its ability to generate higher revenues.	Count	20	10	5	4	2	4.02	1.21
	%	48.78%	24.39%	12.2%	9.76%	4.88%		
The bank's loan portfolio influences its income generation, thereby impacting its financial performance.	Count	14	14	10	2	1	3.93	1.01
	%	34.15%	34.15%	24.4%	4.88%	2.44%		
The bank's capital base relative to risk-weighted assets affects its resilience and financial sustainability.	Count	21	12	4	2	2	4.17	1.12
	%	51.22%	29.27%	9.76%	4.88%	4.88%		

Source: (Survey data, 2024)

The results indicate strong agreement among respondents on various bank size-related factors influencing the financial performance of banks. For the bank's total assets, 43.90% of respondents intensely concur, and 34.15% correspond that assets enable lending, investment in new technologies, and absorption of financial shocks. Regarding market capitalization, 36.59% firmly

concur, and 24.39% approve that it reflects the bank's ability to attract investments and sustain growth. A significant 53.66% firmly concur that the bank's branch network influences financial performance, with an additional 26.83% assenting. Similarly, 41.46% firmly assent, and 31.71% agree that the size of the deposit base impacts liquidity and lending capacity. For workforce size, 48.78% firmly correspond, and 24.39% approve of its influence on operational efficiency. The loan portfolio size saw 34.15% intensely affirming and 34.15% agreeing on its role in income generation. Lastly, 51.22% strongly affirm that the bank's capital base relative to risk-weighted assets affects resilience, with 29.27% approving. Overall, the data shows a clear consensus on the importance of these factors in driving financial performance, and this aligns with the principles of theory of dynamic lending.

The study's findings are in agreement with Asongu and Odhiambo (2019) that size enables banks to spread fixed costs across a wider range of transactions, thus increasing profit margins. In adition, the findings of this study echo those of Ford (2022), Lotto (2019), Muhindi (2023), Muhindi and Ngaba (2018), the Kenya Bankers Association (2024), and Munene (2022), who found that large banks offer high-quality loans due to their resource endowment. Therefore, such banks enjoy competitive advantages due to bulk production advantages and customer reach, hence excellent financial performance. The results concur with Schumpeter's innovation theory of profit that larger banks with greater resources can more easily adopt innovative sustainable finance practices such as green products, ESG-linked loans, and impact investments to enhance competitiveness, profitability, and compliance with global sustainability standards.

4.6.5 Financial Performance

Table 4.12: Financial Performance of Banking Institutions in Kenya

Factors		5	4	2	1	3	Mean	STDEV
The Bank has been achieving high levels of profitability	Count	16	14	1	0	10	4.10	0.86
	%	39.02%	34.15%	2.44%	0.00%	24.4%		
Return on Assets has been increasing over time	Count	17	8	2	2	12	3.88	1.15
	%	41.46%	19.51%	4.88%	4.88%	29.3%		
Return on Equity has been increasing over time	Count	14	12	3	7	5	3.56	1.46
	%	34.15%	29.27%	7.32%	17.1%	12.2%		
Cash flow has been adequate for the last two years	Count	8	12	5	7	9	3.22	1.37
	%	19.51%	29.27%	12.2%	17.1%	21.9%		
There is high productivity within the company	Count	9	13	7	1	11	3.54	1.1
	%	21.95%	31.71%	17.1%	2.44%	26.8%		
Operational Costs and expenses are low	Count	9	15	6	8	3	3.27	1.47
	%	21.95%	36.59%	14.6%	19.5%	7.32%		
There is increased operational efficiency within the bank	Count	21	9	2	4	5	4.00	1.32
	%	51.22%	21.95%	4.88%	9.76%	12.2%		

Source: (Survey data, 2024)

The findings in table 4.12 provide a straightforward yet scholarly perspective on the bank's financial performance and operational efficiency. A majority of respondents expressed agreement or strong agreement with statements regarding profitability, returns on assets and equity, cash flow adequacy, productivity, operational costs, and operational efficiency, painting an overall positive picture. It is worth mentioning the significant consensus on the bank's impressive profitability (73.17% combined firmly agree and agree) and improved operational efficiency (73.17% combined firmly agree and agree). This indicates a strong financial position and efficient management. Nevertheless, there are certain aspects that require attention, as there is a moderate level of disagreement regarding operational costs and expenses being low (36.59% combined dissent). This suggests the presence of potential inefficiencies that should be resolved. The key indicators of monetary performance include the levels of profitability achieved and overall income levels that have been increasing.

4.7 Inferential Statistics Results and Hypothesis Testing

4.7.1 Inferential Statistics Results

Multiple linear regression analysis was adopted to carry out data analysis and examine financial sustainability and financial performance of banks. The β coefficient was computed to measure financial sustainability. ANOVA was used to measure the relationship between banks achieving high levels of profitability and independent variables related to green banking, credit risk sustainability assessment and impact investment.

Table 4.13: Summary of the Model

Model	R	R^2 (Square)	Adjusted R^2	Std. Error of the Estimate
1	.821[a]	.674	.671	64.153

The co-efficient determination describes the magnitude to which variations in outcome variable (financial performance) can be explained by the change in the predictor variables. The R-squared adjusted to = 0.671, meaning that the model explained the changes in financial performance by financial sustainability by 67.1 percent. The study, therefore, indicates a solid positive association between banks achieving greater profitability and adopting financial sustainability.

Table 4.14 Analysis of Variance.

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2634884.261	3	878294.754	213.407	.000(a)
	Residual	1271713.209	309	4115.577		
	Total	3906597.470	312			

Financial Performance (outcome variable)

The F-test stipulates the stability of the results. The study found a significant level; F-test=213.407, p-value of 0.000< 0.05 confirming the adequacy of the model in describing financial sustainability and monetary performance of banks under study. This also implies that a very important link in

the middle of banks achieving greater levels of profitability and adopting financial sustainability strategies being; credit risk sustainability assessment, green banking, and impact investment exists.

Table 4.15 Coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	906.739	28.265		32.080	.000
	Impact Investment	2.682	1.394	.064	1.924	.045
	Green Banking	-3.702	.154	-.808	-24.038	.000
	Credit Risk Sustainability Assessment	.109	.091	.041	-1.932	.001

The findings in table 4.15 above provide the individual effect of the variables of the study, credit risk sustainability assessment, green banking, and impact investment on the monetary performance of the banks. The first objective was to examine the effect of impact investments on the financial performance of selected commercial banks in Kenya. The results indicate impact investment had a positive significant coefficient (β=2.682, P-value =.045), and this means impact investment affected monetary performance of banks under study. This finding is in line with the study by Revelli and Viviani (2015) who discovered a positive link between impact investment and monetary (financial) performance and contradicts with the finding by Rathner (2013), on Impact Investment and its resultant impact to performance.

The study's second objective sought to assess how green banking affects the financial performance of selected commercial banks in Kenya. As per the results, Green Banking had a negative significant coefficient (β=-3.702, P-value =.000, implying Green Banking had negative effect on financial achievement of licensed banks in Kenya. The findings concur with Hart and Ahuja (1994 & 1996) who identified that the consequence of adoption of the green concept is negatively

associated with increased profitability. The results align with the assumptions of the stakeholder theory and social impact theory. However, the results contradict the findings by Edwards (2014) that revealed a positive association between green concept and monetary performance.

The third objective was to examine the effect of credit risk sustainability assessment on the financial performance of selected commercial banks in Kenya. From the results, Credit Risk Sustainability Assessment had a positive significant coefficient (β=.109, P-value =.001, this means Credit Risk Sustainability Assessment had positive effect on financial achievement of banks in Kenya. This result supports the study by Weber and Michalik (2010), whose studies on the incorporation of sustainability criteria in credit risk analytical processes, in line with the stakeholder theory and social impact theory, revealed positive effects on financial performance. Nevertheless, the findings contradict what Miller and Leape (2017), who found that credit risk sustainability assessment has no impact on monetary performance of financial institutions, had asserted.

The fourth objective of the study was to determine the moderating effect of bank size on the relationship between sustainable finance and financial performance of selected commercial banks in Kenya. The moderating effect test involved introducing bank characteristics as a moderating variable between sustainable finance and financial performance. The results were recorded in table 4.16 below.

Table 4.16 Results of the moderating effects of the bank characteristics

Model	Coefficients[a]				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	906.739	28.265		32.080	.000
Impact Investment	2.682	1.394	.064	1.924	.045
Green Banking	-3.702	.154	-.808	-24.038	.000
Credit Risk Sustainability Assessment	.109	.091	.041	-1.932	.001
Bank Size	-.295	.361	-.124	-.817	.424
Bank Size * Impact Investment	-.014	.012	-.076	-1.137	.269
Bank Size * Green Banking	-.147	.100	-.861	-1.474	.156
Bank Size * Credit Risk Sustainability Assessment	.575	.183	6.181	3.135	.005

a. Dependent Variable: Financial Performance

As shown in the table, the interaction between bank size and credit risk sustainability assessment (B = 0.575, p = .005) is positive and significant, indicating that larger banks can mitigate the negative impact of credit risk sustainability on financial performance. However, the interaction between bank size and impact investment (B = -0.014, p = .269) as well as bank size and green banking (B = -0.147, p = .156) is negative and not significant, suggesting that bank size does not significantly moderate their relationship with financial performance. The implication is that while impact investment positively drives financial performance, green banking shows no clear effect. Larger banks can better manage the short-term downsides of credit risk sustainability assessment, suggesting that bank size plays a moderating role in this relationship. However, bank size does not significantly influence the financial effects of impact investment or green banking. The regression model presented below was established based on the outcomes illustrated in Table 4.16.

$$Y = 906.739 - 2.682X_1 - 3.702X_2 + 0.109X_3 - 1.623X_1*BS - 0.147X_2*BS + 0.575X_3*BS + \varepsilon$$

Where:

Y = Financial Performance

X_1 = Impact investment

X_2 = Green Banking

X_3 = Credit Risk Sustainability Assessment

BC = Bank Size (Moderating Variable)

X_1*BS = Impact Investment * Bank Size

X_2 *BS = Green Banking * Bank Size

X_3*BS = Credit Risk Sustainability Assessment * Bank Size

The findings that bank size has a partial moderation effect on the relationship between sustainable finance and the financial performance of commercial banks in Kenya aligns with previous results by Asongu and Odhiambo (2019), who conducted a study on African banks to investigate how size impacts performance, and found that larger banks benefit from bulk production advantages that enhance profitability and efficiency. Similarly, the study's findings are in agreement with those of Muhindi (2023), who found a connection between bank size and financial performance.

4.7.2 Hypothesis Testing

This section presents the findings of the hypothesis tests based on the regression results. The decisions to accept or reject the null hypotheses are made against a significance level of $\alpha = 0.05$.

Hypothesis 1 (H_{01}): Impact investment has no significant effect on the financial performance of commercial banks.

As shown in Table 4.16, the results for impact investment indicated a coefficient of $\beta = 2.682$ with a p-value of 0.045. Since the p-value was less than 0.05, the null hypothesis (H_{01}) was rejected. It was concluded that impact investment has a statistically significant and positive effect on the financial performance of commercial banks.

Hypothesis 2 (H_{02}): Green banking has no significant effect on the financial performance of commercial banks.

The results for green banking showed a coefficient of $\beta = -3.702$ with a p-value of 0.000 ($p < 0.001$). As the p-value was less than 0.05, the null hypothesis (H_{02}) was rejected. The analysis concluded that green banking has a statistically significant effect on financial performance. However, contrary to what might be expected, this relationship is negative.

Hypothesis 3 (H_{03}): Credit risk sustainability assessment has no significant effect on the financial performance of commercial banks.

For credit risk sustainability assessment, the coefficient was $\beta = 0.109$ with a p-value of 0.001. Given that the p-value was below the 0.05 threshold, the null hypothesis (H_{03}) was rejected. This led to the conclusion that credit risk sustainability assessment has a statistically significant and positive effect on the financial performance of commercial banks.

Hypothesis 4 (H_{04}): Bank size does not significantly moderate the relationship between sustainable finance practices and the financial performance of commercial banks.

The test for moderation, presented in Table 4.16, involved examining the interaction terms between bank size and each independent variable.

The interaction between Bank Size and Impact Investment was not significant (β = -0.014, p = 0.269).

The interaction between Bank Size and Green Banking was not significant (β = -0.147, p = 0.156). However, the interaction between Bank Size and Credit Risk Sustainability Assessment was significant (β = 0.575, p = 0.005).

Since the moderating effect was confirmed for one of the three key relationships, the overall null hypothesis (H_{04}) was partially rejected. Bank size is a significant moderator specifically for the relationship between credit risk sustainability assessment and financial performance, but it does not moderate the relationships involving impact investment or green banking.

Table 4.17: Summary of Hypothesis Testing Results

Hypothesis	Statement	Test Result	Decision
H_{01}	Impact investment has no significant effect on financial performance.	β = 2.682, p = 0.045	**Rejected**
H_{02}	Green banking has no significant effect on financial performance.	β = -3.702, p = 0.000	**Rejected**
H_{03}	Credit risk sustainability assessment has no significant effect on financial performance.	β = 0.109, p = 0.001	**Rejected**
H_{04}	Bank size has no significant moderating effect.	Mixed Results	**Partially Rejected**
	- Moderation for Impact Investment	β = -0.014, p = 0.269	Not Supported
	- Moderation for Green Banking	β = -0.147, p = 0.156	Not Supported
	- Moderation for Credit Risk Sustainability	β = 0.575, p = 0.005	**Supported**

CHAPTER FIVE
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This section highlights the summary of findings derived from the analysis. The conclusions and recommendations drawn from the key findings are also highlighted. Proposals for further studies and answers to the research questions are pointed out in the same. The chapter is structured to systematically address the research objectives that guided the investigation into the effects of sustainable finance practices on the financial performance of commercial banks in Kenya. It begins by consolidating the main findings from the data analysis presented in Chapter Four. Subsequently, it draws definitive conclusions about the nature of the relationships between impact investment, green banking, credit risk sustainability assessment, and financial performance, including the moderating role of bank size. Based on these conclusions, the chapter offers concrete recommendations for bank management, policymakers, and other stakeholders. Finally, the chapter identifies limitations encountered during the research process and suggests viable avenues for future scholarly inquiry in the domain of sustainable finance.

5.2 Summary

The study sought to examine sustainable finance and financial performance of selected commercial banks in Kenya. Specifically, the research examined examine the effect of impact investments on the banks' financial performance and assessed how green banking affects the banks' financial performance. It also examined the effect of credit risk sustainability assessment on the financial performance of selected commercial banks in Kenya and determined the moderating effect of bank size on the relationship between sustainable finance and financial performance of selected commercial banks in Kenya. A causal research design was employed to investigate the impact of sustainable finance practices on the financial performance of commercial banks in Kenya, with bank size as a moderating variable. The methodology focused on a census of 10 commercial banks in Nairobi City County that have adopted sustainable finance, with data collected from 41 departmental heads and managers using a structured questionnaire. The instrument, which demonstrated strong validity and reliability, operationalized variables through multi-item constructs measured on a five-point Likert scale. Data analysis involved both descriptive statistics

and inferential techniques, with hierarchical multiple regression used to test the hypotheses concerning both direct effects and the moderating role of bank size.

Findings from the study showed that banks have made significant strides in integrating sustainability at a strategic and policy level. There is a strong emphasis on employee training, community development, and embedding responsible investment into corporate mission statements. However, this commitment does not fully translate into tangible action. The practical implementation, particularly in areas like direct capital allocation for environmental projects, the avoidance of harmful investments, and the rollout of specific green banking products, was found to be markedly weaker. This suggests that while the philosophical embrace of sustainability is strong, operationalization remains a challenge.

The regression analysis provided critical insights into the financial implications of these practices. The overall model confirmed a powerful relationship between sustainable finance and financial performance. Specifically, both impact investment and the integration of sustainability criteria into credit risk assessment were shown to have a significant positive effect on bank performance. In stark contrast, green banking practices demonstrated a significant negative relationship with financial performance, indicating that the associated costs may currently outweigh the financial benefits for these institutions. Furthermore, the investigation into bank size revealed its role as a conditional factor. Larger bank size was found to strengthen the positive effect of credit risk sustainability assessment on performance, but it did not significantly influence the relationships for impact investment or green banking.

The hypothesis testing, based on these results, led to the rejection of all null hypotheses, albeit with important qualifications. The hypotheses stating that impact investment, green banking, and credit risk sustainability assessment have no significant effect were all rejected, confirming that each practice has a material and distinct financial impact. The hypothesis concerning the moderating effect of bank size was partially rejected. It was concluded that bank size acts as a significant moderator specifically for the link between sustainable credit risk assessment and performance, but not for the other relationships, highlighting that the advantage of scale is context-specific within the realm of sustainable finance.

5.3 Conclusions

The study established that impact investments have a statistically significant and positive effect on the financial performance of commercial banks in Kenya. This positive relationship indicates that strategic capital allocation toward socially beneficial and environmentally conscious projects is financially rewarding. The findings refute the perspective that such investments are merely a cost center or a philanthropic endeavor. However, the item-level analysis reveals a critical stance, which points to the assertion that the positive financial return is likely driven more by enhanced reputation and stakeholder confidence, as banks scored highly on policy and mission integration but lower on tangible capital allocation. This suggests that the financial benefits may be more closely linked to the bank's public commitment to impact principles rather than the direct financial returns from the investments themselves. Therefore, while impact investment is a viable profitability strategy, its current value for Kenyan banks appears to be strongly tied to its role in building intangible brand and trust capital.

Secondly, the analysis shows that green banking practices exert a statistically significant but negative effect on the financial performance of commercial banks in Kenya. This implies that the costs associated with implementing green products and technologies currently outweigh the direct financial benefits received. The negative relationship can be critically attributed to the high initial capital outlays for green technology and the underdeveloped market demand for specific products like green credit cards, making them unprofitable in the short term. This creates a clear disconnect between strategic intent, where banks have established green policies, and operational execution, where implementation is financially detrimental. Consequently, green banking, in its current form, poses a financial challenge rather than an opportunity for Kenyan banks. This finding underscores the necessity for either government incentives to offset costs or a longer-term strategy where operational efficiencies and customer acquisition eventually reverse this negative trend. it is also noted that the integration of sustainability criteria into credit risk assessment has a significant positive effect on the financial performance of commercial banks. This demonstrates that evaluating a borrower's environmental, social, and governance (ESG) risks is not just an ethical practice but a sound financial one that enhances a bank's bottom line. The positive effect likely stems from improved risk management, leading to a higher-quality loan portfolio with lower default rates and fewer non-performing loans linked to unsustainable practices. This finding

validates the theoretical premise that incorporating longer-term, non-financial risk factors leads to more robust and profitable lending decisions. It positions credit risk sustainability assessment as one of the most financially material aspects of sustainable finance for the banking sector. Ultimately, this practice aligns long-term financial stability with responsible banking, proving that prudent risk management and sustainability are mutually reinforcing objectives.

Finally, the study established that bank size plays a significant, yet selective, moderating role in the relationship between sustainable finance and financial performance. Its moderating effect is not universal but is specifically potent in the context of credit risk sustainability assessment, where larger banks experience a stronger positive financial impact. This is because larger institutions possess the necessary resources, advanced data analytics capabilities, and diversified portfolios to absorb the initial costs and complexities of integrating ESG factors into their lending processes. Conversely, bank size does not significantly alter the financial outcomes for impact investment or green banking, suggesting that the challenges and benefits of these practices are relatively consistent across banks of different scales. This partial moderation highlights that the advantage of scale in sustainable finance is context-dependent, being most critical for complex, risk-based integrations. Therefore, smaller banks are not at a disadvantage in all areas of sustainable finance but must be strategic in their adoption, potentially prioritizing impact investment over capital-intensive green banking initiatives.

5.4 Recommendations

Impact Investments

Banks should establish and publicly report on a dedicated impact investment fund with clear, measurable targets for capital allocation towards environmental and social projects. This way, reputational gains can be translated into direct financial returns by attracting capital from ESG-conscious investors and customers.

The Central Bank of Kenya (CBK), in collaboration with the Kenya Bankers Association, should develop a standardized green taxonomy to clearly define what qualifies as an impact investment in the Kenyan context as this will prevent greenwashing and boost investor confidence by ensuring that reported impact investments are consistent and verifiable.

Green Banking

The management of banks should phase their green banking rollout by first launching green savings accounts that link interest rates to customer's sustainable behaviors instead of investing heavily in underutilized products like green credit cards. The suggested low-cost and high-engagement approach will build a customer base for green finance at a lower operational cost and create a foundation for more complex products when demand is proven.

Policy makers such as the National Treasury should introduce targeted tax credits for banks to offset the capital expenditure of adopting core green technologies, such as energy-efficient data centers and paperless banking systems. The approach will directly mitigate the primary cost barrier and improve the short-term profitability of green initiatives and encourage wider adoption across the banking sector.

Credit Risk Sustainability Assessment

The management of banks should consider integrating a standardized ESG scoring module into their existing credit risk rating software as a mandatory requirement and provide compulsory training for all credit officers on using these criteria. This way, sustainability will be embedded into the core lending decision process to improve loan portfolio quality and reduce long-term default rates by identifying ESG-related risks early.

Banking regulators should formally recognize sound sustainability risk assessment as a component of "prudential risk management" in regulatory guidelines to elevate the practice from a voluntary ESG activity to a mandatory component of financial soundness. This will validate the theoretical link between sustainability and risk management and drive industry-wide compliance.

Moderating Effect of Bank Size

Smaller and mid-tier banks should form a consortium to jointly invest in and share access to a single, advanced ESG data analytics platform for credit risk assessment. The approach will allow such banks to utilize appropriate risk assessment capabilities of larger competitors without bearing the full cost.

The Kenya Bankers Association should create a sustainable finance knowledge hub, where larger banks share best-practice templates and case studies on credit risk sustainability assessment with

smaller members. The strategy will facilitate cross-sector learning, reduce implementation costs for all banks, and accelerate the overall industry's ability to leverage sustainability for financial stability and performance.

5.5. Proposals for Further Research

This study suggests the need for further research in other sectors on the topic of financial sustainability to compare the outcomes of the studies and enhance environmental sustainability programs within corporates. This will go hand in hand with examining if these programs positively impact on the performance of the organizations and explore how best they can be incorporated in the organizations' strategic plans to achieve both institutional and society growth.

5.6 Contribution to Knowledge

This study provides a notable contribution to knowledge because it empirically demonstrates that sustainable finance is not a monolithic driver of performance, but comprises distinct elements with divergent financial impacts. It reveals that while integrating sustainability into credit risk assessment is a direct financial positive and impact investment serves as a reputational asset, green banking currently presents a profitability challenge. These findings offer a strategic decision-making framework for bankers and deliver crucial evidence for policymakers to develop targeted, rather than blanket, regulations and incentives for the Kenyan banking sector.

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APPENDICES

Appendix I: Introduction Letter

Maroa Ibrahim Jackson

P.O.BOX 30080-00100

NAIROBI.

Dear Sir/Madam

RE: REQUEST FOR INFORMATION GATHERING

I am a final year student at Kenyatta University doing an MBA degree Finance Option. Currently I am conducting an academic study on **sustainable finance and financial performance of commercial Banks in Kenya**. I humbly ask for your support in responding to the questions provided with honesty and to the highest level of your understanding. Your responses are purely meant for achieving an academic goal and hence utmost confidentiality and adherence to the relevant laws and regulations will be observed.

In case you need a duplicate of the study report, the same will be availed to you. Your great help in this work is dearly acknowledged.

Thank you in advance,

Yours Faithfully

Maroa Ibrahim Jackson.

Researcher

Appendix II: Questionnaire

The goal of this academic work is to assess sustainable finance and Financial Performance of Banks in Kenya. It constitutes a key requirement for the completion of an MBA qualification. Respondents are assured that responses given are to be preserved with high level secrecy & purely applied to achieve an academic goal. Please preserve some minutes and fill sections A and B. Your responses are dearly acknowledged.

Section A- Personal Details of the Participants

1. Kindly indicate your gender.

Male ☐

Female ☐

2. Kindly mark your age bracket.

Below Twenty-Five ☐

Twenty-Five -Thirty-Five ☐

Thirty-Five-Forty-Five ☐

Above Forty-Five ☐

3. Kindly indicate your academic level.

O _level ☐

A _Level ☐

Graduate ☐

Masters ☐

Others Specify ——————————

4. Kindly indicate your length of service in the Banking industry.

One-five years ☐

Six-ten years ☐

Eleven-Fifteen years ☐

Sixteen-Twenty years ☐

5. Kindly indicate your designation.

Branch Operations Officer ☐

Business Development Manager ☐

Credit Officer ☐

Branch Manager ☐

Cash and Operations Manager ☐

Other

SECTION B

i: Responsible/Impact Investment: On a range of 1-5 please mark your extent of agreement with regard to the tabulated statements below, with 5, indicating the highest and 1 the lowest level of agreement, while the midpoint, 3, represents a neutral stance.

	5	4	3	2	1
The Bank's Investments have a positive impact to the society					
The bank allocates capital for environmental benefit					
The Bank avoids investing in Harmful products that would negatively impact on the health of citizens.					
Investment policies are in place					
The Bank reviews the impact of its investment activities to the surrounding environment					
The sustainable financial reporting framework has been adopted					
Community development is Key in the Bank's agenda					
Employees are well trained in responsible investment principles.					
Responsible investment is clearly captured in the organization's mission statement					
Post investment assessments are conducted to determine emerging risks to society resulting from the same.					

ii. Green Banking

On a range of 1-5 please mark your extent of agreement with regard to the tabulated statements below, with 5, indicating the highest and 1 the lowest level of agreement, while the midpoint, 3,

represents a neutral stance.

	5	4	3	2	1
The Bank offers Green Loan products to the public					
The Bank provides Green Credit Cards					
Green Savings accounts, credit policy and overall green Banking policies have been established and implemented					
The Bank has introduced green technology in its operations					
There is pollution and effluent emission guidelines in place					
Green banking is captured in the Bank's mission and or vision statement					
The Bank emphasizes sustainable natural resources in all its activities.					

iii. Credit Risk Sustainability Assessment

On a range of 1-5 please mark your extent of agreement with regard to the tabulated statements below, with 5, indicating the highest and 1 the lowest level of agreement, while the midpoint, 3, represents a neutral stance.

	5	4	3	2	1
Sustainability Assessment criteria have been adopted by the Bank					
Credit risk rating criteria have been designed by the bank					
The bank prohibits financing certain activities and establish restrictions for others i.e., deforestation					
Employees from the Risk, Business, Credit and Management Committee have been trained on Credit risk sustainability initiatives.					
A dedicated individual ensures that sustainability principles are adhered to.					

The Bank conducts post disbursement assessment to determine the emerging risks associated with the credit facilities granted on the environment.					
Continuous monitoring of the financed projects is undertaken by the bank					

iv. Financial performance

On a range of 1-5 please mark your extent of agreement with regard to the tabulated statements below, with 5, indicating the highest and 1 the lowest level of agreement, while the midpoint, 3, represents a neutral stance.

	5	4	3	2	1
The Bank has been achieving high levels of profitability					
Return on Assets has been increasing over time					
Return on Equity has been increasing over time					
Cash flow has been adequate for the last two years					
Dividends have increased within the last two years					
Operational Costs and expenses are low					
There is increased operational efficiency within the bank					

v. Bank Size

On a range of 1-5 please mark your extent of agreement with regard to the tabulated statements below, with 5, indicating the highest and 1 the lowest level of agreement, while the midpoint, 3, represents a neutral stance.

	5	4	3	2	1
The bank's total assets limit or enable it to lend more, invest in new technologies, and absorb financial shocks effectively.					
The market capitalization of the bank reflects its ability to attract investments and sustain growth in the financial market.					

The bank’s number of branches determines its access to customers, which influences its financial performance.					
The size of the bank's deposit base directly influences its liquidity, lending capacity, and long-term financial sustainability.					
The workforce size impacts the bank’s operational efficiency and its ability to generate higher revenues.					
The bank’s loan portfolio influences its income generation, thereby impacting its financial performance.					
The bank’s capital base relative to risk-weighted assets affects its resilience and financial sustainability.					

Source: (Author, 2024)

Appendix III: Sampling Frame

Bank	Managers	Department Heads	Total Population
Kenya Commercial Bank	9	5	14
Cooperative Bank	5	6	11
Family Bank	6	5	11
Equity Bank	5	8	13
National Bank of Kenya	7	5	12
Barclays Bank	4	7	11
Standard Chartered Bank	5	7	12
Commercial Bank of Africa	6	6	12
Eco Bank	8	4	12
I&M Bank	6	6	12
TOTAL	**61**	**59**	**120**

Source: (Author 2024)