EFFECT OF GREEN BANKING INITIATIVES ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA AND THE MODERATING ROLE OF GENDER DIVERSITY

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Declaration

I, the undersigned, declare that this is my original work and has not been submitted to any other institution for the award of a degree or any other award.

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Abstract

Businesses are increasingly being urged by stakeholders to address the environmental and social consequences of their activities, leading to a growing interest in understanding how green banking practices influence financial performance (FP). This research focused on investigating the effect of green banking initiatives on the financial performance of commercial banks in Kenya, while also exploring the moderating influence of gender diversity. The specific objectives of the study were to; establish the effect of green cost efficiency initiatives on financial performance of commercial banks in Kenya, investigate the effect of green revenue initiatives on financial performance of commercial banks in Kenya, determine the effect of green non-financial benefits initiatives on the financial performance of commercial banks in Kenya, and investigate the moderating effect of gender diversity on the relationship between green banking initiatives and financial performance of commercial banks in Kenya. The study adopted the Triple Bottom Line and stakeholder theories within a post-positivist research philosophy, employing both descriptive and causal research designs. Final sample of 20 commercial banks in Kenya were investigated using secondary data from annual, integrated, and sustainability reports spanning 2015 to 2023. Data analysis was conducted using EVIEWS Version 12, utilizing descriptive statistics and correlation analysis. Findings established positive but insignificant influence between green cost efficiency initiatives and the financial performance of commercial banks. The study's findings also revealed a negative but insignificant effect between green revenue initiatives and financial performance. Further, the result established a significant negative relationship between green non-financial benefits and financial performance. Finally, the interaction between gender diversity and green non - financial benefits initiatives demonstrated significant positive relationship with the financial performance of commercial banks in Kenya. This research is novel as it represents the first investigation into this topic within the Kenyan context. It is limited since it focuses on relatively few green initiatives variables, focused on purely quantitative inquiry with limited commercial banks.

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Abbreviations and Acronyms

CBK	Central Bank of Kenya
COK	Constitution of Kenya
COP	Conference of parties
GCC	Gulf Cooperation Council
IMF	International Monetary Fund
ICAAP	Internal Capital Adequacy Assessment Process
KBA	Kenya Bankers Association
KGFT	Kenya Green Finance Taxonomy
LISREL	Liner Structural relations model
NPL	Non-Performing Loans
SFI	Sustainable Finance Initiatives
TCFD	Taskforce on Climate-Related Financial Disclosures
UAE	United Arabs Emirates

Definition of terms

Green Initiative: Efforts and activities that focus on protecting and improving the environment by adopting sustainable practices and technologies (UNEP, 2021).

Green Banking Initiatives (GBI): Financial practices and products that prioritize environmental sustainability, supporting eco-friendly projects and reduce carbon footprints through investments, loans, and other financial mechanisms. (Biswas, 2011).

Environmental, Social, and Governance (ESG) Practices: Business practices integrating environmental responsibility, social equity, and corporate governance to drive sustainability (Eccles et al., 2014).

Green Innovation: The development and implementation of new technologies, products, processes, or services that aim to reduce environmental impact and promote sustainability (Rennings, 2000).

Green Cost Efficiencies Initiatives: Cost-saving initiatives that reduce environmental impact, such as energy conservation and waste recycling (Porter et al,. 1995).

Green Revenue Initiatives: Financial products and services promoting sustainability, including green loans, green mortgages, and eco-friendly investments (IFC), 2022).

Green Non-Financial Benefits: Environmental and social benefits beyond profit, including community engagement and environmental stewardship (UNGC, 2021).

Paris Agreement: A global accord to limit global warming and enhance countries' capacities to address climate change impacts, signed by Kenya in 2017 (UNFCCC, 2015).

Greenwashing: Misleading claims by organizations to appear environmentally responsible without actual sustainable practices (CBK, 2024).

Green Finance Taxonomy (Kenya): A framework by the CBK to classify environmentally sustainable investments (CBK, 2024).

Climate Risk Disclosure Framework (Kenya): A CBK initiative requiring banks to disclose climate-related risks (CBK, 2024).

Sustainability: Meeting present needs without compromising future generations' ability to meet theirs (United Nations, 1987).

Index score: Refers to a composite measure or a single number that summarizes and ranks multiple related observations or indicators, providing a way to quantify and compare different aspects of a phenomenon (OECD, 2008).

CHAPTER ONE
INTRODUCTION

1.1 Background to study

This chapter introduces the study on the effect of green banking initiatives on the financial performance of commercial banks in Kenya, with a focus on the moderating role of gender diversity. Section 1.1 begins with the background to the study, followed by the problem statement in section 1.2, research objectives and questions section 1.3, and the scope of the study section 1.4. The chapter also outlines the significance of the study under section 1.5 to key stakeholders and ends with a summary in section 1.6 that sets the foundation for the rest of the dissertation.

The term "green initiative" refers to a series of actions taken by a company to reduce the adverse environmental impacts throughout the entire lifecycle of its products or services, from product design and raw material acquisition to product use and eventual disposal (Nicholls & Kang, 2012). Within the banking sector, green banking initiatives (GBI) are environment friendly practices carried out by banks in their internal and external operations (Bose et al., 2021). This definition is in tandem with the United Nations Development Programme (UNDP) (2014) report that defines green banking initiatives as financing which supports environmentally responsible projects or investments, giving priority to enterprises and businesses that prioritize going green.

The concept of green banking was first introduced in 2009 in the state of Florida, United States of America (Sharma & Choubey, 2022). Recent cconcerns about environmental degradation and climate change have put considerable pressure on various stakeholders to implement several environmental initiatives. In turn, various scholars have started examining the connection between green initiatives and financial performance (Al Amosh & Khatib 2022; Aguilera-Caracuel & Ortiz-de-Mandojana 2013, Chen et al., 2018; Groenewald & Powell 2016; Ha et al., 2024; Liu, 2024; Li et al., 2017).

1.1.1 Green Banking Initiatives

Green banking initiatives can be conceptualized using a broad array of environmental initiatives including Environmental, Social and Governance (ESG) practices (Al Amosh & Khatib, 2022), green innovation (Ha et al., 2024; Liu, 2024; Tariq, et al., 2019), which refers to hardware or software innovations associated with the utilization of green products such as

green loans, green financing, green mortgages, loans for green construction (Sharma & Choubey, 2022) or processes including technological innovations related to energy conservation, pollution prevention, waste recycling, green product design, and corporate environmental management (Aguilera-Caracuel & Ortiz-de-Mandojana, 2013), green revenues (Bassen and Tan, 2023; Bose et al., 2021), green non-financial benefits (Bose et al., 2021), green sustainability, sustainability themed committees and audits (Nicholls & Kang, 2012) among others. It can therefore be infered that these various conceptualisation of green banking initiatives can be summarised into three main themes consisting of green cost efficiencies, green revenue initiatives and green non-financial initiatives.

Green cost efficiencies are cost-saving initiatives that reduce environmental impact, such as energy conservation and waste recycling. Green revenue initiatives are financial products and services promoting sustainability, including green loans, green mortgages, and eco-friendly investments. Green non-financial initiatives are environmental and social benefits beyond profit, including community engagement, reputation, regulatory compliance and environmental stewardship. These themes form three out of the four variables under the study exploring how banks have adopted these initiatives and the effect that they have on their financial performance. Appendix A demonstrates how these variables will be measured using an index based on prior literature (Bose et al., 2021).

1.1.2 Financial performance of commercial banks

Chen et al. (2018) provides compelling evidence that adopting green initiatives not only contributes to environmental sustainability but also positively impacts financial performance across different countries, encouraging firms to prioritize eco-friendly practices as part of their strategic objectives. By comparing data from multiple countries, the authors highlight how cultural, regulatory, and economic contexts influence the implementation and outcomes of green initiatives. This comparative approach offers insights into best practices and the varying levels of commitment to sustainability across different regions. Li et al. (2017) investigates the relationship between green initiatives, green performance, and financial performance in the United States. Besides, the existing studies often generalize findings across multiple industries and countries without delving into sector-specific dynamics that are crucial in Kenya, such as commercial banks, that undertake a vital position in the economy. Conceptualizing how green initiatives perform financially within commercial banks could yield more actionable insights for Kenya.

Commercial banks in Kenya are still in their initial stages of building robust sustainability framework hence findings may not be like prior studies in other jurisdictions. Kenya, which is an emerging economy, was selected to conduct research for various reasons. First, Kenya has embraced green banking and is listed among the nations which have embraced green banking practices in 2015 alongside others such as Indonesia (2014), China (2012), Nigeria (2012), Brazil (2014), Peru (2015), South Africa (2014), Turkey (2014), Vietnam (2015), Colombia, Ecuador, Mexico, Mongolia and Morocco in 2016 (Bose et al., 2021). Moreover, in 2021, Kenya introduced regulations relating to green banking, and currently, there are efforts by the Central bank of Kenya to have a climate risk reporting framework to curb green washing by Kenyan commercial banks. Second, commercial banks in Kenya are highly motivated to adhere to green banking initiatives, as there are benefits linked to regulatory compliance. These incentives create a compelling rationale for banks to align their operations with sustainable practices. Furthermore, like other emerging and developing economies facing the challenges of climate change, Kenya's access to financial resources from the United Nations (UN) Climate Fund will be, in part, contingent upon the nation's own initiatives and efforts toward climate mitigation and adaptation. Third, as Kenya might be one of the countries adversely affected by global warming (World Bank, 2013, 2016; Verisk Maplecroft, 2015), both individuals as well as businesses may be keen in strategies and measures designed to mitigate the impacts of climate change and global warming.

The legal framework governing environmental response in Kenya is primarily anchored in the Climate Change Act of 2016, which represents Africa's first comprehensive climate change legislation (Republic of Kenya, 2016; Naeku, 2020). Despite being operational for nearly eight years, the implementation of this Act faces significant challenges, including institutional barriers and limited resources (Naeku, 2020). In addition to the Climate Change Act, Kenya is a signatory to the Paris Agreement, a landmark global accord that came into force in December 2015 during COP-21. Ratified by Kenya in January 2017, the Agreement aims to limit global warming to below 2 degrees Celsius, with aspirations to keep it at 1.5 degrees Celsius. It also emphasizes enhancing countries' capacities to address climate change impacts through financial support, technological advancements, and capacity building, particularly for developing nations. Moreover, Central Bank of Kenya (CBK) is currently working on Green Finance Taxonomy and Climate Risk Disclosure Framework (Central Bank of Kenya [CBK] (2024a) and (Central Bank of Kenya [CBK] (2024), which aims to enhance transparency. These

frameworks encourage banks to disclose climate-related information consistently, thereby influencing investment decisions towards sustainable practices. Besides, Kenya Bankers Association (KBA) has also established the Sustainable Finance Guiding Principles (Kenya Bankers Association, 2023), which encourage banks to integrate environmental considerations into their lending processes. These principles advocate for the establishment of Environmental and Social Risk Management Systems (ESMS) within banks to assess and mitigate environmental risks associated with their lending activities.

Overall, the interplay between these legislative instruments creates a multi-level governance structure aimed at fostering resilience and effective climate action in Kenya. However, ongoing challenges such as insufficient political engagement from key bodies like the National Climate Change Council and limited technical capacity at county levels hinder progress. Addressing these issues through enhanced coordination and resource allocation is crucial for realizing Kenya's climate goals.

1.1.3 Research gaps

This study aimed to address existing gaps by examining the effect of green banking initiatives on the financial performance of commercial banks in Kenya, along with the moderating effect of gender diversity, over the period from 2015 to 2023. It focused on three green banking initiatives within the context of a developing country.

Review of literature identified several research gaps which act as the motivations for the current study. First, most studies are primarily focusing on developed economies with stringent environmental regulations and higher environmental normative levels (Liu, 2024; Velte, 2017; Aguilera-Caracuel and Ortiz-de-Mandojana, 2013; Galbreath 2018; Chen et al., 2018). For instance, the study by Aguilera-Caracuel and Ortiz-de-Mandojana (2013)'s study aimed to understand how institutional factors influence the adoption of green innovations and their subsequent effect on financial performance. Second, green initiatives are a concept that can be conceptualized using various sustainability constructs. Yet, most of the studies reviewed, are limited in their investigation, choosing only narrow aspects (Bassen et al., 2023; Gao & Guo 2022, Okumu, 2014; Wang & Qian, 2011). Bassen et al. (2023) investigated the effect of green revenue on financial performance. Gao and Guo (2022) looked at the effect of green credit policies of commercial banks on financial performance. Okumu (2014), measured the effect of green banking initiatives using the amount of funds channeled through mobile banking and

electronic banking on the financial performance of commercial banks in Kenya. Third, most studies reviewed focused on cross-sectional analysis (Aguilera-Caracuel and Ortiz-de-Mandojana, 2013; Chen et al., 2018; Sharma & Choubey, 2022). Studies involving green banking initiatives might requires trend analysis in order to take into consideration changes over time. Cross-sectional analyses fail to capture long-term trends and effects of green initiatives on financial performance over time. Longitudinal studies in the Kenyan context could offer important insights into the long-term impact of sustained investment in green banking initiatives on financial performance. Fourth, most studies are drawn from jurisdictions with gender quotas for the boards (Adams and Funk, 2012; Velte, 2017; Galbreath, 2018; Bassen, et al., 2023). Differences in the beliefs and values of men and women have been observed in relation to moral orientation, with women demonstrating a higher level of moral reasoning compared to men. (Elm et al., 2001). The banking sector in Kenya have witnessed a rise in the number of women occupying leadership positions (KCB Group, 2021) but still enjoys male dominated boards.

1.2 Problem statement

The adverse effects of climate change have become increasingly apparent, impacting both advanced economies and developing nations. The rising frequency of extreme weather events such as flooding, hurricanes, wildfires, and droughts underscores the urgent need for global initiatives aimed at climate change mitigation and adaptation (Kumar & Maiti, 2024). These phenomena not only threaten ecosystems but also jeopardize economic stability and food security, particularly in vulnerable regions.

At the Paris 'One Planet Summit' in December 2017, global financial leaders, including central banks and major banking institutions, committed to promoting eco-friendly financial products. This initiative reflects a growing recognition of the essential role that banks play in financing climate resilience and sustainability efforts. Recent discussions at the Conference of the Parties (COP-27) further highlighted these climate-related actions as critical to addressing the challenges posed by climate change.

In Kenya, a survey conducted by the Central Bank of Kenya (CBK) in 2021 revealed that only 33% of commercial banks had developed or were in the process of creating climate change-related financial products. This statistic raises concerns given that Kenya was one of the early adopters of green banking initiatives in 2015 (Bose et al., 2021). In response to these

challenges, CBK issued a policy document mandating commercial banks to disclose their strategies for managing climate-related risks across four key areas: governance, strategy, risk management, and disclosures. Effective disclosure of green banking initiatives is vital as commercial banks are primary sources of funding for various sectors and act as intermediaries in financial transactions (Huy & Loan, 2022; Xiaoyan et al., 2022).

Despite these efforts, recent drafts from the CBK regarding green finance taxonomy and climate risk disclosures have revealed instances of "greenwashing" among commercial banks (Central Bank of Kenya [CBK], 2024$_a$) and climate risk disclosure for banks (Central Bank of Kenya [CBK], 2024$_b$), which undermines genuine climate action and restricts access to capital for legitimate sustainability initiatives. The empirical literature on green banking presents mixed findings on its effectiveness (Akomea-Frimpong et al., 2022; Huy & Loan, 2022; Klausmann et al.,2024; Taghizadeh-Hesary & Yoshino; 2019), with some studies indicating a preference among financial institutions for fossil fuel projects over green alternatives (Akomea-Frimpong et al., 2022; Taghizadeh-Hesary and Yoshino, 2019). This inconsistency may stem from a lack of standardized global policies on green initiatives (Xu, 2020). Research gaps remain in understanding the comprehensive impact of green banking initiatives on the financial performance of commercial banks in Kenya. This study aimed to fill these gaps by exploring how these initiatives influence bank performance and contribute to broader climate action goals.

1.3 General objective

To investigate the effect of green banking initiatives on the financial performance of commercial banks in Kenya and the moderating role of gender diversity.

1.3.1 Specific objectives

1. To establish the effect of green cost efficiency initiatives on financial performance of commercial banks in Kenya
2. To investigate the effect of green revenue growth initiatives on financial performance of commercial banks in Kenya.
3. To determine the effect of green non-financial benefits initiatives on the financial performance of commercial banks in Kenya.
4. To investigate the moderating effect of gender diversity on the relationship between green banking initiatives and financial performance of commercial banks in Kenya.

1.3.2 Research questions

1. What is the effect of green cost efficiency initiatives on the financial performance of commercial banks in Kenya?
2. What is the effect of green revenue growth initiatives on the financial performance of commercial banks in Kenya?
3. What is the effect of green non-financial benefits initiatives on the financial performance of commercial banks in Kenya?
4. Does gender diversity moderate the relationship between green banking initiatives and financial performance of commercial banks in Kenya?

1.4 Scope of the study

The study targeted a census of 38 commercial banks in Kenya according to the Central Bank of Kenya's supervision report for the years 2023 (CBK, 2023). However, the final sample used for investigation was 20 commercial banks owing to lack of data for some variables in some banks. The unit of analysis was individual commercial banks in Kenya. The study sought to establish the effect of green banking initiatives on the financial performance of commercial banks in Kenya and the moderating role of gender diversity using the Triple Bottom Line and stakeholders' theories as the main theoretical underpinnings of the research. Post-positivism research philosophy and descriptive and causal research designs were utilized. The analysis was carried out using EVIEWS version 12.

1.5 Significance of the study

The study's findings are likely to benefit bank regulators, researchers and the community.

1.5.1 Banks Regulators

Banking regulators will benefit from this study by relying on its recommendation to accelerate the development of green initiatives and enhance the capacity of banking institutions to offer green products. Specifically, CBK may find the need to encourage banks to disclose and classify loans issued to green projects as a percentage of total loan disbursed.

1.5.2 Researchers

The academics may benefit from the findings of this research as a base of future studies. To begin with, academics will be able to extend this study using secondary data when information becomes available in future. Additionally, the study adds to the relatively available literature

on green banking initiatives in general and specifically to a developing country context like Kenya.

1.5.3 Community

The results of this study may be of interest to the community, as they suggest that banks can play a crucial role in environmental preservation. By developing green innovations, banks can help reduce greenhouse gas emissions, protect the environment, and enhance programs that minimize the environmental impact of corporate activities. Additionally, banks may opt to utilize renewable energy sources, which would contribute to both environmental welfare and social well-being.

1.6: Chapter summary

This chapter has highlighted the motivation of the research and has briefly discussed prior studies and established the research gaps as a rationale for the study. Problem statement is highlighted alongside the study's objectives. Further, the chapter has narrated the scope and possible beneficiaries to the study findings.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to review previous studies conducted on the effect of green banking initiatives on the financial performance of commercial banks in order to identify research gaps that permitted further enquiries. The chapter is organized as follows: Section 2.2 provides the theoretical review. Section 2.3 is the empirical review on the green banking initiatives and the financial performance of commercial banks. Section 2.4 is on review on the research gaps. Section 2.5 illustrates conceptual framework, section 2.6 is the operationalization of the study variables and finally, section 2.7 is the control variables and lastly, section 2.8 is the summary of the chapter.

2.2 Theoretical Review

This research applied multi-theoretical framework comprising of Triple Bottom Line and stakeholder's theories. This stems from the fact that there is no one single theory that is rich enough to provide comprehensive understanding of the concept of green banking initiatives and financial performance and the moderating role of gender diversity. The Triple Bottom Line theory is concerned with performance beyond financial profit but do not explain how that can be achieved. On the other hand, stakeholder theory asserts that firms must meet the expectations of diverse groups of stakeholders by providing evidence through adequate disclosures to show the firm's goodwill. The theory does not specify ways in which the stakeholder group can address societal demands. Therefore, the two theories can complement each other to provide holistic understanding on how green banking initiatives can achieve financial performance as moderated by gender diversity.

2.2.1: Triple Bottom Line Theory

Triple Bottom Line (TBL) theory was developed by John Elkington in 1994. The theory argues that businesses should measure their performance and success not only based on financial profit (the "bottom line") but also on their impact on the environment and society. The TBL theory states that there are three primary dimensions of performance that businesses should consider: economic, environmental, and social (Ratna & Hasanah, 2019). The economic dimension focuses on traditional financial metrics such as profit, revenue, and shareholder value.

Environmental dimensions encompass factors related to ecological sustainability, including resource use, pollution, and carbon emissions. The social dimension addresses the social impacts of business activities, such as employee well-being, community engagement, and human rights. According to Krajnc and Glavič (2005), triple bottom line theory encourages organizations to create goods and services that use processes and systems that are environmentally friendly, conserving energy, economically viable and safe for employees, communities and consumers. To this end, Triple bottom line would be instrumental in investigating the effect of green cost efficiency initiatives and green revenue initiatives on financial performance of commercial banks in Kenya and the moderating role of gender diversity.

Critics of the TBL theory claim that it lacks standardized methodology in measuring social, environmental and economic impact which leads to conflicting objectives (Srivastava et al., 2022). Besides, the possibility of achieving tradeoffs between environmental initiatives and economic performance is a challenge because achieving one aspect may come at the expense of other objectives (Walker et al., 2020). The Triple Bottom Line Theory provides a comprehensive framework for investigating the impact of green banking initiatives on the financial performance of commercial banks in Kenya and the moderating role of gender diversity. Banks may or may not achieve the desired financial performance by engaging in sustainable practices.

2.2.2 Stakeholder theory

Stakeholders' theory provide insight into how commercial banks respond to the needs of various stakeholders. The theory was put forward by Freeman (1984). It asserts that firms are responsible to the community where they operate (Al Amosh et al., 2022). As a result, they must meet the expectations of diverse groups of stakeholders by providing evidence through adequate disclosures to show the firm's goodwill (Al Amosh & Khatib, 2023). Stakeholders are any organization or individual who can affect or is affected by the attainment of the firm's objectives (Freeman,1984). Improving disclosures of green banking initiatives is a social and ethical practice which can satisfy stakeholder's increasing sustainability demands (Luo & Tang, 2021). Stakeholders include the enterprise, management, board of directors, shareholders, creditors, government, among others (Gao & Guo, 2022).

The management's goal in engaging in green banking initiatives can be seen to improve financial performance by luring stakeholders such as customers, suppliers, and consumers to do business with the firm (Al Amosh & Khatib, 2023). Stakeholders can make it difficult for firms to operate by putting pressure on them to adopt green banking initiatives. Global and regional organizations such as the United Nations, World Bank, IMF, European Union, and G20 can also exert pressure on their members and partners to adopt green banking initiatives within their financial systems (Esposito et al., 2019). With the signing of Paris Climate Agreement, Kenya officially became a party to the resolutions contained in the Paris Climate Agreement on 27 January 2017 and now forms part of the laws of Kenya as contained in the Kenya's Constitution 2010. The willingness of Kenya's commercial banks to such pressures determines the extent to which green banking initiatives are implemented. This in turn may encourage banks to be competitive and realize superior performance. For instance, Weber (2017) noted that the institutional pressure resulting from the Chinese green credit policy positively impacts both the environmental and financial performance of Chinese banks. Therefore, stakeholder theory will be applied to investigate the effect of green non-financial benefits initiatives and financial performance and the role of gender diversity among commercial banks in Kenya. Being a developing country, the economic circumstances coupled with rising levels of corruption may obstruct firms' ability to reap financial benefits.

2.3 Empirical Review

Literature review has identified several constructions that can be used to conceptualize green banking initiatives. These constructions can be summarized under three main variables; green cost efficiency initiatives, green revenue growth initiatives and green non-financial benefits initiatives, which have all produced mixed findings on their effect on financial performance across different firms in various sectors. More discussions are illustrated below:

2.3.1 Green cost efficiency initiatives and financial performance

The triple Bottom Line theory and stakeholders' theory suggest that environmental initiatives practiced by commercial banks can lead to improved profitability (Al Amosh & Khatib, 2022; Wahba, 2008). The draft risk disclosure framework (Central Bank of Kenya [CBK_b], 2024) enhances the adoption of sustainable practices, that may lead to operational efficiencies. For instance, banks that invest in green technologies or practices may reduce their energy costs and improve resource utilization. In this sense, annual reports/sustainability reports provide stakeholders with an understanding of the bank's efforts in promoting sustainable practices

which contribute to the well-being of society at large (Ahmed et al., 2020). However, mixed findings have been observed in literature.

Chen et al. (2018) found that adopting green initiatives fosters environmental sustainability as well as positively impacting financial performance across different countries. Kartadjumena and Rodgers (2019) argues that while the implementation of green banking initiatives contributes to enhanced financial performance over the long term, the associated benefits may not be realized in the short term. Equally, Al Amosh and Khatib (2022) and Wahba (2008) contend that green banking initiatives may lead to enhanced financial performance. Moreover, Ilyas and Osiyevskyy (2022) finds a significant positive correlation between sustainable value proposition and financial performance of public companies in North America, noting that firms that effectively communicate their sustainable practices tend to perform better financially.

On the other hand, Friedman (2007) argue that sustainability initiatives bring up costs hence reducing the profitability of the firm with potential of affecting the market value of the firm (Galbreath, 2018). Considering the contradictory evidence and varying perspectives on the connection between broad sustainability initiatives and financial performance, it is crucial to investigate this relationship in the context of an emerging economy which involves evaluating the following hypotheses in the context of the literature review.

H_1: *There is a significant association between green cost-efficiency initiatives and the financial performance of commercial banks in Kenya.*

2.3.2 Green revenue growth initiatives and financial performance

Green revenue is revenue derived from the environmentally sustainable economic activities of a company (Bassen & Tan, 2023). Klausmann et al. (2024) also define green revenue as the revenues from green business activities. Green revenue growth initiatives disclosures can assist in identifying sustainable products, goods, and services and promote improved financial performance.

The Central Bank of Kenya has taken initiatives towards green revenue through the draft green taxonomy (KGFT) (Central Bank of Kenya [CBK_a], 2024). The framework aims at promoting innovative green products like green loans and green bonds among banks and other financial

institutions. This has the potential to open new avenues for investment in sustainable projects, aligning with growing demand for environmentally responsible financing options.

Bassen and Tan (2023) conducted a cross-market study spanning 23 distinct markets and utilizing a sample of 9,367 firm-year observations from 2016 to 2020. Their analysis provides empirical evidence regarding the impact of green revenues on stock returns. The research finds a significant positive correlation between green revenues and stock returns. This suggests that firms with higher proportions of green revenues tend to experience better stock performance compared to those with lower green revenue shares. Similarly, Bose, et al. (2021) found that green revenue growth positively influence financial performance of commercial banks in Bangladesh. Also, a study by Chen et al. (2018) in a cross-country analysis on the effect of green initiatives and financial performance, it was established that revenue initiatives have significant positive influence on financial performance.

Based on the preceding analysis, the researcher posits that revenue growth via the introduction of innovative banking products and entry into new markets is anticipated to directly contribute to improved financial performance. Moreover, such initiatives foster positive stakeholder recognition through greening projects, marketing, and environmental awards, which improve client and societal satisfaction, ultimately leading to enhanced financial performance. The following hypothesis is therefore proposed:

H_2: *There is a significant positive correlation between green revenue growth initiatives and the financial performance of commercial banks in Kenya.*

2.3.3 Green non-financial benefits initiatives and financial performance

Green non-financial benefits encompass performance factors that provide banking institutions with indirect advantages beyond cost reductions and revenue growth (Bose et al., 2021). The relationship between green non-financial benefits and financial performance can be understood from both tripple bottom line and stakeholder theories. KGFT (Central Bank of Kenya [CBK_a], 2024) and risk disclosure framework (Central Bank of Kenya [CBK_b], 2024) are important tools for promoting environmental sustainability in Kenya because they enhance clarity on what constitute “green investment”, promotes accountability, stakeholder engagement, innovation and regulatory strength. Bose et al. (2021) identifies several green non-financial

benefits such as environmental sustainability, social responsibility, regulatory compliance, market differentiation, employee engagement, and long-term viability.

Jan et al. (2019) investigated the relationship between sustainability practices and financial performance in Islamic banking. The study identified a strong positive correlation between sustainability practices and the financial performance indicators of Islamic banks. Okumu's (2014) study examined the relationship between green banking and the financial performance of commercial banks in Kenya, using secondary data obtained from the Central Bank of Kenya and the National Statistics Agency. The research aimed to examine whether green banking influences a bank's profitability. Velte (2017) established positive relationship between corporate social responsibility (CSR) and the financial performance of German firm.

In the view of the triple bottom line and stakeholders' theory, and with a shred of positive relationship evidenced in the literature, of sustainability practices and financial performance, the current study proposes a positive association between green non-financial benefits and financial performance. Thus, the following hypothesis is proposed:

H_3: *There is a positive significant relationship between green non-financial benefits initiatives and financial performance of commercial banks in Kenya.*

2.3.4: Green banking initiatives and financial performance: The role of gender diversity

Stakeholder theory underpins board gender diversity. Brooks and Oikonomou (2018) assert that due to contextual factors as well as other contigencies, it is crucial to examine how the relationship between environmental performance and financial performance is influenced by such moderating factors. Consequently, the researcher acknowledges that the relationship between green banking initiatives and financial performance depends on various critical factors inherent to the specific operational context of banks. Considering the debate sorrounding gender diversity in Kenya, the study explore whether gender diversity within commercial banks have any moderating effect on the green banking initiatives and financial performance relationship.

The banking sector in Kenya have witnessed a rise in the number of women occupying leadership positions (KCB Group, 2021). Historically, the banking sector has been male dominated. Nonetheless, women continue to be significantly underrepresented in boardrooms

around the world (Catalyst, 2017; ISS, 2017). In countries like Norway and Spain, gender quotas for boards have been implemented; meanwhile, there is growing advocacy from regulators and commentators for increased female representation on corporate boards in other regions (Adams & Funk, 2012). Having gender diversity on the board can ensure that the viewpoints and concerns of female employees and customers are considered (Pasalaoet al., 2024). Jain and Jamali (2016) find that gender diverse boards are linked to CSR. These developments underscore the pressing need for researchers to explore the advantages associated with gender diversity in corporate leadership.

H_4: Gender diversity of banks' board of directors in Kenya positively moderate the association between green banking initiatives and financial performance.

2.4 Summary of Literature and Research gaps

Reviews of literature revealed several research gaps. First, most studies primarily focus on developed economies with stringent environmental regulations and higher environmental normative levels (Velte, 2017; Aguilera-Caracuel and Ortiz-de-Mandojana, 2013; Galbreath 2018; Chen et al., 2018). Velte's (2017) study, carried out in Germany, explored the implementation of mandatory CSR legislation on management board compensation for publicly listed companies beginning in the 2010. Similarly, Aguilera-Caracuel and Ortiz-de-Mandojana (2013)'s study was conducted among multiple countries comprising both developed (Denmark, Finland, France, Germany, Japan, United States, Canada and the United Kingdom) and emerging economies (South Korea, Taiwan and China) drawn from material, industrial, personal health and technology sectors. Galbreath (2018) study was in Australia which had just introduced Modern Slavery Act (2018) (Australian Corporate Social Responsibility Compliance, 2018). Kenyan commercial banks are operating in an environment where legislation pertaining to the sustainability reporting has not yet matured and are still at the infancy stage.

Secondly, most studies are drawn from jurisdictions with gender quotas for the boards (Adams and Funk, 2012; Velte, 2017; Galbreath, 2018; Bassen, et al., 2023). Differences between the beliefs and values of men and women have been identified with respect to moral orientation where women have been shown to have a higher level of moral reasoning than men (Elm et al., 2001). The banking sector in Kenya have witnessed a rise in the number of women occupying leadership positions (KCB Group, 2021) but still enjoys male dominated boards

Thirdly, green initiatives are a concept that can be conceptualized using various sustainability constructs. Yet, most of the studied reviewed, are limited in their investigation, choosing only narrow aspects (Bassen et al., 2023; Gao & Guo 2022, Okumu, 2014; Wang & Qian, 2011). Bassen et al. (2023) investigated the effect of green revenue on financial performance. Gao and Guo (2022) looked at the effect of green credit policies of commercial banks on financial performance. Okumu (2014), measured the effect of green banking initiatives using the amount of funds channeled through mobile banking and electronic banking on the financial performance of commercial banks in Kenya.

Finally, some studies focused on cross-sectional analysis (Aguilera-Caracuel and Ortiz-de-Mandojana, 2013; Chen et al., 2018; Sharma & Choubey,2022). Studies involving green banking initiatives might requires trend analysis in order to take into consideration changes over time.

Therefore, this study proposed to bridge these gaps by investigating the effect of green banking initiatives on the financial performance of commercial banks in Kenya: The moderating role of gender diversity, over period of 2015 to 2023 using three green banking initiatives, in a developing country context. Detailed research gaps are indicated in table 2.1 below:

Table 2.1: Table of Research gaps

Study	Methodology	Findings	Research Gap
Velte (2017)	The study examines a sample of companies listed on the German Prime Standard over the business years 2010-2014, which includes 412 firm-year observations, using correlation and regression analyses to assess potential relationships between	ESGP positively affects ROA, but it does not have any impact on Tobin's Q.	The study is based in Germany, a developed country whose findings may not apply in Kenya. The economy of Germany cannot be compared to that of Kenya.

	ESG performance (ESGP) and both accounting and market-based financial performance measures (ROA & Tobin's Q).		
Aguilera-Caracuel and Ortiz-de-Mandojana (2013)	Sample of 14 countries were investigated with 70 firms that had adopted green innovative products over 2007	The study employed a cross-sectional analysis which is inadequate in understanding the trend. The study also involved both developed and emerging economies.	The findings indicate that stricter environmental regulations in a country weaken the link between green innovation and a firm's financial performance. The study focused on cross-sectional analysis and not trend analysis.
Galbreath (2018)	The sample comprises firms included in the Australian Securities Exchange 300 Index (ASX300) during the years 2004 and 2005.	Study was done in jurisdiction with gender quotas	Direct connection between the presence of women on corporate boards and a company's financial performance. The study was conducted in a country with gender quotas, unlike the case in Kenya.
Al Amosh et al. (2023).	The sample included non-financial firms listed on Amman stock exchange, Palestine stock exchange, Damascus stock exchange and Beirut stock exchange over 2012 to 2019	The results show that overall ESG performance, encompassing environmental and social aspects, enhances financial performance, whereas governance performance specifically impacts ROA only.	The period of study was characterised by war and turmoil which may have affected the findings. The study might have been affected by the ongoing political and economic situation during the time of study.
Bassen, et al.(2023).	This study offers cross-market insights into how green revenues (GRs) affect stock returns,	The study found that firms with a high proportion of green revenues (GRs) tend to achieve higher returns	The study investigated only one dimension of green banking initiatives. The study did not investigate all the GBIs.

	based on 9,367 firm-year observations across 23 markets between 2016 and 2020.	compared to those with a lower proportion of GRs.	
Gao and Guo (2022).	The study investigated the effect of green credit policies of commercial banks on financial performance using the panel data of 62 commercial banks in China from 2013 to 2020.	The implementation of the green credit policy increases the profits of commercial banks	The study's focus was narrow, only looking at green credit policies
Chen et al.(2018).	The study explored the connection between green initiatives, green performance, and financial performance among the world's top 500 publicly traded companies in 2014.	The findings indicate that green initiatives positively influence green performance, and this enhanced green performance, in turn, positively affects financial performance.	The study was based on cross-sectional data of 2014.
Jan et al. (2019).	This paper analysed the connection between sustainability practices and financial performance from the perspective of Islamic banking in Malaysia during the period 2008–2017.	The finding generally implies that improvement in sustainability practices will add financial values to the management.	It is centric towards Islamic banks while leaving out conventional banks.
Okumu (2014).	The study examined the connection between green banking and the	The study examined the connection between green banking and the financial	The researcher employed only two green banking initiatives:

	financial performance of Kenya's 43 commercial banks during the period 2011 to 2013.	performance of Kenya's 43 commercial banks during the period 2011 to 2013.	mobile banking and online banking, which is a limited scope.
Sharma and Choubey (2022).	This study examined the effect of green initiatives on a company's reputation and trust in India.	The study found that green banking initiatives are positively associated with enhancing a green brand image and fostering trust.	The study was based on cross-sectional qualitative data.
Tariq et al. (2019).	This study examined how green product innovation performance (GPIP) affects a firm's financial performance, using data from 202 publicly listed manufacturing companies in Thailand.	The results show that green product innovation performance (GPIP) has a significant impact on a firm's financial performance.	This research gathered data from ten industries, each with distinct characteristics. However, analysing multiple sectors together might obscure issues specific to individual industries.
Wahba (2008).	The study analysed the relationship between environmental responsibility and economic performance in a developing country, focusing on a sample of 156 Egyptian firms over a three-year period.	Corporate environmental responsibility had a positive and significant impact on a firm's market value, as measured by Tobin's Q ratio.	Using ISO 14000/14001 certification as a measure of corporate environmental commitment may not be ideal, as a firm's decision to implement an environmental management system can be influenced by various internal and external factors, such as meeting customer requirements and complying with export regulations.
Wang and Qian (2011).	The study examined the impact of corporate philanthropy on the	A positive relationship between philanthropy and performance was found.	The study centered on only one aspect of corporate social activities.

	financial performance of Chinese firms listed on stock exchanges between 2001 and 2006.		

Source: Author (2024).

2.5 Conceptual framework

The conceptual framework serves as a visual representation that illustrates the connection between the variables (independent, dependent, moderating/mediating and control variables) in the study. The proposed relationship is clearly depicted in the framework presented below:

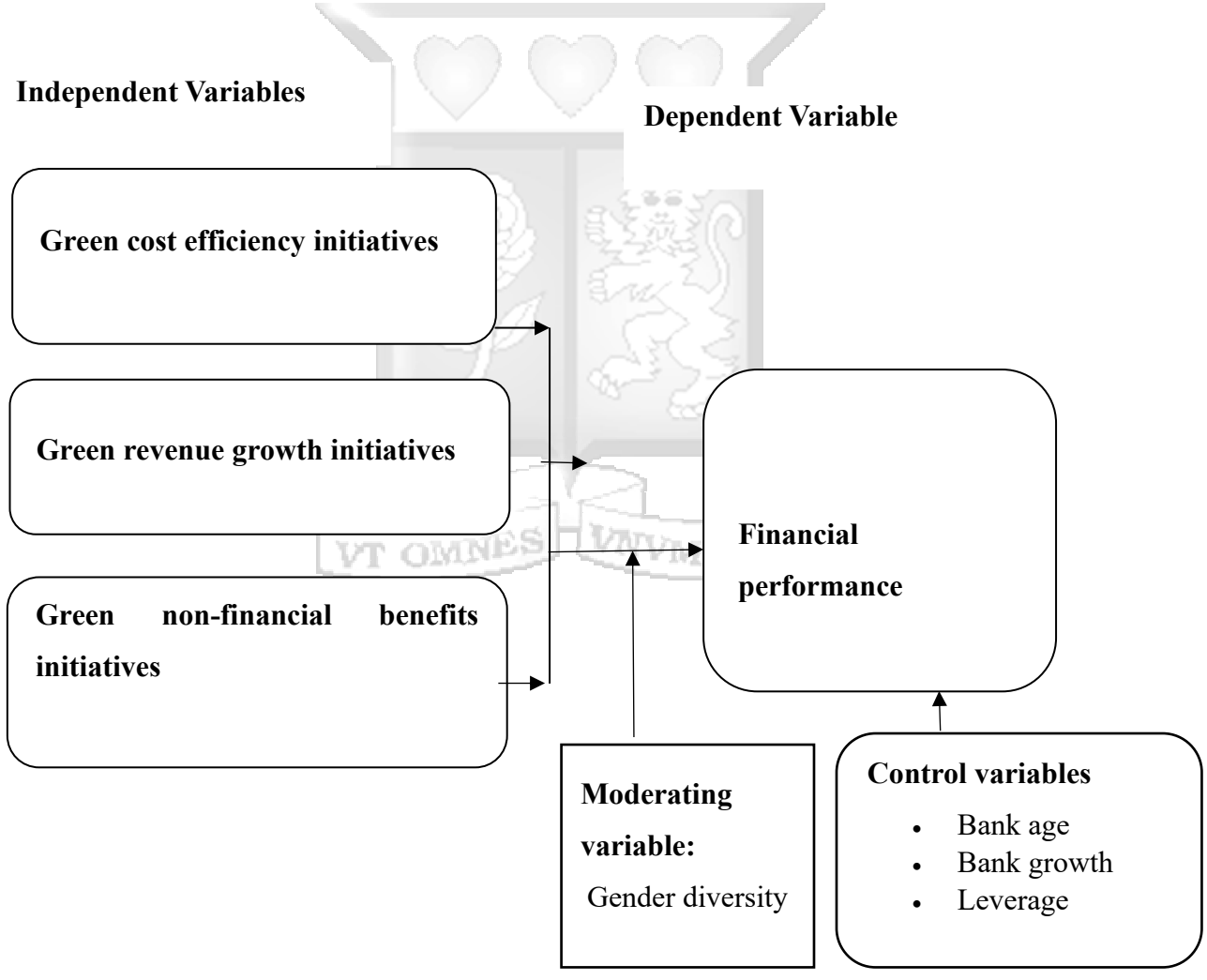


Figure 2.1: Conceptual Framework

Source: (Author 2024)

2.6: Operationalization of study variables

This section details the notation, variable name, definitions and supporting literature for the key variables in the study. It elucidates how study concepts such as ROA, green cost efficiency initiatives, green revenue growth initiatives, green non-financial benefits initiatives, gender diversity, bank age, bank growth and leverage are converted into quantifiable data collection and analysis elements. This process guarantees that each variable is well-defined, measurable, and can be systematically evaluated in alignment with the research objectives.

Table 2.2: Operationalization of study variables

Notation	Variable name	Definition	Supporting Literature
ROA	Return on Assets (Financial performance)	The ratio of net income divided by total assets.	Bose et al. (2021)
CEI	Green cost efficiency initiatives	The cost efficiency performance score or index is calculated as a ratio of the total attainable score of 5. Refer to appendix A, panel A.	Bose et al. (2021).
GRI	Green revenue growth initiatives	The revenue growth performance score or index is calculated as a ratio of the total attainable score of 3. Refer to appendix A, panel B.	Bose et al. (2021).
NFBI	Green non-financial benefits initiatives	The non-financial benefits performance score or index is calculated as a ratio of the total attainable score of 13. Refer to appendix A, panel C.	Bose et al. (2021).

BAGE	Bank age	The natural logarithm of the number of years since a bank's incorporation until the year of study.	Bose et al. (2021), Pasalaoet al. (2024) and Jan et al. (2019).
BGR	Bank's growth	The annual percentage change in revenue.	Bose et al. (2021).
LEV	Leverage	Debt to equity	Bose et al. (2021), Pasalaoet al. (2024).
GD	Gender Diversity	The percentage of female directors is calculated as the proportion of female directors to the total number of directors on the board.	Bose et al. (2021).

Source: Bose et al. (2021)

2.7 Control variables

Three Control variables were introduced consistent with prior Studies. Bank age was considered as a control variable since longevity of the firm in the market can provide a competitive edge (Wang & Qian, 2011; Bose et al., 2017). Additionally, leverage (LEV) was included to address different aspects of firm risk that could affect financial performance. Furthermore, revenue growth is considered since, as highlighted by Bose et al. (2017), firms that experience higher revenue growth tend to outperform their peers.

2.8: Chapter summary

The chapter reviewed empirical literature on green banking initiatives and financial performance and has identified two main theories underpinning the study as well as four important research gaps that warrant further studies. First, most studies primarily focus on developed economies with stringent environmental regulations and higher environmental normative levels (Velte, 2017; Aguilera-Caracuel and Ortiz-de-Mandojana, 2013; Galbreath 2018; Chen et al., 2018). Secondly, most studies are drawn from jurisdictions with gender quotas for the boards (Adams and Funk, 2012; Velte, 2017; Galbreath, 2018; Bassen, et al., 2023). Thirdly, green initiatives are a concept that can be conceptualized using various sustainability constructs. Yet, most of the studies reviewed, are limited in their investigation, choosing only narrow aspects (Bassen et al., 2023; Gao & Guo 2022, Okumu, 2014; Wang &

Qian, 2011). Finally, some studies focused on cross-sectional analysis (Aguilera-Caracuel and Ortiz-de-Mandojana, 2013; Chen et al., 2018; Sharma & Choubey,2022). Studies involving green banking initiatives might requires trend analysis in order to take into consideration changes over time.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methodology that was adopted in assessing the effect of green banking initiatives on the financial performance of commercial banks in Kenya and the moderating role of gender diversity. The chapter is organized as follows: Section 3.2 describes the research philosophy. Section 3.3 explains research design adopted for the study. Section 3.4 is a discussion on the population of the study, section 3.5 is on data collection methods, section 3.6 is on validity and reliability, section 3.7 is about research validity, data analysis is discussed in section 3.8, section 3.9 is on diagnostic test and finally section 3.10 discusses ethical consideration.

3.2 Research philosophy

Saunders et al. (2008) describes research philosophy as the development and nature of knowledge. The authors identify four main research philosophies as positivism which emphasizes objective reality and the use of observable and measurable facts. It is often associated with hypothesis testing and experimental designs. Realism is based on the belief that there is a reality that exists independently of human thoughts and beliefs, but that reality can only be understood imperfectly through observation and interpretation. Pragmatism advocates practical approaches to research by integrating both qualitative and quantitative methods depending on the research question. Interpretivism focuses on understanding the subjective meanings and social contexts behind human behavior, typically used in qualitative research.

The philosophical strand adopted by a researcher demonstrates his/her view of the world. This research was anchored on post-positivism research philosophy. Post-positivism research philosophy is an extension of positivism philosophy. According to the principles of positivism, knowledge is derived exclusively from phenomena that can be perceived through the senses such as sight, smell, hearing, touch, and taste, suggesting that only these observable experiences can constitute valid "knowledge." It advocates for the use of experimentation and testing as methods to validate or refute reality (Greener, 2008). Post-positivism annuls the assumption that true knowledge can be achieved due to some inherent limitations. In this study post-positivism philosophy was applied by mining data from published annual reports but

recognizing that absolute truth might not be attained especially in the wake of concern of green washing by commercial banks. Nevertheless, such instances are minimized because data was collected from the audited reports.

3.3 Research design

Research design is a methodology that outlines how a researcher gathers and presents data (Creswell & Creswell, 2022). Several types of research designs were considered: Qualitative design could allow for in-depth exploration of how banks perceive and implement green banking initiatives. However, its subjectivity and limitations in generalizability make it less suitable for the current study's objectives. Mixed methods design combining both qualitative and quantitative data, was also considered. While this offers richer insights, it was deemed less efficient for a study that primarily relies on measurable, secondary data and aims to test relationships statistically. A quantitative design was found most appropriate, given its ability to test hypotheses, establish patterns, and make generalizable conclusions from numerical data. To assess the effect of green banking initiatives on the financial performance of commercial banks in Kenya and the moderating role of gender diversity, a quantitative approach utilizing both the descriptive and causal research design was used (Creswell, 2013; Doriye et al., 2020). The descriptive research design enabled the analysis of green banking initiatives and their effect on financial performance. Descriptive study design enables a comprehensive examination of various factors, including initiatives related to green cost efficiency, green revenue growth, green non-financial benefits, and gender diversity. Additionally, it aids in establishing essential baseline information that is vital for guiding future interventions and shaping policy development (Kothari, 2014). Consequently, causal research design was utilized to evaluate the effect of green banking initiatives on financial performance and the moderating role of gender diversity, employing quantitative methods. Causal research design not only facilitates a thorough investigation of the relationships between the variables, but it also enables the identification of cause and-effect dynamics essential for developing effective interventions and informing policy decisions (Kothari, 2014). By establishing these causal links, the research can provide valuable insights that guide strategic actions and enhance understanding of how specific initiatives impact overall outcomes.

3.4 Population and data collection methods

The population for this research came from the banking sector in Kenya from 2015 to 2023. Data collection began in 2015 owing to the adoption of green banking initiatives in 2015, and

ended in 2023, the final year of data collection, being the most recent date at the expected time of data collection. Thus, the initial population was 38 commercial banks as per the CBK (2023) report. Both green banking initiatives and financial performance data were hand collected from the audited annual/ integrated reports/ sustainability reports. The population frame is attached as appendix B at the end of this dissertation. The commercial banks are divided into three different categories as follows:

Table 3.1: Distribution of commercial banks in Kenya

Type of bank	No. banks	%
Local public banks	2	5.3
Local private commercial banks	20	52.6
Foreign Commercial banks	16	42.1
Total	38	100

Source: CBK (2023) Report.

3.5 Data Analysis

Various diagnostic tests other than Linearity and Multicollinearity tests have been violated even after data transformation using logarithms. To address the concern, the researcher applied robust regression model to get reliable results consistent with Pervez and Ali (2024). Regression analysis evaluated the effect of green banking initiatives on the financial performance of commercial banks and the moderating effect of gender diversity. Additionally, Spearman correlation was applied to investigate the strength and direction of the relationships among the variables. The study proposed the following three regression equations.

$$Yit = \alpha + \beta 1CEIit + \beta 2RGIit + \beta 3NFBIit + \varepsilon it \quad \text{(I)}$$

$$Yit = \alpha + \beta 1CEIit + \beta 2RGIit + \beta 3NFBIit + \beta 4BAGEit + \beta 5BGRit + \beta 6LEVit + \varepsilon it \quad \text{(II)}$$

$$Yit = \alpha + \beta 1CEIit * GD + \beta 2RGIit * GD + \beta 3NFBIit * GD + \beta 4BAGEit + \beta 5BGRit + \beta 6LEVit + \varepsilon it \quad \text{(III)}$$

The researcher adopted green banking initiatives index consisting of 21 items developed by Bose et al. (2021). Consistent with assertion made by Bose et al. (2021), that green banking

initiatives (GBI) is not directly observable, the researcher relied on these disclosures of GBI activities (Appendix 1) as the proxy for GBI performance. The items were grouped into the following categories: cost efficiency, revenue growth, and non-financial benefits. Cost efficiency refers to the measurable results associated with an institution/company's ability to reduce expenses through the implementation of green banking initiatives (GBI). Revenue growth encompasses performance indicators which enable banks to generate increased income. On the other hand, non-financial benefits include performance outcomes that provide indirect advantages to banking firms, beyond cost savings and revenue growth.

The researcher employed content analysis to assess and quantify the information regarding green banking initiatives performance disclosed in the audited annual/sustainability reports of commercial banks. This approach has been applied in prior studies such as Khan et al. (2020) and Tauringana and Chithambo (2015). Performance metrics can be evaluated using either a weighted or unweighted approach (Khan et al., 2020; Tauringana & Chithambo, 2015). In our study, we opted for an unweighted method, treating each performance item in the index as equally significant (Cooke, 1989). A score of 1 was awarded to any bank that reported a specific GBI activity from the predefined list with a 0 score if it did not. Using this scoring system, the researcher first created an overall Green Banking Initiatives Index (GBPI). Subsequently, overall index was broken down into: cost efficiency, revenue growth, and non-financial benefits.

3.6 Validity and reliability

Validity and reliability are crucial components of research, guaranteeing the accuracy and credibility of the results (Davis, 2004). Validity can be defined as the degree to which a study accurately measures or represents the concepts it purports to assess (William, 2024). Reliability pertains to the consistency and dependability of the results (Kimberlin & Winterstein, 2008). Several steps were undertaken to achieve both validity and reliability. First, the index used to measure green banking initiatives was adopted from previous index that had been tested and proven. Secondly, the operational definition of terms has been adopted from previous studies. Finally, the research design process enhances the study's validity and reliability by integrating established theoretical frameworks and conceptual models.

3.7 Diagnostic tests

Similar to prior studies such as Al-khabash and Al-Thuneibat (2008), the decision to employ either parametric or non-parametric analysis was based on the outcomes of various diagnostic tests. The researcher carried out diagnostic tests to ensure that the assumptions of regression are met.

3.7.1: Autocorrelation Test

The use of the Time series is usually associated with disruptor errors in a period and the previous period errors. This study tested autocorrelation using the Breusch-Godfrey Test.

3.7.2: Normality test

Normality test is a statistical concept for establishing if a data set follows the normal distribution (Field & Wilcox, 2017). The researcher used Jarque-Bera test to determine the normality of independent variables. Should the plot diagram fail to form the anticipated bell shape, there would be a violation of normality, the researcher may do further data transformation.

3.7.3: Multicollinearity test

Multicollinearity is the assumption that independent variables are in correlation and need testing to establish their independence (Field & Wilcox, 2017). The researcher conducted a multicollinearity test to determine if the tolerance levels of the independent variables exceed 0.1 and the Variance Inflation Factor (VIF) is below 5. Field and Wilcox (2017) state that a multicollinearity problem emerges when tolerance levels are below 0.1 and VIF above 5. The researcher focused on the VIF values and bring them to moderate levels.

3.7.4: Homoscedasticity test

Homoscedasticity tests establish similarity in the error term across all independent variables using a scatterplot. Field and Wilcox (2017) recommend checking the other regression assumptions should a homoscedastic violation occur. The researcher may drop or add variables or modify the model formula to address the violation of homoscedasticity.

3.8 Ethical considerations

The study was carried out with an ethical background in mind. Data collected was treated with confidentiality and used solely for the purposes of the study. Further, authority to conduct the research was sought from Strathmore's Ethics and Scientific committee and NACOSTI.

3.9 Chapter Summary

This chapter has discussed methodology that was applied in carrying out the research. The chapter has discussed philosophical stance that was applied, research design, population of the study, data collection methods, data analysis methods, diagnostic tests, ethical consideration, and finally, chapter summary.

CHAPTER FOUR
PRESENTATION OF RESULTS

4.1 Introduction

This chapter presents the results of analysis of data on the effect of green banking initiatives on the financial performance of commercial banks in Kenya and the moderating effect of gender diversity. The chapter is organized as follows: Section 4.2 presents sample representation, section 4.3 is the descriptive statistics, section 4.4 is the inferential statistics, section 4.5 is the correlation analysis, 4.6 is regression analysis, section 4.7 is the summary of hypothesis testing table and finally, section 4.8 is the chapter summary.

4.2 Sample representation

The following table summarizes the final sample considered for the study analysis.

Table 4.1: Sample representation

Reason for Exclusion	Number of Firms
Number of commercial banks as of 2023	38
Merged between 2015 to 2023	(2)
Incomplete data	(16)
Final sample	20

Source: Author (2024)

4.3 Descriptive statistics

Table 4.2, presents the descriptive statistics of the variables used in this study. The mean (median) ROA of firms in our sample is 0.0120 (0.0158). The mean CEI of 0.5722 suggests that commercial banks have engaged in, on average, 57.22 % of the 21 green banking activities. The mean GRI of 0.4611 indicates that commercial banks have engaged in 46.11% of the 21 green banking activities listed in our index with NFBI having the lowest mean score of 30%. Gender diversity has low mean of 0.2402 (Max=0.625 and Median = 0.250). The results suggest that the level of gender diversity is incredibly low among commercial banks in Kenya. Regarding control variables, bank age ranged from a minimum of 6 years and a maximum of 127 years, with average age being 49.864 years. Revenue growth has a mean value of -0.020

(Max= 1.283 and Median =0.071). Data also shows that the mean leverage is 1.194 (Max = 1.620 and Median 1.190).

Table 4.2: Descriptive statistics table

Variables	Obs	Mean	Median	Max	Min	Std. Dev.
ROA	180.000	0.012	0.0158	0.043	-12.6724	0.0212
CEI	180.000	0.572	0.4000	1.000	0.0000	0.2680
GRI	180.000	0.461	0.3333	1.000	0.000	0.1939
NFBI	180.000	0.301	0.1538	0.846	0.0000	0.3052
BAGE	180.000	49.864	40.000	127.000	6.000	29.415
BGR	180.000	-0.020	0.071	1.283	-21.161	1.528
LEV	180.000	1.194	1.190	1.620	0.997	0.072
GD	180.000	0.240	0.250	0.625	0.000	0.142

Source: Processing results with EViews 12.0

4.4 Inferential statistics

Table 4.3: Ramsey Reset Test for Linearity

	Value	df	Probability
t-statistic	1.772286	122	0.0788
F-statistic	3.140997	(1, 122)	0.0788
Likelihood ratio	3.431705	1	0.0640

Source: Processing results with EViews 12.0

Table 4.4: Test for the presence of heteroscedasticity.

From Table 4.4 below, a P-Value of 0.000 at 5% significance suggests that the null hypothesis is rejected and that the underlying data (variables) for estimating the regression model suffers from heteroscedasticity.

Panel Cross-section Heteroskedasticity LR Test
Equation: UNTITLED
Specification: ROA CEI RGI NFBI LEVERAGE BGR BAGE GD C
Null hypothesis: Residuals are homoskedastic

	Value	df	Probability
Likelihood ratio	159.1171	20	0.0000

LR test summary:

	Value	df
Restricted LogL	458.3589	172
Unrestricted LogL	537.9175	172

Source: Processing results with EViews 12.0

Table 4.5 Autocorrelation results.

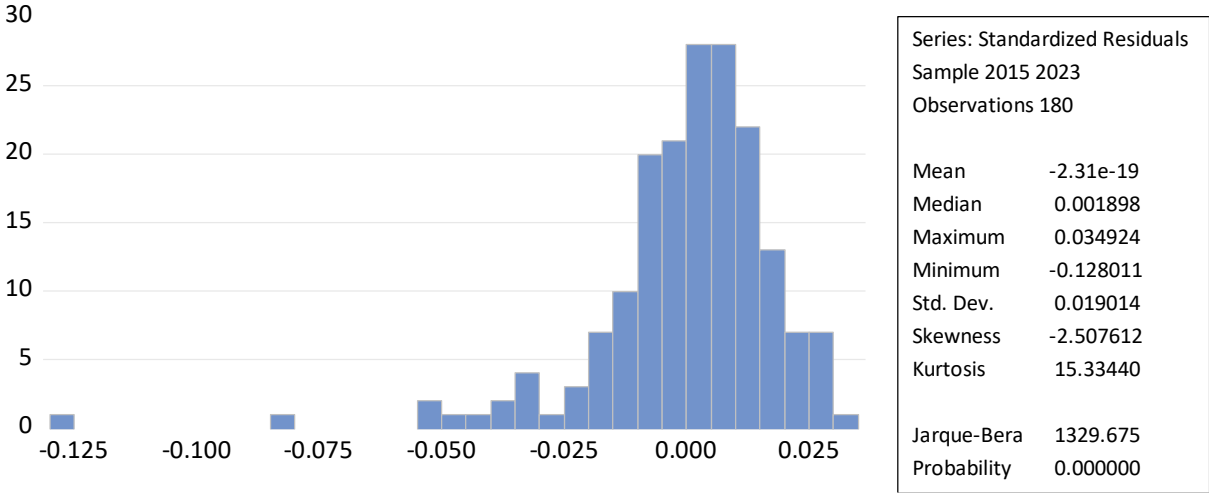
Based on table 4.5 below, the value of Prob. F Count is 22.63039. Hence, the value of Prob. F Calculated is less than the degree of error. It can be concluded that the data of this study suffers from autocorrelation problems.

F-statistic	22.63039	Prob. F(2,122)	0.0000
Obs*R-squared	36.53101	Prob. Chi-Square(2)	0.0000

Source: Processing results with EViews 12.0

Table 4.6: Normality test results

The results of the normality test below show the violation of normality assumption.



Source: Processing results with EViews 12.0

Table 4.7: Multicollinearity test results

The result as shown below shows that there is no evidence of serious multicollinearity. All the VIF are less than 5 (Table VI), the highest VIF is 1.8201 confirming that multicollinearity is not a problem.

Variable	VIF
Constant	N/A
CEI	1.4803
GRI	1.1225
GNFB	1.8134
LEV	1.6553
BGR	1.5184
BAGE	1.3076
GD	1.8201

Source: Processing results with EViews 12.0

4.5 Correlation analysis

The correlation matrix table 4.8 below provides the degree to which various aspects of green banking initiatives (CEI, GRI, and NFBI) are correlated with bank financial performance (ROA). Correlation coefficient is the primary outcome of a correlation. It spans the range of −1 to +1. The closer the two variables are, the closer the correlation is to +1 or −1. There is no link between the variables if correlation is close to 0. If correlation is positive, both variables increase in size as one increases. If correlation is negative, it indicates that as one value

increases, the other value decreases (this is known as an inverse correlation). The correlation analysis reveals several significant findings. Firstly, each variable shows a perfect positive correlation with itself (Cor = 1), as expected. CEI shows moderate significant correlation with ROA. In addition, GRI exhibits a strong significant negative correlation with CEI. On the other hand, NFBI displays strong positive correlation with ROA, CEI and GRI. On the control variables, LEV shows a strong positive correlation with all green banking initiatives. BGR shows a negative significant correlation with ROA but a strong positive correlation with GRI, NFBI and LEV. Similarly, BAGE demonstrates strong positive correlations with ROA, CEI, and NFBI, all of which are statistically significant but a negative significant correlation with GRI. Lastly, when considering GD, it has a relatively strong positive correlation with CEI and GRI and significant negative correlation with ROA. The highest correlation observed is 71, between GRI and CEI.

Table 4.8: Spearman correlation analysis

Correlation Probability	1	2	3	4	5	6	7	8
ROA	1							
CEI	0.356***	1						
GRI	0.290*	-0.710***	1					
NFBI	0.372***	0.253***	0.709***	1				
LEV	0.195***	0.108***	0.160**	0.156**	1			
BGR	-0.293**	0.179	0.152**	0.224**	0.172*	1		
BAGE	0.281***	0.170**	-0.048**	0.048**	-0.023	-0.019	1	
GD	-0.096*	0.216***	0.218***	0.328	-0.047	0.3031	0.104	1

Notes: * Significant at the 10% level (2-tailed), ** significant at the 5% level (2-tailed), *** significant the 1% level (2-tailed).

Source: Processing results with EViews 12.0

4.6 Regression analysis

Based on the tests, it was found that a 1% increase in ROA will drive a CEI increase of 0.8% and vice versa a decrease of 1% ROA will result in a decrease in CEI by 0.8 % assuming the variables remain. In addition, a 1% increase in ROA will decrease GRI by 0.3% assuming other variables remain. Moreover, a 1% increase in ROA will decrease NFBI by 1.3%, assuming other variables remain. On the control variables, a 1% increase in ROA will increase leverage by 0.00633% keeping other variables constant. Similarly, a 1% increase in ROA increases BGR and BAGE 0 and 0.5%, assuming all other variables are constant.

According to Table 5, the results indicate that green cost efficiency initiatives have the highest influence on the financial performance of commercial banks in Kenya, with a β coefficient of 0.008. The corresponding z-value is 1.207, which is statistically insignificant. This suggests that green cost efficiency initiatives affect the overall financial performance of commercial banks positively, but that effect cannot be felt. On the other hand, green revenue initiatives are found to have insignificant negative effect on the financial performance. The β coefficient for green revenue initiatives is -0.003, and the associated z-value is -0.333. Moreover, non-financial benefit initiatives indicate negative correlation which is statistically significant. The β coefficient for non-financial benefit initiatives is -0.013, and the associated z-value is -2.199. All the control variables are positively related.

The analysis results for the influence of gender diversity on the relationship between green banking initiatives and financial performance of commercial banks are shown on the table, model III. The results show that gender diversity have no statistically significant effect on the financial performance of commercial banks. The regression coefficient for gender diversity and green cost efficiency initiatives (CEI*GD), which is negative and statistically insignificant (The β coefficient = -0.016, $p > 0.05$). Thus, the effect of gender diversity on the relationship between green cost efficiency initiatives and financial performance does not depend on gender diversity, although the effect of gender diversity on financial performance decreases by 1.6% as female membership increases by 1%. In addition, the interaction between green revenue initiatives and gender diversity yields significant negative correlation (The β coefficient = -0.046, $p < 0.05$). Thus, the effect of gender diversity on the relationship between green revenue growth and financial performance of commercial banks in Kenya depends on the gender diversity. In contrast, the interaction between gender diversity and non-financial benefits initiatives on the financial performance of commercial banks in Kenya exhibits significant

positive impact (The β coefficient = 0.084, $p < 0.05$), which can be translated to mean that a 1% increase in female board membership, increases the financial performance by 8.4%. The effect of control variables remains the same before and after introducing interactive term, except that BRG loses its significance. After the interaction, the adjusted R-square reduces by 0.01 percent, implying insignificant impact.

Table 4.9: Regression results

Variables	Model 1	Model II	Model III
Constant	0.007	-0.000	0.006
	(2.006)	(-0.133)	(1.523)
CEI	0.014	0.008	
	(2.133)	(1.207)	
CEI*GD			-0.016
			(-2.023)
GRI	-0.008	-0.003	**-0.3299*****
	(-0.950)	(-0.333)	(-2.8673)
GRI*GD			**-0.046****
			(-2.023)
NFBI	0.012	**-0.013****	-0.4411
	(2.042)	(2.199)	(-0.5942)
NFBI*GD			**0.084*****
			(4.186)
Control			
LEV		**6.33E-05*****	**0.002*****
		(3.089)	(3.367)

BGR		**0.000***	5.13E-05
		(.207)	(1.468)
BAGE		**0.005****	**0.003****
		(2.106)	(2.268)
R^2	0.20	0.29	0.28
Adjusted R^2	0.10	0.14	0.13
F-statistics	30.80***	48***	46***
Observations	180	180	180

This table reports the results of the effect of green banking initiatives on the financial performance of commercial banks in Kenya and the moderating effect of gender diversity performance. Notes: *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively (2-tailed) with *z*-statistics indicated in parentheses. CEI, GRI and NFBI refers to green cost efficiency initiatives, green revenue initiatives, and green non-financial benefits initiatives in that order. Detailed variable definitions and supporting literature are provided in Table 2.2.

Source: Processing results with EViews 12.0

Based on the regression results in table 4.9, the regression equation (Model I) can be formulated as follows.

$Yit = 0.007 + 0.014CEIit - 0.008GRIit + 0.012NFBIit$……………………………(I)

From the results of the regression equation above (Model I – without GBIs), it can be observed that the constant value is 0.007. This value indicates that the bank's return on assets variable has a value of 0.007 if other variables are considered constant. The green cost efficiency initiatives coefficient of ($CEIit$) 0.014 indicates that every increase in the green cost efficiency initiatives variable by 1% will increase the bank's ROA (Y) by 0.7%. The green revenue initiatives ($GRIit$) regression coefficient 0f -0.008 indicates that each increase in the green revenue initiatives by 1% will reduce the bank's ROA (Y) by 0.8%. The green non-financial

benefit initiatives coefficient of 0.012 shows that every increase by 1% will increase the bank's profitability by 1.2%.

In addition, the regression results in table 4.9, can be formulated as follows:

$$Yit = -0.000 + 0.008CEIit - 0.003GRIit - 0.013NFBIit + 0.005BAGEit + 0.000BGRit + 0.0000633LEVit \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(II)}.$$

From the results of the regression equation above (Model II – with GBIs), it can be observed that the constant value is -0.000. This value indicates that the bank's return on assets variable has a value of 0.000 if other variables are considered constant. The green cost efficiency initiatives coefficient of ($CEIit$) 0.008 indicates that every increase in the green cost efficiency initiatives variable by 1% will increase the bank's ROA (Y) by 0.8%. The green revenue initiatives ($GRIit$) regression coefficient 0f -0.003 indicates that each increase in the green revenue initiatives by 1% will reduce the bank's ROA (Y) by 0.3%. The green non-financial benefit initiatives coefficient of -0.013 shows that every increase by 1% will increase the bank's profitability by 1.3%. The bank's age coefficient of 0.005 indicates that every increase by 1% in bank's age will increase the bank's profitability by 0.5%. The bank's growth coefficient of 0.000 shows that every increase by 1% will not result in any change in bank's profitability. Finally, leverage coefficient of 0.0000633 means that every increase by 1% in leverage, will increase the bank's profitability by 0.00633.

Further, the results of the regression equation above (Model III), regression equation can be formulated as follows:

$$Yit = 0.006 - 0.016CEIit * GD - 0.046GRIit * GD + 0.084NFBIit * GD + 0.003BAGEit + 5.13\text{E} - 05BGRit + 0.002LEVit \ldots\ldots\ldots\ldots\ldots\ldots \text{(III)}$$

The results of the regression equation above (Model III – with GBIs and GD), show that the constant value is 0.006. This value indicates that the bank's return on assets variable has a value of 0.006 if other variables are considered constant. The interaction between green cost efficiency initiatives coefficient ($CEIit$) and gender diversity (GD) of -0.016 indicates that every increase in the variable by 1% will decrease the bank's ROA (Y) by 1.6 %. The interaction between green revenue initiatives ($GRIit$) and GD regression coefficient 0f -0.046 indicates that each increase in the variable by 1% will reduce the bank's ROA (Y) by 4.6 %.

Moreover, the interaction between green non-financial benefit initiatives and GD coefficient of 0.084 shows that every increase in the variable by 1% will increase the bank's profitability by 8.4%. The bank's age coefficient of 0.003 indicates that every increase by 1% in bank age will increase the bank's profitability by 0.3%. The bank's growth coefficient of 0.000051 shows that every increase by 1% will result in increase of bank's profitability by 0.0051%. Finally, leverage coefficient of 0.002 means that every increase by 1% in leverage, will increase the bank's profitability by 0.2%

Table 4.10: Summary of hypotheses testing

The results of the four hypotheses testing are presented in table 4.10 below. First, the association between green cost efficiency variable and the financial performance of commercial banks in Kenya produced insignificant value greater than the $\alpha = 0.05$. Thus, this implies that the first hypothesis is rejected. Next, the association between green revenue growth initiatives and financial performance of commercial banks in Kenya revealed insignificant value greater than the $\alpha = 0.05$, hence, it is rejected. Similarly, the association between green non-financial benefits initiatives and the financial performance of the commercial banks established a value less than the $\alpha = 0.05$ but with negative coefficient leading to its rejection. Finally, the interaction between gender diversity and green bank initiatives was partially supported.

Hypothesis	**Supported/unsupported**	**Evidence**
H_1: *There is a significant association between green cost-efficiency initiatives and the financial performance of commercial banks in Kenya.*	Unsupported	$\beta = 0.008$, $p > 0.05$.
H_2: *There is a significant positive correlation between green revenue growth initiatives and the financial performance of commercial banks in Kenya.*	Unsupported	$\beta = -0.003$, $p > 0.05$.
H_3: *There is a positive significant relationship between green non-financial benefits initiatives*	Unsupported	$\beta = -0.013$, $p < 0.05$.

and financial performance of commercial banks in Kenya.		
H_4: Gender diversity of banks' board of directors in Kenya positively moderate the association between green banking initiatives and financial performance.	Only NFBI supported	$\beta = 0.084$, $p < 0.05$.

Source: Author (2024)

4.7 Summary of the chapter

This chapter has presented the results of an investigation of the effect of green banking initiatives on the financial performance of commercial banks and the moderating role of gender diversity. Various diagnostic tests results were presented and the summary of hypotheses tested. The chapter concludes by providing a summary of the chapter.

CHAPTER FIVE
DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a discussion of the research findings as presented in chapter four. The aim of the study was to investigate the effect of green banking initiatives on financial performance of commercial banks in Kenya and the moderating role of gender diversity. The specific objectives of the study were to; establish the effect of green cost efficiency initiatives on financial performance of commercial banks in Kenya, investigate the effect of green revenue growth initiatives on financial performance of commercial banks in Kenya, determine the effect of green non-financial benefits initiatives on the financial performance of commercial banks in Kenya, and investigate the moderating effect of gender diversity on the relationship between green banking initiatives and financial performance of commercial banks in Kenya. The data collection period covered the years 2015 to 2023. The chapter is organized as follows: Section 5.2 provides a summary of findings, section 5.3 presents detailed discussion of findings, section 5.4 provides conclusions, section 5.5 provides for practical implications of research findings, section 5.6 is the contribution to knowledge, section 5.7 is the limitations of the study's findings and finally section 5.8 is the suggestion for further studies.

5.2 Summary of findings

Based on the study's findings, the green cost efficiency initiative had a positive but insignificant influence on the financial performance of commercial banks. The study's findings also revealed a negative but insignificant effect between green revenue initiatives and financial performance. Further, the result established a significant negative relationship between green non-financial benefits and financial performance. Finally, the interactive term (gender diversity) and green non-financial benefits banking initiatives were found to be positive and significant. In contrast, the interaction between green cost efficiency and gender diversity and the financial performance of banks was positive but insignificant. Moreover, the interaction between green revenue initiatives and gender diversity on the financial performance of commercial banks was negative and significant. All the control variables exhibited positive and significant relationships.

5.3 Discussion of findings

5.3.1 Green cost efficiency initiatives and financial performance

The results suggest that green cost efficiency initiatives and financial performance have a positive but insignificant relationship. This finding is consistent with the findings of Kartadjumena and Rodgers (2019) who argues that while the implementation of green banking initiatives contributes to enhanced financial performance over the long term, the associated benefits may not be realized in the short term. The results are inconsistent with the observation made by Friedman (2007) and Galbreath (2018), who argue that sustainability initiatives bring up costs hence reducing the profitability of the firm. The results are also contrary to the findings of Chen et al. (2018) who found that adopting green initiatives fosters environmental sustainability as well as positively impacting financial performance across different countries. Equally, Al Amosh and Khatib (2022) and Wahba (2008) contend that green banking initiatives may lead to enhanced financial performance. Moreover, Ilyas and Osiyevskyy (2022) finds a significant positive correlation between sustainable value proposition and financial performance of public companies in North America. This finding disapproves the proposition of Tripple bottom line theory that argued that green banking initiatives improves financial performance. This finding is not surprising especially in the wake of revelation of CBK regarding instances of "greenwashing" among commercial banks (Central Bank of Kenya [CBK], 2024_a) and climate risk disclosure for banks (Central Bank of Kenya [CBK], 2024_b), which undermines genuine climate action and restricts access to capital for legitimate sustainability initiatives that would otherwise help in improving the financial performance.

5.3.2 Green revenue growth initiatives and financial performance

Moreover, the research demonstrates insignificant negative relationship between green revenue initiatives and the financial performance of commercial banks in Kenya. These results are inconsistent with the findings of Bassen and Tan (2023), Bose, et al. (2021) and Chen et al. (2018) who established that revenue initiatives have significant positive influence on financial performance. The results do not support the argument of Tripple Bottom Line Theory. This finding is attributable to green washing as indicated by Central Bank of Kenya [CBK], 2024_a) and climate risk disclosure for banks (Central Bank of Kenya [CBK], 2024_b).

5.3.3 Green non-financial benefits initiatives and financial performance

Results also exhibited strong and significant negative correlation between green non-financial benefits initiatives and financial performance of commercial banks in Kenya. The result is contrary to the findings of Jan et al. (2019), Okumu's (2014) and Velte (2017) who established a positive relationship between green non-financial benefits and financial performance. It is likely that negative result could be attributable to green washing as indicated by Central Bank of Kenya [CBK], 2024_a) and climate risk disclosure for banks (Central Bank of Kenya [CBK], 2024_b). The finding does not support the Tripple Bottom Line and Stakeholders' theories proposition.

5.3.4 Green banking initiatives and financial performance: The role of gender diversity

The finding of the interactive term (gender diversity) on the relationship between green banking initiatives and financial performance of commercial banks is found to be positive and significant with non-financial benefit initiatives. In the contrary, the interaction between green cost efficiency and gender diversity on the financial performance of banks are positive but insignificant. Moreover, the interaction between green revenue initiatives and gender diversity on the financial performance of commercial banks is negative and significant. While the banking sector in Kenya have witnessed a rise in the number of women occupying leadership positions (KCB Group, 2021), this increase is not impactful probably because women board membership is not able to have their voices heard in the boardroom dominated by men. Despite this evidence, the interaction between gender diversity and green non -financial benefits initiatives demonstrated significant positive relationship with the financial performance of commercial banks in Kenya. The finding of positive and significant relationships is consistent with the finding of Jain and Jamali (2016). The finding is in line with the suggestion of stakeholder theory. This result act as impetus for the banks to pay special attention to women leadership to boost green banking initiatives.

5.4 Conclusion

The study tackled four specific objectives of the study. The first objective of the study was to investigate the effect of green cost efficiency initiatives on the financial performance of commercial banks in Kenya. Based on the study's findings, green cost efficiency positively influences financial performance, but the influence cannot be felt. The second objective was to analyze the influence of green revenue initiatives on the financial performance of commercial banks in Kenya. The study's findings revealed a negative but insignificant effect

on financial performance. The third objective was to evaluate the effect of green non-financial benefits on the financial performance of commercial banks in Kenya. The result established a negative significant relationship with financial performance. Finally, the fourth objective was to establish the effect of gender diversity on the relationship between green banking initiatives and the financial performance of commercial banks in Kenya. The finding of the interactive term (gender diversity) on the relationship between green banking initiatives and financial performance of commercial banks was found to be positive and significant with non-financial benefit initiatives. In the contrary, the interaction between green cost efficiency and gender diversity on the financial performance of banks were positive but insignificant. Moreover, the interaction between green revenue initiatives and gender diversity on the financial performance of commercial banks was negative and significant. The interaction between gender diversity and green non -financial benefits initiatives demonstrated significant positive relationship with the financial performance of commercial banks in Kenya.

5.5 Implication of research findings

All commercial banks should adopt initiatives that motivate their peers to enhance their efforts and productivity. Their organizational philosophies and green banking policies should incorporate principles that actively promote environmental sustainability.

5.5.1: Practical implications

Banks can establish green banking strategies and introduce eco-friendly products and services, promoting a sustainable and socially responsible approach to banking that is motivated by the potential for improved financial outcomes. In addition, regulatory bodies can formulate laws and guidelines centered on green banking, leveraging the findings of this study to encourage and reward environmentally responsible practices within the banking sector. Finally, the Central Bank of Kenya (CBK) can lead efforts to introduce new green banking products, meeting the growing demand for sustainable financial solutions by supporting and enabling innovative offerings such as environmentally friendly loans and green investment opportunities.

5.5.2 Research implications

The academics may benefit from the findings of this research as a base of future studies. To begin with, academics will be able to extend this study using secondary data when information becomes available in future. Additionally, the study adds to the relatively available literature

on green banking initiatives in general and specifically to developing country context like Kenya.

5.5.3: Social implications

The results of this study may be of interest to the community, as they suggest that banks can play a crucial role in environmental preservation. By developing green innovations, banks can help reduce greenhouse gas emissions, protect the environment, and enhance programs that minimize the environmental impact of corporate activities. Additionally, banks may opt to utilize renewable energy sources, which would contribute to both environmental welfare and social well-being.

5.6 Contribution to knowledge

This study contributes to knowledge in several ways. First, it is among the first few studies to be conducted after the introduction of the CBK guidelines on suitability reporting in 2021. Kenyan commercial banks are operating in an environment where legislation pertaining to the sustainability reporting has not yet matured and are still at the infancy stage. Secondly, it is among the few studies to be conducted in jurisdictions with no gender quotas. Thirdly, the study applied a wider concept of green initiatives encompassing green cost efficiency, green revenue initiatives and green non-financial benefits initiatives contrary to most of the prior studies. Finally, considering that most studies are cross-sectional, this study was carried out over longer period of time since green banking initiatives might require trend analysis in order to take into consideration changes over time.

5.7 Limitations

This study has three main limitations. First, the current study focused on the limited number of commercial banks due to unavailability of data on some variables. The limited scope restricts the generalizability of the findings regarding the impact of green banking on financial performance. Secondly, the variable investigated under green banking initiatives, may not provide a comprehensive analysis of the relationship between green banking and financial performance. Finally, the study relied primarily on quantitative methods and did not incorporate qualitative approaches. As a result, it lacks in-depth insights into practitioners' perspective and experiences regarding green banking practices within the banking sector.

5.8 Suggestion for Further Research.

Future studies should broaden their scope to include a wider range of banks and economic sectors, enabling a more comprehensive understanding of how green banking influences financial performance. Next, upcoming research should aim to expand the sample size beyond just twenty commercial banks and incorporate additional variables, allowing for a more thorough and representative analysis. Finally, further investigations could assess green banking practices through qualitative inquiry to understand the perspective of practitioners in the banking sector.

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APPENDIX A: GREEN BANKING INITIATIVES ITEMS

Panel A: Cost efficiency

No.	Statement
1.	Bank implements initiatives to reduce paper waste by promoting internal communication via email, utilizing double-sided printing, and encouraging paper recycling practices
2.	Bank undertakes measures to reduce water and gas wastage in its internal operations, such as the installation of water-saving taps, sensors, and other similar technologies.
3.	Bank adopts environmentally friendly materials and equipment as part of its sustainability efforts, including the use of a solar power system, the implementation of energy-saving bulbs to reduce electricity consumption, and the provision of online bank statements or statements via mobile messaging to minimize operational costs and environmental impact.
4.	Bank achieves cost savings on borrowed funds through the adoption of green activities, which enhance its sustainability profile and may lead to more favorable financing terms
5.	Bank reduces greenhouse gas (GHG) emissions by minimizing employee business travel and implementing other measures aimed at combating climate change, thereby reducing related environmental and operational costs.

Panel B: Revenue growth

No.	Statement
6.	Bank drives revenue growth by financing clients' projects that prioritize environmental considerations. This includes supporting eco-friendly initiatives such as renewable energy projects. Additionally, the bank monitors clients' environmental efforts, such as the implementation of recycling of waste, and green buildings, thereby fostering both financial and environmental sustainability.
7.	Bank attracts new clients by establishing a dedicated green banking unit at its head office, along with the development of green branches and other environmentally sustainable internal facilities to appeal to environmentally conscious clients.

8.	Introduction of various new green products, such as online banking, automated teller machines (ATMs) and mobile banking, and green loans increase revenue growth and reduce climate change.

Panel C: Non-financial benefits

No.	Statement
9.	The bank provides information on the development of its policies aimed at preserving the natural environment, reflecting its commitment to environmental sustainability. These policies include initiatives designed to address climate change, promote environmental awareness, and guide the bank's operations towards minimizing ecological impact.
10.	Creating images and augmenting reputations through sponsoring of facilities and different programs harmonious with the environment: restoring and preserving heritage buildings/structures and cash or non-cash contributions to beautify cities or villages, such as a tree plantation.
11.	Continuous commitment to environmental care through the establishment of a climate change fund.
12	Information about developing green marketing, such as “Plant a Tree, Save the Environment,” on the bank's letterhead and promoting green initiatives in other internal communication media.
13.	Engaging and empowering employees through internal training regarding the bank's green movement and programs, for example, education programs for bank employees regarding green banking activities.
14.	Increased commitment towards budget allocation for green practices.
15.	Ongoing bank's commitment regarding the actual amount spent on green banking activities.
16.	Bank’s initiatives and their engagement in building networks on the environmental and green issues, for example, memberships or relationships with “green” groups including government bodies, non-governmental organizations (NGOs).

17.	Information on bank's leadership role performed in potential client businesses and sharing information on risks associated with not taking care of environment before sanctioning financing facilities.
18.	Awareness building among internal and external stakeholders through organizing (or have a plan to organize soon), seminars, workshops, or training in order raise the environmental awareness of the country.
19.	Our bank has received awards and recognitions from various stakeholders, including the Central Bank of Kenya, in acknowledgment of its outstanding green performance, contributions to environmental improvements, and excellence in green reporting practices.
20.	Our bank's clients have received awards for their initiatives to preserve the natural environment, with the bank playing an active role as a co-partner in these projects.
21.	Commendation received for completeness of green banking information as required by the Central Bank of Kenya and appreciation received from other external stakeholders such as local and international medias, customers, and green groups.

Source: Adopted and modified from Bose et al. (2021).

APPENDIX B: POPULATION FRAME

1. Equity bank of Kenya
2. KCB Bank Kenya Ltd
3. Co-operative Bank of Kenya
4. NCBA Bank Kenya
5. Absa Bank Kenya Plc
6. Standard Chartered Bank Kenya Ltd
7. I & M Bank Ltd
8. Stanbic Bank Kenya Ltd
9. Bank of Baroda (Kenya) Limited
10. Citibank Kenya
11. Diamond Trust Bank Kenya Ltd
12. Bank of India
13. Family Bank Ltd
14. Prime Bank Ltd.
15. Guaranty Trust Bank
16. Sidian Bank Ltd.
17. Gulf African Bank Ltd.
18. Ecobank Kenya Ltd.
19. First Community Bank.
20. Habib AG Zurich.
21. Victoria Commercial Bank Limited.
22. Kingdom Bank Ltd
23. Bank of Africa (K) Ltd
24. SBM Bank Kenya Ltd
25. Credit Bank Ltd.
26. Paramount Bank Ltd.
27. Middle East Bank (K) Ltd.
28. Guardian Bank Ltd.
29. African Banking Corporation Ltd.
30. Access Bank Plc
31. Mayfair CIB Bank Ltd.
32. M-Oriental Commercial Bank Ltd.
33. Development Bank of Kenya.

34. Consolidated Bank of Kenya
35. HFC Ltd
36. DIB Bank of Kenya Ltd.
37. Spire Bank Limited
38. UBA Kenya Bank Ltd.

APPENDIX C: ETHICAL APPROVALS

Strathmore UNIVERSITY

25th April 2025

Ms Ndote Idah,
idah.ndote@strathmore.edu

Dear Ms Ndote,

RE: Effect of Green Banking Initiatives on Financial Performance of Commercial Banks in Kenya and the Moderating Role of Gender Diversity

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU- Masters** proposal. Your application reference number is **SU-ISERC2916/25.** The approval period is from **25th April 2025 to 24th April 2026.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
v. Clearance for the export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

Before commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and obtain other clearances needed.

Yours sincerely,

Mr Ambrose Rachier,
Chairperson; SU-ISERC