FACTORS INFLUENCING THE ADOPTION OF GREEN FINANCE: AMONG THE LISTED COMMERCIAL BANKS IN KENYA

BY

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Declaration

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

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ABSTRACT

Green Finance is a fairly new development in the finance discipline in Kenya. It involves financing of environmentally responsible investments that aim to promote conservation of natural resources and promote clean energy. Despite climate change effects, Commercial banks in Kenya have been seen to be slow in adopting green financing. Integrating green initiatives and responsible banking strategies is fundamental in enhancing banks' net results and progressing the pace of transformation to a green financial system which is vital for their survival in the coming days considering that most transactions are going digital and paperless. The main objective of this study is to examine the factors influencing the adoption of green finance in listed commercial banks in Kenya. This was guided by the following specific objectives; the first one was to analyze the outcome of government regulations on the adoption of green finance among the listed commercial banks in Kenya. The second specific objective analyzed the consequences of green innovative strategies on adoption of green finance among the listed commercial banks in Kenya. The third specific objective was to examine the effect of perceived customer green attitude and value on the adoption of green finance among the listed commercial banks in Kenya. The study targeted all the 11 listed commercial banks by the Nairobi Securities Exchange (NSE) while the unit of observation was 748 employees drawn from 187 branch managers and 561 staff members. The study through Krejci Morgan calculator sampled 379 employees proportionately distributed to each bank branch covered by the study. The study used Descriptive Cross sectional research design and used convenience sampling method to get key respondents. Structured questionnaires were applied to obtain primary data. To establish the degree of agreement on various responses, descriptive statistics was utilized. Multiple Linear Regression model was also used with the help of SPSS (Statistical Package for the Social Sciences) software to analyze quantitative data. The study established a positive relationship between government environmental regulations, green innovative strategies and customer perception and attitude and the adoption of green finance among the listed commercial banks in Kenya. The study recommended promotion of green finance through changes in the country's regulatory frameworks, harmonizing commercial bank financial incentives, and increasing green finance in the banking sector. Additionally, there is also a need for increased incentives for banks that actively engage in sustainable practices. Finally, there is a need to change customer perceptions on the value of green products and services offered by listed commercial banks, which has contributed to the bank developing more green products.

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LIST OF ABREVIATION

AFDB	African Development Bank
AUC	African Union Commission
CBK	Central Bank of Kenya
CEOs	Chief Executive Officers
Covid-19	Corona Virus Disease 2019
ESEA	Environmentally Sustainable Economic Activities
ESG	Environmental Social Governance
FDI	Foreign Direct Investment
FI	Finance Initiatives
GDP	Gross Domestic Product
GGFI	Global Green Finance Index
GHG	Greenhouse gas emissions
GOK	Government of Kenya
GRI	Global Reporting Initiatives
GRNN	General Regression Neural Network
G20	Group of 20 world's largest economies
HSBC	Hong Kong and Shanghai Banking Corporation
IFI	International Financial Institutions
INR	Indian Rupee
INDC	Intended Nationally Determined Contribution
IFC	International Finance Corporation
ITC	International Trade Centre
KCB	Kenya Commercial Bank
KCCWG	Kenya Climate Change Working Group
MEMR	Ministry of Environment and Management Resources
NEMA	National Environmental Management Authority
NGOs	Non-Governmental Organizations
OLS	Ordinary Least Squares
SACCOs	Savings and Credit Cooperative Organizations

SFI	Sustainable Finance Initiatives
SME	Small to Medium Enterprise
TCFD	Task Force on Climate Related Disclosures
UNDP	United Nations Development Program
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
UNEP FI	United Nations Environment Programme Finance Initiatives
UNEP SFI	United Nations Environment Programme Sustainable Finance Initiatives
UNFCCC	United Nations Framework Convention for Climate Change
UNPRI	United Nations-backed Principles for Responsible Investment
UN SDG	United Nations Sustainable Development Goals
USAID	United States Agency for International Development
USD	United States Dollar

DEFINITION OF TERMS

Climate Finance Involves making finance flow towards tackling climate change adaptation and mitigation. (Spinaci, 2021). It consists of local, national or transnational funding that supports remission and reconstruction actions that will address climate change through public, private and alternative sources of funds. (Introduction to climate finance, n.d.).

Green Banking Green banking involves banks improving their activities through employment of technology that is environmentally and socially friendly, reducing carbon footprints from their undertakings with the intention of protecting the current and later generations as well as offering green products considered as environmentally sustainable like green bonds, sustainable investment funds in form of green loans and mortgages, green credit cards, mobile and internet banking (Ramandeep, 2017; Zhelyazkova & Kitanov, 2015).

Sustainable Finance Sustainable finance involves inclusion of ESG - Environmental, social and governance - considerations into investment decisions, economic growth, and business policies for the public good that will generate positive impacts on society (Goel, et al. 2022).

CHAPTER ONE

INTRODICTION OF THE STUDY

1.1 Background to the Study

Green Finance may be described as "any investment vehicle or financial service including equity securities, debt instruments, commodity and derivatives market, insurance and analytical or risk assessment tools that brings sustainable benefits to the environment and society" (Bento et al., 2017). Jayathilake (2019) explains further that it is any organized financial mechanism, product, service or activity intended for better environmental impact. It is an assortment of green financing instruments used to promote climate friendly projects to alleviate the repercussions of climate change. Principally, green financing is the application of public funds, company/personal loans, and micro financing for environmental sustainability. Different projects and initiatives have been developed to either slow the effects of global warming or stop environmental degradation. Among these are green projects that are defined as projects that are meant to protect the environment or do not contribute to environmental degradation (Park & Kim, 2020).

As governments implement green projects across the world, financial institutions including commercial banks are crucial in achieving the environmental and development goals across the world (Park & Kim, 2020). Evidence from across the world indicates that banks are progressively making accessible eco-friendlier finance to support sustainable projects such as wind and solar farms, and to support businesses to move towards greener initiatives (Shire, 2020). Globally, there has been an increase in financial flows in support of sustainable environmental objectives.

African countries, just like other parts of the world need to put more effort in achieving green operations and environment as identified in the previous studies; effective policy, proper legal framework and prioritization of green financing is critical for the continent in achieving this goal. Commercial banks remain critical in green financing in the continent. In South Africa, Absa has structured financing for 46% of projects directed at the Renewable Independent Power Producer Program. Additionally, the International Finance Corporation (IFC), Absa Bank Ltd, have acquired approximately one hundred and fifty million to uphold Absa's forward-looking approach to enhance its climate finance strategies (Artacho, 2022).

A study by the National Treasury of South Africa (2022) sought to establish how to aid businesses, and financial market players in comprehending the resemblances and disparities between the European Union and the South African taxonomies to eventually promote continuous green financial flows across the border. The study through a comparative assessment approach evaluated the similarities and differences in green finance in the two regions. The study established that although both were keen on examining the contribution of financial institutions in green finance that the European Union approach emphasizes on green economic activities, they left out investment plans.

In Uganda Equity Bank, through its Equi-Green loan product has made available funding of green projects in the areas of transport, management of waste, smart agriculture, afforestation, water efficiency, green buildings, among others. While there is increased advocacy for green finance across different sectors pushing business and enterprises to adapt green operations, some lending institutions are giving emphasis on green initiative financing to increase voluntary compliance especially among the SMEs sectors. The bank has been increasing funding of awareness programs aimed at increasing knowledge of the pros of eco-friendly economy and motivating SMEs to embrace environmentally conscious activities that preserve the planet (Kiboga, 2022).

The Kenyan banks through Kenya Bankers Association first started sustainability journey in the year 2009 where there was a training of Kenya Bankers Association member banks (47 member banks as at the year 2024) on Sustainable Finance Initiatives. Kenya Bankers Association has been making more and more improvements through the years 2010 to 2020 through; sensitization and engagement of banks (2010-2012), encouraging banks adoption of sustainability agenda (2012), encouraging banks adoption of UNEP Sustainable Finance Initiatives (2013), Capacity building (2014), adoption of Sustainable Finance Initiatives guiding principles (2015), launch of green bond Kenya (2017), issue of first Green Bond in Kenya by Acorn Holdings (2019) and by the year 2020 there was certification of Sustainable Finance Initiatives e-learning program by the Kenya Institute of Bankers (KBA, 2015, 2020). In the year 2023, Kenya Bankers Association recognized 26 banks for advancing sustainable banking practices (KBA, 2023). In 2024, KBA adopted and improved a sustainability reporting template created by Deloitte as per IFRS S1 andS2 standards. The template would include banks' reporting on Scope 3 emissions which are indirect emissions including Green House

Gas emissions caused by banks' activities and hence help banks understand their environmental impact (KBA, 2024)

In 2013, several policies were formulated, including the National Climate Change Action Plan 2013–2017 (GOK & MEMR, 2013), Kenya's Climate Change Act and Climate Finance Policy 2016 (GoK, 2016b), and the National Climate Change Action Plan 2018–2022 (GOK, 2018), among others. According to UNEP (2016), the 2015 Paris Agreement defines Green Finance as the process of directing financial flows toward climate-resilient developments such as green businesses, technology, infrastructure, low greenhouse gas emissions, and carbon reduction while also creating job opportunities. In line with this, Kenya submitted its Intended Nationally Determined Contribution (INDC) to the United Nations Framework Convention on Climate Change (UNFCCC) in 2015 as part of its commitment to the Paris Agreement, outlining its new climate change action plan (Rydge, 2020; Ministry of Environment and Forestry, 2021).
Kenya's Intended Nationally Determined Contribution (INDC) Climate Action Plan is set to be implemented by 2030, aiming to achieve a 32% reduction in greenhouse gas emissions. The plan also targets a 10% tree cover across the country, a transition to a low-carbon economy, efficient transportation systems, sustainable waste management, water conservation, climate-smart agriculture, and enhanced renewable energy and resource efficiency (Ministry of Environment and Forestry, 2021).
Waiyaki (2022) indicates that banks are increasingly attempting to manage the climate crisis wave in dealing with the threats presented and lead the shift of businesses towards a low carbon, green economy through green financing. Through financing activities, banks indirectly impact economic activities, production, and business activities. The current trend of encouraging environmentally responsible activities has drawn banks to green financing (Julia & Kassim, 2016). A study by Kenya Bankers Association (KBA) 2023, indicated that 26 out of the 42 Commercial banks in Kenya had adapted green practices while another study by KBA (2024) on the Landscape of Sustainable Finance in Kenya's Banking Industry indicated that 42% of commercial banks are channeling their innovation efforts towards payments, clearing, and settlement services. Comparably, there are only 17% of commercial banks to date that have introduced targeted green financing products projected to represent between 2-20% of their portfolio (Global Center of Adoption ,2025).

Governments of democratic countries usually create policy frameworks that aid access to financing from financial markets as well as private investors. (Afzal, Rasoulinezhad and Malik,

2022). Lassance, Antonio. (2020); Adeniran et al. (2023) describes Government policy as a process or steps taken by the Government before achieving a goal on a particular topic to be made into laws, courses of action, funding priorities or regulations. Afzal, Rasoulinezhad and Malik, (2022) recommended the need for inclusion of green finance policies by policy makers and creating resilient institutions, to reduce environmental degradation in the future. A study by Akomea et al. (2021) suggested policy formulation for banks that could help managers and regulators to draft green finance policies that would consider all stakeholders' needs and at the same time positioning banks to have competitive advantage in the banking industry. Mooldijk and Lutkehermoller (2021) in their study on transforming the finance sector, they had suggestions for the public authorities on establishment of green bonds market successfully, they recommended provision of conducive regulatory framework creation by policy makers and offering financial incentives.

Additionally, the variables were developed from a study by Sossou and Moyeyegue (2024) that identified organization strategies and policy directives, legal factors and environmental interest among others as factors affecting adoption of green finance among banks and Devkota, Rai, Khanal and Paudel (2023) that also identified customer perception and awareness as critical influence on Green Banking Practices.

1.1.1 Factors Influencing adoption of Green Financing

In Germany findings reveal that government regulations and favorable policies on green finance significantly affected the adoption of green finance especially in financial sector (Schäfer, Henry, 2017). Furthermore, the adoption of green finance by commercial banks in China is projected to contribute to increased support green exports and international business and will be driven by strong green finance policies. It was projected that by Q3 2024, China's green borrowings reached 35.75 trillion yuan (approx. USD 4.9 trillion), a 19% increase from 2023 with these loans mostly by commercial banks represented 13.9% of total outstanding loans as much as the allocations going to green infrastructure and clean energy projects (Yue and Wang, 2024). In Bangladesh, Social, economic, and environmental factors were found to have a strong and positive effect on the adoption of green finance by banks at different levels (Zheng, Siddik, Masukujjaman and Fatema,2021).

Global Center of Adoption (2025) revealed that the adoption of green finance by banks is expected to be influenced by key factors, including robust support from senior management, strategically designed institutional frameworks, comprehensive capacity-building initiatives,

well-structured incentive policies, market expansion efforts, dedicated financial allocations for environmentally sustainable projects, and the progressive digital transformation of banking services in Dakar. Furthermore, the direct involvement of monetary and regulatory authorities, through the development of specific regulations that encourage financial institutions to adopt green finance, is essential. Advanced reforms under the Resilience and Sustainability Facility (RSF) in Rwanda would increase public investment efficiency in addition to favorable green financing policies by commercial banks would help catalyze additional green financing (IMF,2023).

Additionally, commercial banks are increasingly incorporating green financing policies, which involve channeling capital towards environmentally beneficial projects. Favorable policies are critical in intervening in other factors affecting the adoption of green finance in the country (Sossou and Moyeyegue,2024). This shift in policy that is critical as intervention measure is driven by a growing awareness of the environmental and social impact of traditional lending practices, as well as the potential for green investments to offer attractive returns(Oluoch, Aila and Okinda,2024). On the other hand, Odhengo *et al*. (2019) pointed out that the adoption of green financing policies is still shallow in Kenya compared to their industrialized counterparts.

Finally, while studies by Lefilef (2024), International Monetary Fund (2023) and Zheng, (2021) focused on Green Finance by financial Institutions and The Role of Green Finance were not based on factors affecting the adoption of green finance. Additionally, Osano and Gekara, (2018); CBK (2019); KCCWG, (2020); Odhengo et al. (2019); Mwanu, 2021; and Brown et al., 2022) that evaluated the various factors affecting implementation of green finance the studies were not specific on the factors affecting the adoption of green finance by commercial banks in Kenya, thereby presenting research that this study seeks to fill and comprises the aim of this study.

1.1.2 Kenya's Banking Sector

Presently, Kenya has 24 local privately owned and 15 international foreign owned commercial banks with branches across the country (KBA, 2022). This study's area of interest is 11 commercial banks in Kenya listed in the Nairobi Stock Exchange.

The Central Bank of Kenya (CBK) oversees the country's banking sector, enforcing regulations under the Banking Act, the Companies Act, and other CBK-issued directives. The regulator directs operations of all banks with a focus on fostering growth and ensuring robust monetary policy (Osano & Gekara, 2018).

Kenya has also been participating in various climate change conventions for capacity building; for example, Green Finance Conference in 2017: "Growing Africa Sustainably", ITC, (2017), the Central Bank of Kenya launch of Nairobi Stock Exchange listing rules to incorporate green bonds, CBK (2019), implementation of Climate Change Action plan, KCCWG, (2020), among others. The Government of Kenya has shown a strong political will to support climate action through policies formulated since the year 2013, trainings, and capacity building of line ministries, agencies, and private sectors but there is lack of transition from general awareness to detailed procedural applied capacity building (Odhengo et al., 2019). Teamwork between the National Government, County Governments, line ministries, Non-Governmental Organizations (NGOs) and the private sector would be required to encourage harmony between the climate response policies and the financial policies in order to encourage strict adherence to Kenya Climate Change targets and implement the green finance mechanisms and infrastructure (Odhengo et al., 2019).

1.2 Problem Statement

Banks are gradually providing firms and businesses with greater access to green finance to support environmentally friendly projects (Shire, 2020). While banks can be instrumental in enabling individuals and businesses to access funds for promoting eco-friendly activities, factors that influence the adoption of green financing come to effect. Sudhalakshmi and Chinnadorai (2014) contended that integrating environmental sustainability considerations within the banking sector is crucial for boosting banks' profit margin and progressing the pace of shifting to a green financial system which is vital for their survival in the coming days considering that most transactions are going digital and paperless. While there is global demand in the adoption of green financing by commercial banks in Kenya, not all banks have adopted green finance and there is need of identifying the factors affecting adoption of green finance among the listed commercial banks in Kenya (KBA,2023). Therefore, as green financing increasingly becomes important globally, commercial banks in Kenya must adopt green financing, if they are going to be as competitive as possible (KBA,2023).

In light of the following studies (Acemoglu et al., 2016; Aghion et al., 2016; Weber & Hurst, 2016; Volz, 2017; Mwanu, 2021; Tran et al., 2020; and Brown et al., 2022) reviewed, there exists some knowledge gap as to whether the Kenyan government policy has an influence on the adoption of green finance among the listed commercial banks in Kenya. The studies considered internal banking practices effects on green financing hence leaving a gap on other

factors like Government regulations and customer perceptions which this study sought to address.

Based on the studies Mangwa, I. M., & Jagongo, A. O. (2022); Sahitya & Lalwani, (2014); Shaumya & Arulrajah, (2016); Abu-Bakar et al., (2021); Rehman et al., (2021); Chen et al., (2022); Abuatwan, (2023); Liu & Serena, (2023) reviewed, there exists a knowledge gap as to whether the green innovative strategies have an effect on the adoption of green finance among the listed commercial banks in Kenya. Therefore, this research aims to address the knowledge disparity in the context of listed banks in Kenya to increase their level of investments on the green innovative strategies across all their branches in Kenya and in other countries since it will have a significant impact in reducing pollution and protecting the green ecosystem all over Kenya and in other countries.

Based on the reviewed studies Khairy, Elzek, Aliane & Agina, (2023); Ha, (2017); Riva, Magrizos, Rubel & Rizomyliotis, (2022); Han & Kim, (2019); Tang, Rasool, Khan & Khan, (2022); Geiger, Fischer & Schrader, (2018), a knowledge gap exists regarding whether perceived customer green attitude and value influence the adoption of green finance among listed banks in Kenya. This research seeks to bridge this gap through a comprehensive examination of how banks can align their products and services with customers' green values, thereby enhancing environmental sustainability while increasing market share.

While previous studies have explored the effects of government policy, green innovative strategies, and perceived customer perception, they have not comprehensively examined the key factors driving green finance adoption among listed commercial banks in Kenya. The presence of both contextual and content gaps highlights the need for further investigation. Accordingly, this study seeks to establish the factors influencing the adoption of green finance within Kenya’s commercial banking sector.

1.3 Research Objectives

The general objective of this study is to examine the factors influencing the adoption of green finance among listed commercial banks in Kenya. The study aims to achieve the following specific objectives:

i. To assess the impact of government environmental regulations on the adoption of green finance among listed commercial banks in Kenya.

ii. To analyze how green innovative strategies influence the adoption of green finance among listed commercial banks in Kenya.

iii. To evaluate the role of customer perception in the adoption of green finance among listed commercial banks in Kenya.

1.4 Research Questions

The following research questions guided the study:

i. What is the effect of the government environmental regulations on adopting green finance among the listed commercial banks in Kenya?
ii. How do innovative green strategies affect the adoption of green finance among listed commercial banks in Kenya?
iii. What is the effect of customer perception on green finance and the value of adopting green finance among the listed commercial banks in Kenya?

1.5 Scope of the Study

This research only focused on the listed commercial banks in Kenya instead of other organizations in other sectors because according to Sudhalakshmi and Chinnadorai (2014), integrating environmental sustainability considerations within the banking sector is crucial for boosting the banks' financial outcome and progressing the pace of shifting to a green financial system. This was vital for their survival in the coming days considering that most of the transactions are going digital and paperless. The unit of analysis was the 11 listed commercial banks in Kenya. The scope of the data collection tools used was limited to structured questionnaires and annual reports. The target population was limited to 752 employees comprising 188 branch managers and 564 staff members.

The study was conducted with the aim of understanding the evolution of green finance in Kenya focusing on three green factors since a gap exists with regard to how they influence green finance. They comprised government policy, prioritization of green financing by financial institutions together with perceived customer green attitude and value. Besides that, the study only covered how the green determinants are influencing green finance among the listed commercial banks in Kenya. Aspects such as bank size, green product innovation, sustainability performance were not covered since they are not under the scope of this study.

The study period for data collection was four months from September to December 2024 through persistent visiting of the banks under study to ensure the questionnaires were filled. The secondary data was mostly obtained from the CBK website, Capital Markets Authority website, Kenya Bankers Association Website and the Nairobi Stock Exchange website.

1.6 Significance of the Study

The study findings will help in in identifying necessary policies that can help regulators such as the Central Banks in Kenya, The Kenya Bankers Association necessary in providing oversight and guidelines in heightening the adaptation of the green finance. This research can be valuable to the Ministry of Finance, oversight agencies and legislators who are lawmakers who have the power to make decisions affecting the country's sustainability plans. Additionally, the findings will contribute to the government's efforts in formulating policy frameworks and regulations that will ultimately help mitigate the impacts of climate change.

The Financial Institutions and especially the commercial banks in Kenya that are critical in creating a link green finance. The commercial banks will develop internal policies that can help them in developing initiatives that promote green finance and support profitable projects and investments. The findings will also help in establishing how commercial banks can optimize profits through funding clients and supporting economically beneficial green projects across all sectors.

The findings are also expected to contribute to existing knowledge in the factors influencing the adoption of green finance among the listed commercial banks in Kenya, particularly in terms of how it can fill empirical and contextual gaps. The findings of this study may aid in the development of published studies and empirical insights that may contribute to future scholarly inquiries. This study is expected to not only offer fresh insights but also stimulate renewed discourse and inspire further research on the factors shaping adoption of green finance among the listed commercial banks in Kenya.

1.7 Chapter Summary

This section encompassed the study's outset, including the introduction, problem statement, research objective and questions, and the study's scope. Additionally, it outlined the significance of the study for different interested parties.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter commences with discussion of theories that provide a basis for the study. It presents investigations that have been undertaken to establish the elements affecting the implementation of green finance within different organizational set-ups. Then it explores the existing gaps the study seeks to bridge, the conceptual framework showing the relationship between the proposed variables and how they are expected to be operationalized.

2.2 Theoretical Review

The chapter presents three theories linked to environmental sustainability and how they underpin the objectives of the study. They comprise of the Triple Bottom Line theory, the Institutional theory and the Resource Based View theory.

2.2.1 Triple Bottom Line Theory

The Triple Bottom Line was first presented by John Elkington in 1994 who was the pioneer of a British consultancy known as Sustainability (Ifeanyi, Azubike & Iormbagah, 2020). The Triple Bottom Line (TBL) theory argues that companies should equally prioritize social and environmental concerns alongside profits (Kenton, Boyle & Kvilhaug, 2023). TBL theory asserts that rather than a single bottom line, there should be three: profit (economic line), people (social line), and the planet (environmental line) (Kenton et al., 2023). The Triple Bottom Line (TBL) theory aims to measure a company's dedication to sustainable business practices and its long-term environmental impact (Kenton et al., 2023). The economic aspect of the Triple Bottom Line (TBL) theory pertains to the influence of the organization's business approaches on the economic structure (Arowoshegbe & Uniamikogbo, 2016). It relates to the economy's ability as a sustainability subsystem to thrive and advance to sustain future generations (Spangenberg, 2005). The economic trajectory connects the growth of the organization's expansion to the overall economy's growth and its contribution to sustaining it (Arowoshegbe and Uniamikogbo, 2016).

Kabbera, Tibaingana and Kiwala (2024) examined Triple bottom line practices and its application in the growth agro-processing enterprises in Uganda. The findings of the study showed that the combined TBL practices significantly boost agro-processing SMEs' growth while another study also established that companies which are motivated with the idea of the 3

concepts are able combine skillfully with the company's responsibility function taking into account the environment, social and economic factors.

The social aspect pertains to community and employee elements who are beneficiaries of the business undertakings (Nogueira, Gomes & Lopes, 2022). It creates a moral code of conduct concerning social responsibility, safety and health standards together with professionalism for the longevity of humanity (Nogueira et al., 2022). Finally, the environmental aspect involves approaches that safeguard environmental resources for the next generations (Ifeanyi et al., 2020). Sustainable development is regarded as progression that addresses current needs without jeopardizing the capacity of next generations from fulfilling their own requisites (Ifeanyi et al., 2020). It concerns optimization of energy resources, mitigating greenhouse gas emissions, and reducing the ecological impact, etc. (Goel, 2010). There have been various studies (Mwanu, 2021; Rahman & Perves, 2016; Chen, Siddik, Zheng, Masukujjaman & Bekhzad, 2022; Khairy, Elzek, Aliane & Agina, 2023) that have supported the TBL theory. Mwanu (2021) observed that most commercial banks in Kenya are adopting green financing for sustainability and financial development, since the government license requirements demand for them to promote green financing in order to operate.

Norman and MacDonald (2004) a critique of TBL perceived it as inherently ambiguous due to its failure to effectively convey its precise meaning while another critique Dixit and Srivastava (2022) criticized TBL by revealing that this philosophy lacks a foundation in an authentic concept, nothing innovative or groundbreaking, it merely elaborates pre-existing notion of corporate social responsibility (CSR) and a acts as a tool for measuring sustainability. Additionally, the TBL approach lacks integration (Sridhar and Jones,2019).

This means that most financial institutions in Kenya have been commandeered not only to always focus on making profits but ensure that the products and services they are offering are environmentally friendly and do not cause any harm to the consumers so that they can create a good image about the given financial institutions (Alhaddi, 2015; Mwanu, 2021). Besides that, Rahman and Perves (2016) observed that pressure from the government through regulations for banks in Bangladesh to embrace Economic Corporate Social Responsibility in has forced them to embark on extensive green banking activities in order to be sustainable. In addition, Chen, Siddik, Zheng, Masukujjaman and Bekhzad (2022) have prioritized on green banking practices (environmental line) in order to boost environmental sustainability and create a good

image (social line) in the Bangladesh society so that the banks can continue making increased profits which in turn will boost the economy of the country (economic line).

The theory provides a foundation for this study since based on the first objective it seeks to establish if the listed commercial banks in Kenya have fully embraced the Kenyan government environmental regulations regarding embracing green banking in their operations through increased green financing adoption besides just making profits. This is because the first specific objective is to analyze the impact of Kenyan government environmental regulations on the adoption of green finance among listed commercial banks in Kenya. Besides, the second objective seeks to establish if the listed commercial banks in Kenya strategizes on green financing initiatives such as decreasing on paper use, lowering energy usage and developing green infrastructures to enhance environmental sustainability in order to create a good image among Kenyans besides just being profit oriented. This is considering that our second specific objective is to assess the outcome of green innovative strategies on the adoption of green finance among the listed commercial banks in Kenya.

2.2.2 Institutional Theory

The proponent of this theory was Scott (1995) and there after expounded in 2008. The theory anchors on deep and more robust elements of social structure (Kimuli, 2023). The theory focuses on steps followed in coming up with systems and models like cognitive models, guidelines, culture and practices and how they get adopted as guiding principles of people's social behaviours (Kimuli, 2023). Scott (1995) views institutional theory as intellectual; derived from norms, regulatory structure and processes that enhance reliability and sense to social conduct. Kraft and Scott (2007) connects the theory with policy making which guides lawful and prescribed aspects of authority. The key tenets of institutional theory are based on coherent myths and legitimacy (Scott, 2008). The theory emphasizes the connection between an organization and the contextual settings they are operating (Scott, 2008).

Greenwood and Hinnin (1996) notes that the environment which manufacturing firms are operating in calls for environmental mindfulness in response to market and institution forces which boast efforts for firms to go green. The institution theory values the involvement of organization actors who are guided by rules to justify any activity or strategy they take (Schoenberg et al., 2013). Institutional theory lays its basis on firms attaining continuous competitive edge, established regulations, standards and values need to be suitable and

accountable. This can be driven by ethical cultural entities that motivate such conduct through incentives (Oliver, 1997).

According to Quazi and O'Brien (2000), the culture of an industry determines industry positioning besides that industry position determines how firm should be perceived by public and level at which it should be scrutinized depending on public, government and competitive dynamics of the sector. Companies are more likely to engage in research and development when they build credibility by meeting stakeholder demands for eco-friendly practices aiming to reap the benefits of proactive social initiatives (Quazi & O'Brien, 2000). There have been some studies (Tran, DO, Vu & Do, 2020; Brown et al., 2020; Khairy et al., 2023) which have supported the institutional theory. Tran et al. (2020) observed that that increased government support in assisting the firms to access funding for green investment subsequently improves green financing initiatives among the Vietnamese firms. Brown et al. (2022) observed that governmental environment policies pressurizing firms to reduce pollution or face penalties in terms of high pollution taxes, will force non-US firms across all sectors to abide with those policies and adopt green financing. Khairy et al. (2023) noted that increased perceptions of customers to consider green value in the commodities and amenities provided in Egypt has made organizations in the hospitality and tourism sector to invest in green financing.

This theory has also faced criticism, particularly for its departure from organizations (Greenwood et al., 2014) and lack of clarity through conflicting and inconsistent interpretations of key terms used by institutional theorists (Alvesson & Spicer, 2018; Greenwood, Oliver, Sahlin, & Suddaby, 2008; Lawrence, Suddaby, & Leca, 2009).

This theory in relation to this research shows that a lot of demand from numerous consumers and regulatory bodies to go green has forced several organizations to revamp their systems and processes to align with sustainability goals. To attain sustainable competitive advantage, organizations need to reconfigure their structures to embrace values that propel their firms towards going green innovation in line with regulatory institutions. Therefore, the study based on the first specific objective seeks to establish if government policies through Kenyan regulatory systems has pressurized listed commercial banks just like other firms to go green and attain sustained competitive advantage by consistently investing part of their returns to green financing. Besides that, the study based on the third specific objective seeks to establish if due to pressure from many customers by reconfiguring their perceptions to view green firms

as good and responsible institutions that they can do business with has forced the listed banks in Kenya to go green and adopt consistent green financing to be environmentally sustainable.

This study is informed by coercive pressure where banks tend to change their practices based on Government regulations put forward through the Central Bank of Kenya for example climate related risk management reporting (CBK,2021) as well as Kenya Bankers Association push through initiatives and reporting requirements like the Scope 3 emission reporting (KBA, 2024). For listed organizations including the banks in Kenya, the Nairobi Securities Exchange (NSE) under its sustainable environmental regulations it formulated in 2021 requires all the listed firms to publicly report their ESG (Environmental, Social and Governance) performance at least every year (NSE, 2021).

2.2.3 Resource Based View

The earliest research scholar who developed the Resource Based View (RBV) was Penrose (1959). The theoretical model was later comprehensively refined by Wernefelt (1984) and profoundly advanced by Barney (1991). The theory denotes the identifying and orchestrating of essential resources sourced from within or outside the company, physical or non-physical, and ultimate implementation to reach company ambitions to outpace competitors (Seriki, 2023). The RBV emphasizes the use and management of resources, which fosters the creation of resource-based skills and ultimately results in competitive edge (Prior & Glaser, 2003). According to the theory, for a firm to obtain a competitive edge against its competitors then its resources must be very valuable to its customers and to its general stakeholders, they also have to be rare in terms of being not easily acquired by multiple companies and they must not be easily imitable or substitutable (Gordon, 2023). Finally, they need to be completely unique and different from what the other firms are offering in the market (Gordon, 2023). Capabilities are noted to be key ingredients in stimulating firm resources to conduct their operations, refresh their stature and grow their wellbeing (Kimuli, 2023).

When companies possess unique resources and special competencies, they tactically adapt to their surroundings and changes thereby ensuring successful strategy implementation (Slotegraaf, Moorman, & Inman, 2003). It is crucial to ensure coherence between strategy and surrounding context (Venkatraman & Prescott, 1990). To stay pertinent, a green innovative strategy must be effectively synchronized with ecological considerations and market demands as well as established regulatory structures (Kimuli, 2023). To manage environmental

challenges caused by firms, it is necessary to have specialized unique and distinct resources to address them (Fraj, Martinez & Matute, 2011). There is need for wisdom when operating in a volatile market environment which is elicited by variance in consumption patterns, preferences and taste (Fraj et al., 2011). The changes in the industry structure calls for proper reconfiguring of resources to maintain firm competitiveness (Teece *et al.,* 1997).

There have been some studies (Shaumya & Arulrajah, 2016; Sahitya & Lalwani, 2014; Khairy et al., 2023) which have supported the RBV theory. Shaumya and Arulrajah (2016) observed that banks build a sustained competitive advantage in the market by promoting environmental sustainability through prioritizing their resources to develop green buildings, manage waste and finance green projects. Another study carried out by Sahitya and Lalwani (2014) observed that Indian banks were obtaining a sustained competitive edge in the market by increasing their level of environmental sustainability through paperless banking and using solar energy sources in their ATMs. Khairy et al. (2023) observed that firms in the hospitality industry that creates pro-environmental outlook and value in the minds of their customers in Egypt boosted their customer loyalty and environmental sustainability in a way that provided them an advantage against their competitors.

Critics of this theory state that the RBV is static and does not address how organizational activities affect resource effectiveness over time, the RBV assumes that only internal factors are important for driving competitive advantage, but external factors may also be important and that the RBV implies infinite regress, which is only a problem for those who view management as a quest for certainty (Lockett *et al.* 2009; and Priem & Butler,2001). Additionally, critics argue that the definition of resource is unworkable, the RBV assumes that resources simply exist, without considering how they are acquired or developed and that he RBV's core proposition results in an Epistemological Impossibility Problem that makes it impossible to use the scientific method in RBV research.

This theory is applicable to the second and third specific objectives in this research. With the second specific objective, the study seeks to investigate if green innovative strategies can be a unique and rare strategic resource for the listed banks in Kenya to achieve a competitive edge in the banking field. With the third specific objective of this research which seeks to find out if the perception and attitude on green banking initiatives carried out by the listed banks in Kenya. Additionally, the perception and the attitude that customers have on green finance has

become critical in the adoption of the listed banks in Kenya and help the commercial banks achieve their competitive edge in the banking market.

2.3 Empirical Literature Review

This segment provides the scrutiny and relevant literature that have attempted to establish how the Kenyan government environmental regulations, prioritization on green financing and the perceived customer green attitude and value have influenced the adoption of green finance.

2.3.1 Effects of the Kenyan Government Environmental Regulations on the adoption of Green Finance in Kenya.

The research aimed to ascertain the impact of the Kenyan Government Environmental Regulations on the Adoption of Green Finance. Volz (2017) evaluated the impacts of regulations on the Adoption of Green Finance. Another study by Brown, Martinsson & Thomann (2022) also established a relationship between regulations on the Adoption of Green Finance. Another study by Mwanu (2021) evaluated the impacts of government environmental regulations on the adoption of green finance but focused only on banking practices. The study found an association between the Kenyan government environmental regulations and the adoption of green finance. On the other hand, there are some regulations developed under The Draft National Green Incentives Policy Bill by the government of Kenya through the National Treasury and Economic Planning in 2022 (The National Treasury & Economic Planning, 2023). The first policy regulation involves establishing a green investment bank to provide funding for organizations in Kenya, helping them overcome financial barriers to making green investments (The National Treasury & Economic Planning, 2023). Besides that, the bill proposes carbon taxation that will motivate all institutions including banks in Kenya to reduce GHG emissions (The National Treasury & Economic Planning, 2023).

Evidence also indicated that banks should adopt sustainable finance principles that are customer centric in terms of ensuring that their business practices are not harmful to the environment or the health of their customers (CBK, 2021). Besides that, CBK requires that any strategy formulated or implemented by the banks in Kenya should be embedded on climatic considerations (CBK, 2021). For listed organizations including the banks in Kenya, the Nairobi Securities Exchange (NSE) under its sustainable environmental regulations it formulated in 2021 requires all the listed firms to publicly report their ESG (Environmental, Social and Governance) performance at least every year (NSE, 2021). The NSE also requires the listed

firms to adopt reporting standards, its principles and compilation and report of all key environmental matters (NSE, 2021). Finally, the African Development Bank Group (AfDB) have developed some initiatives that have been replicated in the Kenyan banking industry (African Development Bank Group, 2023). The first initiative is the promotion of low-carbon products and services among the banks, the second initiative is the adaptation of banking processes to climate change, the third one is creating enabling environments for climate actions and finally, leveraging climate finance for green growth (African Development Bank Group, 2023).

Though there are specific Kenyan government environmental regulations based on the literature reviewed (African Development Bank Group, 2023; NSE, 2021; CBK, 2021; The National Treasury & Economic Planning, 2023) that are supposed to be effectively implemented by the listed banks in Kenya for enhancing their sustainability, there exists limited literature about how they influence the adoption of green finance. On the flipside there have been some studies (Tran et al., 2020; Rahman & Perves, 2016; Nabi *et al.,* 2016; Mahmud et al., 2017; Volz (2017; Brown et al., 2022; Weber & Hurst, 2016; Mwanu, 2021) which have been conducted to generally show how government policy regulations influence the adoption of green finance.

Tran, Do, Vu and Do (2020) sought to establish factors influencing sustainable green financing among Vietnamese firms operating across every sector of the economy. The study operationalized government policy operationalized in terms support in assisting the firms to access funding for green investment. Questionnaires were used to collect data but before then, an experimental test was conducted to evaluate its quality. The study targeted 300 businesses that are members of VCCI. Exploratory Factor Analysis (EFA) was used in grouping the variables affecting the green financing and then multiple linear regression analysis was conducted through the STATA software. The conclusions observed that increased government support in assisting the firms to access funding for green investment subsequently improves green financing initiatives among the Vietnamese firms. The results specifically observed that the Vietnamese government has a full range of regulations and supporting policies for firms to access green funding, it also provides special incentives for green investment and has policies encouraging diversification of access capital sources (Investment Funds, Banks etc.).

Another study by Brown, Martinsson and Thomann (2022) aimed to determine the impact of government environmental policies on green financing adoption among non-US firms. Environmental policies involved the implementation of high pollution taxes on polluting companies. While the adoption of green financing was assessed in terms of level of financial investment in research and development activities aimed at identifying strategies the firm can employ to reduce pollution during its business operations. The study built its sample from the Compustat Global and North America databases and focused on companies outside United States with fully consolidated financial statements and the study's specialization was the production domain. The study integrated the data at firm level from Compustat containing details of air pollution taxes for eighteen OECD countries. The study also collected details of levied on emission of sulfoxides (SO_x) from the Policy Instruments for the Environment (PINE) Database and the Environmental Stringency Index Dataset. Ordinary Least Square (OLS) regression model was utilized to ascertain the causal interconnection between study variables. The findings observed that manufacturing emissions were subjected to higher pollution taxes which resulted to huge spending in R&D in identifying innovative approaches to reduce pollution.

Martin and Van-Reenen (2016) carried out a study on the association between taxes reduction of carbon emission among manufacturing companies. The study observed that elevated fuel prices with tax included and increased taxes to industries manufacturing pollutant products consequently motivates the organizations to invest in green and clean production processes through research and development. Government frameworks that motivate companies to embrace cleaner production technologies can help to reduce climate change impacts and other environmental issues without substantially impeding economic growth in the long term (Acemoglu, Aghion, Bursztyn & Hemous, 2012).

On the other hand, Mwanu (2021) aimed to ascertain the impact of banking practices on the adoption of green financing among Kenyan commercial banks. Cross-sectional research design and a sample of 41 Kenyan commercial banks as the study's unit of analysis. The focal point of analysis included 3 top level managers in the banks with census sampling employed and questionnaires drop-and-pick method adopted. Descriptive and multiple linear regression analysis techniques were applied. The study found a correlation between banking regulations and the adoption of green finance among commercial banks in Kenya.

Green financing makes the banks more accountable for their operations in terms of curbing environmental contamination and avoiding being at logger heads with the government regulatory bodies (Drexhage & Murphy, 2010). Mwanu (2021) through descriptive studies that used questionnaire, the study through regression analysis established an unstandardized beta coefficient of 0.370 and a *p*-value ranging $0.000 < 0.05$. The research ascertained that banking regulations consisting of license requirements demanded from the commercial banks to promote green financing and the provision of prudent guidelines by the Central Bank of Kenya and the Capital Markets Authority guiding the banks on green finance development have contributed significantly to the increase of green financing investments by the banks. The findings concurred with Rahman and Perves (2016) in Bangladesh that regulations in the banking industry considerably improves the implementation of green banking activities.

Additionally, the outcome of the study concurred with Nabi, Khan, Islam and Uddin (2016) who observed that regulatory policy updates encouraging digitalization of banking operations has considerably increased the incorporation of environmentally friendly products in the bank's operations. This could explain why most banks have heavily invested in paperless banking, reduction of carbon footprint, provision of green mortgages together with green money market instruments and decorating the workplace with green technology (Islam & Das, 2013).

Another study by Weber and Hurst (2016) based their study on Chinese Green Credit Policy goal of mitigating the financial institutions' financial risk and to grow the profitability of lenders as well as the interaction between the sustainability and profitability of Chinese banks. The analysis by means of regression analysis was carried out using financial indicators of return on assets, total assets, return on equity, net profit, nonperforming loan ratio, together with green banking products and services in available and other indicators like sustainable banking policies as indicators of sustainability performance. The results confirmed that there was an interconnection between profitability indicators and sustainability outcomes in Chinese banks. The results advised that the financial sector sustainability regulations like the Green Credit Policy influences Chinese banks to include environmental and social issues into their corporate strategies, products and services through green financing initiatives. The results matched with the research findings noted by Mahmud, Biswas and Islam (2017) together with Volz (2017) that the implementation of regulations fostering environmental awareness, provision of tax breaks, subsidies and penalties pushes the banks to invest in green financing.

While the studies that include Brown *et al* (2022); Mwanu (2021) ;(CBK, 2021); Tran, Do, Vu and Do (2020); and Brown *et al* (2022) focused on Government Environmental Regulations and how it affected Green Finance the studies did not cover the effect of Kenyan Government Environmental Regulations on Green Finance in Kenya. Additionally, some of the studies did not employ descriptive studies and therefore this study seeks to establish the factors that affect the adoption of green finance by commercial banks in Kenya.

A study by Afzal, Rasoulinezhad and Malik (2022) analyzed green funding and eco-friendly development focusing on 40 countries in Europe. The research, by means of regression analysis, established a correlation between green financing and sustainable development. The study advised on effective policy development in green finance policies and strong financial institution capabilities to support green finance initiatives with an aim of lowering environmental degradation in the long run. Tran, Do, Vu and Do (2022) found that government policies in Vietnam that assist firms to access green funding has made the Vietnamese firms to consistently adopt green finance.

Additionally, Brown, Martinsson and Thomann (2022) observed that most of the non-US firms operating in North America have highly adopted green financing due to fear of being victims to high pollution taxes. Besides that, Chen, Siddik, Zheng, Masukujjaman and Bekhzad (2022) observed that private commercial banks in Bangladesh have highly adopted green finance due to prioritizing on green banking practices. Another study conducted by Xue, Ma and Zhuang (2023) in China used a perspective review analysis and horizontal comparison to assess the expansion of green investment in China. The study found that green finance is a crucial and effective tool that has been prioritized in legislative processes across many nations and integrated into efforts to achieve carbon neutrality. It emphasized that China needs to refine its green finance system and establish a more adaptable policy framework, along with a clear timetable and pathway, to enhance the modernization of governance systems and capacities for supporting international green finance collaboration.

2.3.2 Contributions of Green Innovative Strategies on the adoption of Green Finance by commercial banks in Kenya.

Chen, Siddik, Zheng, Masukujjaman, and Bekhzad (2022) investigated the influence of various green banking (GB) practices on green financing in private commercial banks in Bangladesh. These practices included environmentally focused procedures for employees, operational sustainability measures within banks, and customer-driven green policies. The study utilized a survey approach to gather primary data from a cross-sectional sample of 322 employees working in private commercial banks. Structural equation modelling (SEM) was used to check

the correlation among the variables observed. The research outcome signaled that bank staff, daily procedures, and policies in relation to green banking have notably impressive implications on green financing. The findings agreed with Rehman, Ullah, Afridi, Ullah, Zeeshan, Hussain and Rahman (2021) who evaluated the prioritization of the green finance that sought to the prioritization of monetary investments on cutting down usage of paper, cutting down energy usage and minimizing fuel usage/emissions boosts the bank's green projects in Pakistan. The study used descriptive study and used primary data to evaluate the extent of green finance prioritization. The study established that banks in Pakistan prioritized green projects. The conclusion of the study also affirmed what Shaumya and Arulrajah (2016) observed; that banks promote environmental sustainability when they prioritize on the provision of finances for sustainable projects, development of green buildings and conduction of environmental training programmes on its employees. Banks are prioritizing green financing for sustainable waste management, both solid and liquid, environmentally friendly establishment, eco-friendly brick production, industrial hazard prevention and renewable energy since it guarantees them sustainable economic growth (Akter, Siddik & Mondal, 2018; Hoque, Mowla, Uddin, Mamun & Uddin, 2019).

Another study by Mwanu (2021) attempted to ascertain the role of banking policies prioritizing on green technology on the adoption of green financing among the commercial banks in Kenya. These banking policies consisted of social risk management policies, environmental risk management policies and development of a mandate to advance and encourage transition towards sustainable products and services. The focal point of analysis was 41 commercial banks operating in Kenya, the respondents being three top level managers within the banks and using positivism research philosophy. The respondents were sampled through census sampling. The study employed the drop-and-pick method which constituted collecting questionnaires that served as the primary data collection instrument for the study.

Analysis involved the use of descriptive and multiple linear regression analysis techniques. The study through regression analysis establishes an unstandardized beta coefficient of 0.702 and $0.000 < 0.05$ being *p*-value. The study observed social risk control policies, environmental risk management policies and development of a mandate to steer the integration of sustainable products and services by the commercial banks in Kenya considerably boosts the adoption of green financing.

Sahitya and Lalwani (2014) evaluated green banking in India. The research paper used situational analysis to analyze the extent to which banks in India had adopted green finance. The study focused on the Indian banking industry and through content analysis established that banks were putting forth considerable effort on promoting green banking, through paperless banking and also using solar energy sources in ATMs thus boosting their level of sustainability due to increased adoption of green financing. The conclusions were consistent with the analysis done by Mwanu (2021), Chen et al. (2022), Afridi et al. (2021) together with Shaumya and Arulrajah (2016).

On the other hand, Abuatwan (2023) sought to establish how prioritization of green financing affects the sustainable performance of Palestine banking institutions. Green financing was operationalized in terms of mitigating the release of greenhouse gases from banking operations, waste recycling, production of few wastes, improvement of banks' reputation, provision of better customer satisfaction and reduction in overall pollution risk. Sustainability performance was assessed in terms of decreased paper usage, increased adoption of green finances to improve the bank's compliance with the environmental standards, reduction of operational expenditure and increase of revenue and market share due to green financing. The descriptive study used questionnaires to compile data with a sample size of 104 credit managers working in Palestine banks. The study through structural equation modelling, descriptive statistics, and multiple regression models were employed for analysis and established that prioritization of green financing considerably boosts the eco-friendly achievement of banks in Palestine. The results were in line with the observations made by Xia, Lianfeng, Yujia and Xu (2023), Zheng, Abu-Bakkar, Mohammad & Nazneen, (2021), Liu and Serena (2023) together with Narayanan, Venkateshwaran, Kevin and Richard (2021) that prioritization of green banking activities such as the provision of green bonds boosts sustainability performance.

While the Ullah *et al* (2021), Shaumya and Arulrajah (2016), Sahitya and Lalwani (2014) and Abuatwan (2023) focused on the effects of Green Innovative Strategies on the adoption of Green Finance, the studies were not specific to the effects of Green Innovative Strategies on the adoption of Green Finance by commercial banks in Kenya. Additionally, the studies have not used descriptive cross-sectional design and therefore, this study seeks to establish the factors that affect the adoption of Green Finance by commercial banks in Kenya.

2.3.3 Effect of Customer perception of Green on the adoption of Green Finance

Financial institutions must understand how consumers perceive environmental consciousness in relation to the products and services they offer and whether their organizational structures and systems align with sustainability principles (Kit, Waei, Kaur & Kalsom, 2018). To meet customer demands and preferences, these institutions need to provide nature-friendly products and services (Jayasinghe, 2022). Additionally, organizations are responsible for managing consumer green attitudes to align with sustainability goals (Maggon & Chaudhry, 2017). Integrating consumer green attitudes into business strategies is crucial, as positive environmental perceptions influence purchasing decisions and encourage financial institutions to enhance their adoption of green financing, ultimately contributing to green sustainability (Kit et al., 2018; Jayasinghe, 2022).

Chen (2016), through descriptive studies, examined the extent to which customer perception of green energy influences their decision to purchase environmentally friendly products. The study found that customers are more willing to spend on products or services from firms with eco-friendly environments if they perceive the commodity, service, or organization as meeting their sustainability expectations. As a result, green value perception has gained significant attention, particularly in relation to environmental quality and consumer purchasing behavior (Syarifuddin & Alamsyah, 2017). These observations support the conclusions drawn Kit et al. (2018) and Román-Augusto et al. (2022), which indicate that sustainable green finance adoption can be significantly strengthened when the perceived green value of offered products is high.

Khairy et al. (2023) researched the interconnection between perceived customer green attitude and value and Corporate Environmental Responsibility (ECSR) in the tourism and hospitality sector. The study targeted 97 hotels in Egypt where 42 along the red sea region and 55 in the South Sinai region were five-star hotels. The study also included 78 travel agencies in the Red Sea region and 43 in South Sinai region. The sample included both customers and hotel guests in the hotels and travel agencies. The respondents were picked through convenience sampling design. 1200 questionnaires were administered where out of the total, 910 were deemed suitable for data analysis. The study through descriptive models and Confirmatory Factor Analysis established a relationship between perceived customer green attitude and value and green sustainability through green finance adoption. The study found that green attitude and value had a positive correlation on ECSR. The study was consistent with Wang & Han (2017) that established that corporate responsibility initiatives of a company assists in improving the company's credibility and favorable outlook toward purchase of its goods and services.

Riva et al. (2022) researched effects of green perceived value on restaurant revisit intention. The conceptual modelled cross-sectional study tested the hypotheses with data collected from millennials/Generation Y (people born between 1976 and 2000) customers of restaurants. Sampled Generation Y customers were mainly apprehensive about environmentally conscious purchasing and are glad to be associated with products and firms that exhibit sustainable practices. The study population constituted all restaurant clients in Bangladesh Dhaka the capital city and Chottogram the main port city which represented 60% of Bangladesh's 18,000 restaurants located in the two areas. The research was done in in Bangladesh and focused on millennials because they constitute to more than 60% of the total population. 5 and 7-point Likert scale Questionnaires were used for data collection with a total of 320 questionnaires collected, out of which 280 were fit for data analysis. The difference of 40 questionnaires were unfinished hence not applied. 47% of 600 questionnaires (280) were deemed adequate to represent the target population. The statistical tool used for the analysis was the Partial least squares-structural equation modelling (SEM-PLS 3.0) and SPSS (statistical analysis package 21). The study just like Khairy et al. (2023), Han and Kim (2019) together with Geiger et al. (2018) observed that green perceived value boosts the restaurant revisit intention of the consumers in Bangladesh.

Tang et al. (2022) explored the outcomes of green perceived quality on consumers' green purchase intention. Perceived quality was assessed based on the extent to which a green product was regarded as superior to competing offerings, its reliability in addressing environmental concerns, and its ability to project a strong environmental image. The study employed a survey method, targeting 310 consumers in Pakistan who preferred purchasing energy-saving products, with questionnaires used for data collection. Exploratory Factor Analysis and Multiple Linear Regression analysis were applied to evaluate the relationships among the study variables. The findings, consistent with those of Riva et al. (2022), Khairy et al. (2023), Han and Kim (2019), and Geiger et al. (2018), demonstrated that green perceived quality or value enhances green purchase intention, prompting organizations to prioritize green financing as part of their environmental sustainability strategies.

Additionally, while studies by Riva et al. (2022), Khairy et al. (2023), Han and Kim (2019), and Geiger et al. (2018) examined the impact of customer perception of green initiatives on green finance adoption, they did not specifically explore the factors influencing green finance adoption in Kenya. Furthermore, these studies did not employ a descriptive cross-sectional

design. Therefore, this study aims to identify the key factors affecting the adoption of green finance by commercial banks in Kenya.

2.4 Summary of Literature Review and Research Gaps

This section evaluates the theoretical propositions that underpin the study and examines previous research efforts aimed at understanding the factors influencing the adoption of green finance in various organizational settings. Based on identified theoretical gaps, the study highlights a lack of information regarding whether listed commercial banks in Kenya prioritize green financing strategies such as reducing paper use, minimizing energy consumption, and developing green infrastructure to enhance environmental sustainability. Beyond profitability, these initiatives may contribute to building a positive public image among Kenyans. However, studies by Chen et al. (2020), Goel (2010), Mwanu (2021), Rahman & Perves (2016), and Ifeanyi et al. (2020) have paid little attention to this aspect, necessitating further investigation to fill the theoretical information gap. Additionally, within the Institutional theory framework, a theoretical void exists regarding whether customer-driven pressures stemming from shifts in perception that green firms are responsible and trustworthy business partners have influenced listed banks in Kenya to adopt consistent green financing for sustainability. Studies by Tran et al. (2020), Brown et al. (2020), and Khairy et al. (2023), along with theoretical works by Kimuli (2023), Scott (2008), and Schoenberg et al. (2013), have tested Institutional theory but have not extensively examined its implications for listed commercial banks in Kenya. This study aims to bridge these existing theoretical knowledge gaps.

Regarding empirical gaps, studies by Acemoglu et al. (2016), Aghion et al. (2016), Weber & Hurst (2016), Volz (2017), Mwanu (2021), Tran et al. (2020), and Brown et al. (2022) reveal a knowledge void concerning the influence of Kenyan government environmental regulations on the adoption of green finance among listed commercial banks in Kenya. This study aims to bridge that gap by demonstrating the significance of government environmental policies in driving compliance among banks and promoting sustainability across the financial sector. The findings will also provide insights to policymakers, assisting them in formulating regulations that extend beyond the banking industry to other private-sector subsectors and NGOs, enabling Kenya to comprehensively tackle its pressing environmental challenges.

Additionally, based on the reviewed studies (Sahitya & Lalwani, 2014; Shaumya & Arulrajah, 2016; Abu-Bakar et al., 2021; Rehman et al., 2021; Chen et al., 2022; Abuatwan, 2023; Liu & Serena, 2023), a knowledge gap exists regarding the influence of green innovative strategies

on the adoption of green finance among listed commercial banks in Kenya. This study aims to bridge that gap by examining how these strategies impact banks' investment in prioritized green initiatives across their branches in Kenya and beyond. The findings will provide insights into how such investments contribute to reducing pollution and protecting the natural environment, both locally and globally.

Based on the studies (Khairy, Elzek, Aliane & Agina, 2023; Ha, 2017; Riva, Magrizos, Rubel & Rizomyliotis, 2022; Han & Kim, 2019; Tang, Based on the reviewed studies (Khairy, Elzek, Aliane & Agina, 2023; Ha, 2017; Riva, Magrizos, Rubel & Rizomyliotis, 2022; Han & Kim, 2019; Tang, Rasool, Khan & Khan, 2022; Geiger, Fischer & Schrader, 2018), there is a knowledge gap regarding the influence of perceived customer green attitude and value on the adoption of green finance among listed commercial banks in Kenya. To bridge this gap, this study examines how customer perceptions impact green finance adoption. The findings will assist listed banks in Kenya in aligning their products and services with customers' environmental values, enhancing sustainability efforts while simultaneously strengthening their market position.

Existing studies (Rahman & Perves, 2016; Acemoglu et al., 2016; Tran et al., 2020; Mwanu, 2021; Brown et al., 2022) have primarily explored the impact of government policy on green finance adoption. However, limited research has addressed how Kenyan government regulations facilitate banks' access to green funding. To bridge this gap, this study incorporates the role of government policy in providing avenues for listed banks in Kenya to secure green financing.

Additionally, previous research (Khairy et al., 2023; Ha, 2017; Riva et al., 2022; Han & Kim, 2019; Tang et al., 2022; Geiger et al., 2018) has largely examined how green attitude and value influence customer purchase intention and corporate social responsibility (CSR). However, their potential role in driving green finance adoption remains unexplored. This study seeks to fill this conceptual void by analyzing the influence of perceived customer green attitude and value on the adoption of green finance among listed commercial banks in Kenya.

Table 2.1 presented below shows the research gaps that the study is going to address.

Table 2. 1: Research Gaps to be Addressed.

Author	Objective	Results	Gaps Observed	How the Gaps were Addressed
Mwanu (2021)	Attempted to determine the impact of banking regulations with respect to adoption of green financing among the commercial banks in Kenya.	The findings observed that banking regulations consisting of license requirements demanded from the commercial banks to promote green operations have contributed to the increase in adoption of green financing investments by the banks.	The study did not cover the other objects such as green innovative strategies, perceived customer green attitude and value and their influence on the adoption of green finance among the listed banks in Kenya. The aspect of government policy providing listed banks in Kenya avenues for easy access to green funding was not explored. This research focused on banking practices among commercial banks in Kenya. Limited research has inquired about how the Kenyan government environment regulations impact the adoption of green finance among the listed banks in Kenya.	The study established in addition to government regulations, how green innovative strategies, perceived customer green attitude and value impact the adoption of green finance among the listed commercial banks in Kenya. Government policy to provide banks in Kenya avenues for easy access to green funding was explored as an operational construct of government policies adhered by the listed commercial banks in Kenya.
Tran, Do, Vu and Do (2020)	The research sought to understand how government policy in terms of support to access green financing influences sustainable green financing among Vietnamese firms operating in all sectors of the economy.	The findings observed that increased government support in assisting the firms to access funding for green investment subsequently improves green financing initiatives among the Vietnamese firms.	The study primarily focused on Vietnamese firms leaving a gap in the scope of listed commercial banks.	This research found that Kenyan government environmental regulations have an influence on the adoption of green finance among the listed commercial banks in Kenya.
	The study examined the impact of green perceived quality on consumers' green purchase intentions in Pakistan.	The study observed that green perceived quality or value boosts the green purchase intention thus making the given organizations prioritize on adopting green financing to achieve environmental sustainability.	The study primarily focused on how green perceived quality influences green investment intentions leaving a gap on how it can determine the adoption of green financing.	This research established that there is more effect of perceived customer green attitude and value on the adoption of green finance among the listed commercial banks in Kenya.

Chen, Siddik, Zheng, Masukujjaman and Bekhzad (2022)	The study sought to establish how prioritization of green banking (GB) practices including worker related green procedures, operations related green techniques, clients related green approaches, bank policy related processes influenced green financing of private commercial banks in Bangladesh.	The research results suggested that bank workers daily practices, and policies related to green banking processes have remarkable effects on green financing.	The scope of the study was the banking industry operating in Bangladesh leaving a knowledge gap in the context of the listed commercial banks in Kenya.	This research established that there is some degree of influence of green innovative strategies on the adoption of green finance in listed banks in Kenya.
Khairy, Elzek, Aliane and Agina (2023)	The research analysed the association between perceived customer green attitude and value and Environmental Responsibility in Egypt's at the tourism and hospitality industry in Egypt.	The results observed that green attitude and value had a positive relationship with Environmental Corporate Social Responsibility.	In accordance with the Institutional theory, there exist a theoretical knowledge void concerning as to whether if pressure from many customers through reconfiguring their perceptions to view green firms as good and responsible institutions that they can do business with has forced the listed banks in Kenya to go green and adopt consistent green financing to be environmentally sustainable.	This research found that pressure from many customers through reconfiguring their perceptions to view green firms as good and responsible institutions has forced the listed banks in Kenya to go green and adopt consistent green financing to be environmentally sustainable.
Rehman, Ullah, Afridi, Ullah, Zeeshan, Hussain and Rahman (2021)	The research strived to ascertain if prioritizing monetary investments on cutting down on paper utilization, minimizing energy use and cutting down emissions and use of fuel influenced banks' green projects in Pakistan.	The findings observed that the prioritization of monetary investments on cutting down paper utilization, minimizing energy use and cutting down emissions and use of fuel boosts the bank's green projects in Pakistan.	The object of the study was the banking industry in Pakistan leaving a knowledge gap in the context of the listed commercial banks in Kenya.	This study found that green innovative strategies play a significant role in influencing the adoption of green finance among listed banks in Kenya. These strategies contribute to the integration of sustainable financial practices, shaping the banking sector's approach to environmentally responsible investment and operations.
Riva et al. (2022)	The research aimed to examine the influence of green perceived value on restaurant revisit intention in Chattogram, Bangladesh. It sought to understand how customers' perceptions of environmentally sustainable practices impact their decision to return to dining establishments.	The outcome was that green perceived value boosts the restaurant customers' consideration for revisit in Bangladesh.	The study primarily focused on how green perceived value influenced restaurant customers' consideration for revisit leaving a gap on how it can influence the adoption of green financing.	This study found that there is an impact of perceived customer green attitude and value on the adoption of green finance among the listed commercial banks in Kenya.

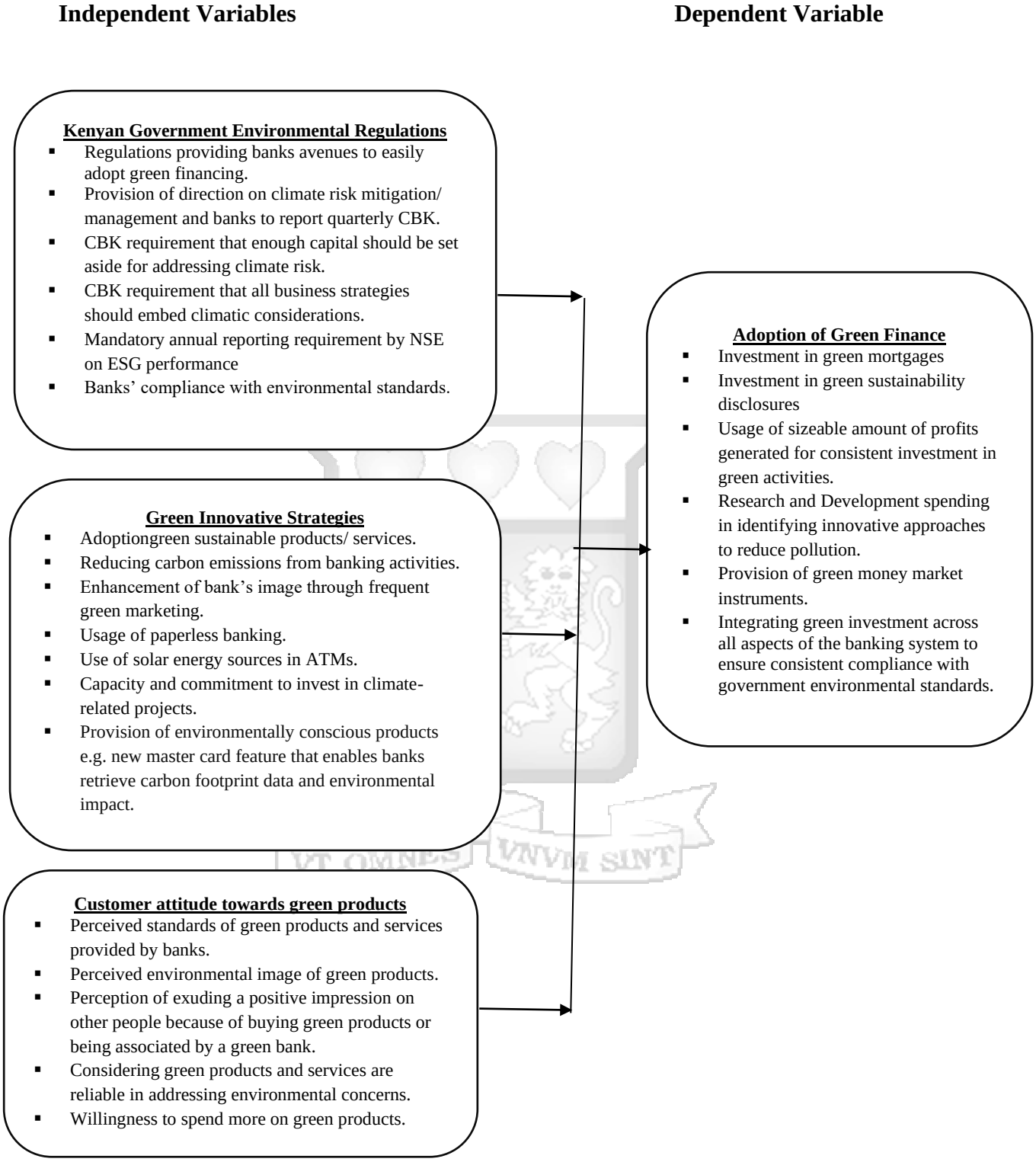
2.5 Conceptual Framework

The conceptual framework presented below provides a structured plan illustrating the interaction between independent and dependent variables influencing the adoption of green finance among listed commercial banks in Kenya. The independent variables in this study include Kenyan government environmental regulations, conscious consumerism, and perceived customer green attitude and values. Meanwhile, the adoption of green finance among listed commercial banks in Kenya serves as the dependent variable. The illustration shows the correlation between the 3 green factors and the adoption of green finance among listed commercial banks in Kenya as a guide that will help in answering the research questions, methods and interpretation of findings. The Institutional Theory highlights the need for Adoption of Green Finance by commercial banks in Kenya and the survival within their institutional environment that leads to a tendency for organizations to become similar or isomorphic which is the organization competitiveness.

The conceptual framework is closely linked to the Triple Bottom Line, which emphasizes that the first specific objective is to analyze the impact of Kenyan government environmental regulations and strategies on green financing initiatives that are essential for the adoption of green finance among listed commercial banks in Kenya. Additionally, the Resource-Based Theory is associated with customer perception and related strategies that focus on green financing initiatives, highlighting their significance in the adoption of green finance within the country's commercial banking sector.

The conceptual framework portraying the discussed relationships of our variables is presented in Figure 2.1 on the next page.

Figure 2. 1: Conceptual Model



Source: Researcher (2024)

2.6 Operationalization of Study Variables

Table 2.2 presented below shows how the 3 green factors as independent variables, the adoption of green finance as the dependent variable, was operationalized in the study.

Table 2. 2: Operationalization of the Study Variables

Independent Variable	Operational Construct	Data Collection Tool	Measurement Scale	Type of Data Analysis	Expected Sign	Supporting Literature
Kenya Government Environmental Regulation	● Regulations aligning banks to principles of sustainable finance. ● Provision of direction on climate risk mitigation/ management and banks to report quarterly CBK. ● CBK requirement that enough capital should be set aside for addressing climate risk. ● CBK requirement that all business strategies should embed climatic considerations. ● Annual reporting requirement by NSE on ESG performance. ● Banks' compliance with sector set standards.	Structured Questionnaires (quantitative primary data was gathered from the participants to respond on the given variable)	A 5-point Likert Scale as a measure was used (where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree (Ordinal scale)	Mean and Standard deviation through Descriptive analysis helped the study to investigate the Kenyan government environmental regulations in operation among the listed commercial banks. Linear regression analysis was used to establish how Kenyan government environmental regulations affects the adoption of green finance among the listed banks.	The findings found a positive influence.	Tran et al. (2020); Brown et al. (2022); Acemoglu et al. (2016); Mwanu (2021); Rahman and Perves (2016); Nabi et al. (2016); Weber and Hurst (2016); The National Treasury and Economic Planning (2023); CBK (2021); Nairobi Securities Exchange (2021)
Green Innovative Strategies	● Adoption of green sustainable products and services. ● Reducing carbon emissions from banking activities. ● Enhancement of bank's image through frequent green marketing. ● Usage of paperless banking. ● Use of solar energy sources in ATMs. ● Provision of environmentally conscious products e.g. new master card feature that enables banks retrieve carbon footprint data and environmental impact.	Structured Questionnaires (quantitative primary data was gathered from the participants to respond on the variables)	A 5-point Likert Scale as a measure was used (where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree (Ordinal scale)	Descriptive analysis that includes average scores and standard deviation helped the study to establish the level of green innovative strategies by listed commercial banks. Linear regression analysis was used to establish how green innovative strategies affects the implementation of green finance among the listed banks.	The findings found a positive influence.	Chen et al. (2022); Rehman et al. (2021); Shaumya and Arulrajah (2016); Mwanu (2021); Sahitya and Lalwani (2014); Abuatwan (2023); Boffo and Patalono (2020); Shaumya and Arulrajah (2017); Mastercard.com (2021);

Customer perception, attitude and value towards green products	● Perceived standards of the green products and services offered by banks. ● Perceived environmental image of green products. ● Perception of exuding a positive impression on other people because of buying green products or being associated by a green bank. ● Considering green products and services are reliable in addressing environmental concerns. ● Willingness to spend more on green products.	Structured Questionnaires (quantitative primary data was gathered from the participants to respond on the given variable)	A 5-point Likert Scale as a measure was used (where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree (Ordinal scale)	Descriptive analysis with average scores and standard deviation helped the study to investigate the level of perceived customer attitude and value of the products and services offered by the listed banks in Kenya. Linear regression was used to establish how perceived customer attitude, and value affects the implementation of green finance among the listed banks.	The findings found a positive influence.	Román-Augusto et al. (2022); Tang et al. (2022); Khairy et al. (2023); Syarifuddin and Alamsyah (2017); Kit et al. (2018); Geiger et al. (2018); Han and Kim (2019); Riva et al. (2022)
Dependent Variable: Adoption of Green Finance	● Provision of green mortgages. ● Green sustainability disclosures. ● Usage of sizeable amount of profits generated for consistent investment in green activities. ● Research and Development spending in identifying innovative approaches to reduce pollution. ● Provision of green money market instruments. ● Adoption of green investment in all aspects of the banking system to consistently comply with the government's environmental standards.	Structured Questionnaires (quantitative primary data was gathered from the participants to respond on the variables)	A 5-point Likert Scale as a measure was used (where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree (Ordinal scale)	Descriptive analysis that involved average scores and standard deviation helped the research to find out the level of adoption of green finance by the listed commercial banks in Kenya. Linear regression analysed how the adoption of green finance is influenced by the 3 green factors.	The results found that the adoption of green finance was positively influenced by the 3 green factors.	Brown et al. (2022); Mwanu (2021); Sahitya and Lalwani (2014); Rehman et al. (2021); Nabi et al. (2016); Tran et al. (2020)

Source: Researcher (2024)

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methodologies employed by the researcher to achieve the study's objectives and address the research questions. It covers research design, population and sampling approach, data collection methods, and data analysis techniques.

3.2 Research Philosophy

Zukauskaa et al. (2017) describe research philosophy as a guiding belief system regarding the methods used to source information, analyze data, and apply findings in a study. This research adopts the positivism philosophy, which relies strictly on fact-based information gathered through observation. Quantifiable data is considered trustworthy as it can be repeatedly verified, free from manipulation. When tested under the same conditions, the results remain consistent, ensuring reliability (Dudovskiy, 2021).

There are various philosophies of study like interpretivism and pragmatism. Interpretivism is a social science philosophy that emphasizes the necessity of understanding people's beliefs, motivations, and rationale in a social setting in an effort to interpret the meaning of data collected around a phenomenon. Pragmatism, on the other hand, is a school of thought in philosophy that emphasizes the practical consequences of ideas, words, and beliefs. It will not accept thought as purely mirroring reality and rather evaluates truth based on the efficacy of action (Bleiker, Morgan-Trimmer, & Knapp, 2019). Having originated in the United States during the late nineteenth century, pragmatism has influenced other fields of study outside philosophy.

On the other hand, according to Saunders et al. (2015), the positive researcher is open-minded, objective, unbiased and unattached of what is researched; the data collected, observed and interpreted is done in an objective way to produce reliable and significant data. In positivism, the interpretation of the information shows an objective reality, and the interpreted data has the prospect of universal acceptability (Kane et al., 2005; Moflih et al., 2016). This philosophy is practical in determining the extent of green finance adoption among commercial banks in Kenya and the challenges involved. The researcher under positivism is detached from the research

participants with little interaction and with no personal interests or benefits to be derived from the outcome of the study (Dudovskiy, 2021).

Data distribution, robustness to outliers, and observation independence are common Ordinary Least Squares (OLS) assumptions that, when violated, do not impact General Regression Neural Network (GRNN) performance. The use of questionnaires in research is justified by their ability to facilitate the collection of extensive data within a short period. Positivism was the most suitable philosophical approach for this study, as it aims to establish the relationship between admission policies and the quality of university education in selected Kenyan universities. Additionally, multiple regression analysis was employed to examine the relationship between a dependent variable and multiple independent variables. By utilizing variables with known values, this statistical technique enables the prediction of the dependent variable's value.

3.3 Research Design

The study adopted a descriptive cross-sectional research design, which involves collecting data from a population or sample at a single point in time. This approach provides a snapshot of the group, enabling researchers to analyze relationships between variables and describe population characteristics at that moment. Additionally, the descriptive research design was used to explore the 'what,' 'where,' 'when,' and 'who' aspects of the study variables. This design allowed the researcher to assess qualitative data using descriptive statistics, characterize the sampled population, and administer questionnaires to obtain statistical data for analysis. Similar studies have employed descriptive cross-sectional design, including those conducted by Owino (2014), Adede (2017), and Onyango (2021).

Therefore, this study employed structured questionnaires to collect measurable data from sampled participants drawn from listed banks operating in Nairobi County, Kenya. The findings were then analyzed using multiple linear regression to assess the influence of the three green factors on the adoption of green finance among these banks.

3.4 Target Population

This research primarily focused on commercial banks registered on the Nairobi Stock Exchange, located in Nairobi County, Kenya. It examined the implementation of green finance alongside

various green activities among publicly listed banks, evaluating their adoption, impact, challenges, and effectiveness in promoting sustainable financial practices. The target population were the 11 banks listed by the Nairobi Securities Exchange (NSE, 2024). They comprised of Absa Bank Kenya PLC, Cooperative Bank of Kenya, Diamond Trust Bank Kenya, Equity Group Holdings, HF Group Ltd, I & M Holdings Ltd, KCB Group Ltd, National Bank of Kenya Ltd, NCBA Group PLC, Stanbic Holdings PLC and Standard Chartered Bank Ltd (NSE, 2024). The units of observation comprised of 1 branch in each of the sub county in Nairobi County and a target of 3 staff members from each selected commercial banks (Sedgwick, 2018). The 3 staff members were drawn from the Risk Management Department or Sustainability Finance Department or Green Finance Department or Environmental, Social, Governance (ESG) Department; as a functional unit in the bank that deals with CSR or environmental risk issues, therefore other employees from other departments were not considered. The targeted staff were selected given that these staff are directly concerned with the implementation of green finance interventions. There are 17 sub counties in Nairobi County as per the Kenya National Bureau of Statistics (KNBS) (2019) census report so in each sub county the target was one bank branch. This made a total of 187 bank branches and a total of 748 respondents comprising 187 branch managers and 561 staff members. Their distribution is shown in Table 3.1 below

Table 3. 1: Target Population of the Listed Commercial Banks in Kenya

No.	Listed Commercial Bank	Branch Managers	Staff Members	Total
1.	Absa Bank Kenya PLC	17	51	68
2.	Cooperative Bank of Kenya	17	51	68
3.	Diamond Trust Bank Kenya	17	51	68
4.	Equity Group Holdings	17	51	68
5.	HF Group Ltd	17	51	68
6.	I&M Holdings Ltd	17	51	68
7.	KCB Group Ltd	17	51	68
8.	National Bank of Kenya Ltd	17	51	68
9.	NCBA Group PLC	17	51	68
10.	Stanbic Holdings PLC	17	51	68
11.	Standard Chartered Ltd	17	51	68
Total	**11**	**187**	**561**	**748**

Source: Researcher (2025)

3.5 Sample Design and Sampling Techniques

Since the study's finite population is known and accessible, the Krejcie and Morgan (1970) calculator was used to estimate the appropriate sample size. This estimator was selected for its efficiency and precision in determining a sample size that accurately represents the given population (Kenya Projects Organization, 2012). The sample size formula is presented below.

$$s = \frac{X^2NP(1-P)}{d^2(N-1) + X^2P(1-P)}$$

Whereby, s = estimated sample size.

X^2 = the chi-square figure from the table based on 1 degree of freedom at the preferred confidence level (3.841).

N = the study population.

P = the population proportion projected to be 0.5 that would provide the optimum sample size.

d = the level of preciseness at 95% confidence level (whereby only 0.05 error is allowed).

$$s = \frac{7.682 \times 748 \times 0.5}{0.0025 \times 747 + (7.682 \times 0.5 \times 0.5)}$$

$$s = \frac{1,436.53}{1.87 + 1.9205}$$

$$s = 378.98$$

$$s = 379$$

The study sampled 379 employees. In cases where a complete list of bank branch employees was unavailable, convenience sampling was employed, allowing the researcher to gather data from respondents who were readily accessible at the time of the study. Table 3.2 below presents the sample size distribution.

Table 3. 2: Sample Size Distribution

No.	Listed Commercial Bank	Branch Managers	Staff Members	Total
1.	Absa Bank Kenya PLC	5	23	28
2.	Cooperative Bank of Kenya	14	41	53
3.	Diamond Trust Bank Kenya	2	11	13
4.	Equity Group Holdings	11	40	51
5.	HF Group Ltd	4	22	26
6.	I&M Holdings Ltd	4	22	26
7.	KCB Group Ltd	5	45	50
8.	National Bank of Kenya Ltd	7	33	40
9.	NCBA Group PLC	7	32	39
10.	Stanbic Holdings	4	23	27
11.	Standard Chartered Ltd	5	21	26
Total	**11**	**68**	**311**	**379**

Source: Researcher (2024)

Sekaran and Bougie (2016) recommend that a sample size between 30 and 500 respondents is sufficient and reliable for drawing inferences in research studies. Accordingly, the sample size of 379 respondents was deemed adequate for this study.

3.6 Data Collection Methods

A structured questionnaire was the primary data collection instrument. Unlike interviews, structured questionnaires have scaled question items that can be quantified into numerical values and quantitatively analyzed to test for relationships between variables (Cheung, 2014; Visitor,

2019). Additionally, prior studies (Tran et al., 2020; Brown et al., 2022; Mwanu, 2021; Chen et al., 2022; Abuatwan, 2023; Khairy et al., 2023; Riva et al., 2022) have utilized this technique to collect evidence for the environment and green finance utilization. However, compared with different fact-collection methods like interviews or focus companies, questionnaires can be completed independently and on respondents' own time (Lindemann, 2023). This lessens the time strain on researchers and respondents, facilitating a more straightforward series of statistics from numerous participants (Lindemann, 2023). Questionnaires, compared to interviews, targeted institution discussions, and other records collection contraptions, were used for various participant pools, ensuring an extra consultant pattern (Lindemann, 2023).

Section A of the questionnaire protected questions about the respondents' demographic details regarding their employment and academic history. Section B covered questions about government environmental guidelines, inexperienced innovative strategies, and client notions and mindsets on green finance and value. Question gadgets based on a 5-factor Likert Scale measure of settlement (wherein 1=Strongly Disagree, 2=Disagree, three=neutral, four=Agree, five=Strongly Agree) were used to reap statistics regarding the variable.

Section C blanketed questions about the adoption of green finance, which examined established variables. In addition, question items based totally on a five-point Likert Scale measure of agreement (whereby 1=Strongly Disagree, 2=Disagree, three=impartial, four=Agree, five=Strongly Agree) become used to achieve facts concerning the variable.

3.8 Data Analysis Techniques

LeCompte (2000) defines data analysis as the process of transforming collected data into meaningful results that inform decision-making in research. Since the data gathered often exceeds what is necessary, analysis is essential for filtering out irrelevant information, retaining valuable insights, summarizing findings, identifying patterns, and applying statistical methods. It involves condensing data into a manageable form, highlighting key trends, and conducting statistical evaluations (Cooper & Schindler, 2014). Once data was collected, the Statistical Package for the Social Sciences (SPSS) was used to perform factor analysis, aimed at exploring the potential adoption of green finance initiatives by commercial banks in Kenya. This process entailed eliminating extraneous data, grouping related parameters, and assessing patterns among relevant

variables. Factor analysis effectively demonstrated the relationships between different variables and provided interpretations of underlying factors.

Multiple Linear Regression modeling, supported by SPSS software, was employed to analyze quantitative data and examine the relationships between the dependent and independent variables. Regression analysis is the optimal approach for illustrating variable interactions and quantifying the influence of predictor variables on changes in the dependent variable. Previous research studies (Mwanu, 2021; Tang et al., 2022; Abuatwan, 2023) investigating green sustainability have utilized the Linear Regression model to achieve their objectives. The researcher applied the following Linear Regression research equation.

Simple Linear Regression; $Y = \alpha + \beta_1 X_1 + \varepsilon$

Multiple Linear Regression; $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

Where:

α = the level of adoption of green finance when all the 3 green factors were held constant.

X_1, X_2, X_3 = the independent variables - Kenyan government environmental regulations, green innovative strategies and customer perception and attitude on green finance and value respectively

$\beta_1, \beta_2, \beta_3$ = the regression coefficients of the Kenyan government environmental regulations, green innovative strategies together with customer perception and attitude on green finance and value predicting the extent of adoption of green finance.

Y = dependent variable denoting adoption of green finance

ε = error term

There are certain conditions that should be satisfied before deeming suitable a linear regression analysis to be used (Penrose, Nelson & Fisher, 1985; Osborne & Waters, 2002; Kassambara, 2018). The first condition that must be met is that the dataset to be used for regression analysis must be normally distributed; secondly, the explanatory and the outcome variables must have a linear relationship (Nyongesa, 2018). The third condition is that the independent variables and the error terms should be sovereign from each other and should not rely on each other in any way (O' Brien, 2007; Kaunda, 2021). Finally, the data that is supposed to be used for regression analysis must be homogenous, meaning that homoscedasticity should be present in that dataset (Nyongesa, 2018). The most suitable statistical model for testing if the dataset is normally distributed is the Shapiro-Wilk test model, the rule of thumb being that the results should be statistically

insignificant (p-value > 0.05) (Mutegi, 2022). This is the criteria this study used to assess the normal distribution.

3.8.1 Diagnostic Analysis

Collinearity diagnostic test was carried out through SPSS to establish if there is any case of Multicollinearity (Waswa, Mukras & Oima, 2018). It's of essence that there must be absence of Multicollinearity for the evaluated independent variables to be used in regression analysis (Nyongesa, 2018). Multicollinearity is a case whereby the independent variables are relying on each other so that their effect on the given variable can be depended on (Kim, 2018; Ambiyo, 2020; Mutegi, 2022). For a particular independent variable to be considered sovereign from the influence of another independent variable then it must post a minimum tolerance value of 0.1 (Pallant, 2007).

In addition to that, it must also post a Multicollinearity Measure of a figure that is at least greater than 1 but less than 10 which is a variance inflation factor (Pallant, 2007; Ambiyo, 2020). This is the threshold that the study was used to confirm the independence of the in line with the independence assumption.

3.9 Ethical Considerations

Research often involves a lot of teamwork and collaboration with different people to source information in an acceptable way. Ethical considerations that were considered during this study are mutual respect, trust, fairness, confidentiality and accountability to promote values necessary for collaboration. This research was conducted according to Strathmore University code of ethics with permission from the University to collect the data. This research study also ensured that there is informed consent by all respondents, none of the respondents would be coerced to give any information, considering that information privacy is important and the participants who wish to be anonymous are respected. The study used all information collected for data analysis with no falsification of data or addition of own views. The collected data was purely used for research purposes with no disclosures of information gathered, results or findings to other parties.

CHAPTER FOUR

RESEARCH FINDINGS, ANALYSIS AND PRESENTATION

4.1 Introduction

This study aimed to identify the key determinants influencing the adoption of green finance among Kenya's listed commercial banks. The chapter presents findings and discussions based on data collected through questionnaires, reflecting respondents' views and opinions on factors driving green finance adoption. It is structured into five components: response rate, respondents' background information, descriptive statistics of the study variables, diagnostic analysis, and inferential statistical data analysis.

4.2. General Information

The study targeted 379 respondents that included the Branch Managers and the staff from listed commercial banks in the NSE in Kenya.

4.2.1 Response Rate

The study had sought to establish the participation of the study, the response rate. The following were the responses.

Table 4.1: Response Rate

Category	Sampled	Responded	Did not Respond	Response Rate (%)
Branch Managers	68	58	10	**85.3**
Bank Staff	311	310	1	**99.7**
Total	**379**	**368**	**11**	**97.1**

Source: Field Study (2024)

The study recorded an impressive mean response rate of 97.1% from a sample of 379 respondents, consisting of Branch Managers and Bank Staff. Specifically, the response rate was 85.3% among Branch Managers and 99.7% among Bank Staff. According to Arora (2003), a survey-based study achieving a response rate above 65% is considered well-participated.

4.2.2 Demographic Information of the Respondents

The survey aimed to collect demographic details of respondents to assess whether they accurately represent the target population for generalization. The gathered information included gender, age,

education level, and years of work experience in the banking sector to ensure that participants had sufficient expertise to understand the factors influencing the adoption of green finance by listed commercial banks in Kenya. The responses are presented in Table 4.1 below.

Table 4.2 Demographic Information of the Respondents

Category	**N**	**N (%)**
Gender		
Male	220	59.80%
Female	148	40.20%
Total	**368**	**100.00%**
Education Level		
Secondary	0	0%
College Certificate	30	8.20%
Diploma Certificate	89	24.20%
Undergraduate Degree	240	65.20%
Post Graduate Degree	9	2.40%
Total	368	**100.00%**
Work Experience		
Below Five years	75	20.40%
6-10 years	142	38.60%
11-15 years	99	26.90%
16-20 years	52	14.10%
20 years and above	0	0%
Total	**368**	**100.00%**
Category of Respondents		
Branch Managers	58	15.80%
Staff	310	84.20%
Total	**368**	**100.00%**

The findings of the study indicate that most of the respondents participated, with 59.8% being male and 40.2% being female. The marginal male dominance suggests a relatively balanced gender distribution of employees. Regarding the level of education, 8.2% possessed a College Certificate, 24.2% possessed a Diploma in various fields, 65.2% possessed an Undergraduate Degree, and

2.4% possessed a Postgraduate Degree in various fields. These results show that most of the employees in the banks being researched had achieved higher levels of education, primarily at undergraduate and postgraduate levels.

In addition, working experience varied, with 20.4% of the respondents having worked in the banking sector for less than five years, 38.6% for 6–10 years, 26.9% for 11–15 years, and 14.1% for 16–20 years. Notably, none of them had worked for more than 20 years in the same bank. The findings show that most respondents had served in the sector for 6–10 years, indicating a high level of experience in the subject matter of the study. The study also found that 15.8% of the respondents were Branch Managers, while 84.2% were employees of the commercial banks under study.

Table 4.3: The Listed Commercial Banks

Bank	N	Percentage (%)
Absa	27	7.3
Cooperative Bank	52	14.1
Diamont Trust	12	3.3
Equity Bank	50	13.6
HF Group Limited	25	6.8
I&M Bank	25	6.8
KCB Group	46	12.5
National Bank	37	10.1
NCBA Bank	35	9.5
Stanbic Holdings	25	6.8
Standard Chartered Bank	34	9.2
Total	**368**	**100.0**

The findings of the study indicate that most of the participants were drawn from Cooperative Bank at 14.1%, followed by Equity Bank at 13.6%, then KCB Group at 12.5% and National Bank representing 10.1% of the total respondents. The bank with the least number of respondents was Diamond Trust Bank with 3.3% of the respondents, followed by HF Group Limited, I&M Bank and Stanbic Holdings with 6.8% of the respondents each and then Absa at 7.3%. The findings of the study indicated that Cooperative Bank and KCB Group, the 2 leading banks, had the most respondents with Equity Bank being the leading private bank also registering a high number of respondents.

4.3 Descriptive Statistics

Descriptive statistics serve as a quantitative summary that encapsulates the characteristics of a dataset (Stapor, 2020). In essence, these statistics present information and established results

derived from a specific population, in contrast to inferential statistics, which utilize samples to draw conclusions about broader populations. This distinction indicates that descriptive statistics are not grounded in probability theory, and they are often categorized as nonparametric statistics (Trochim, 2006).

In this research, a 5-factor Likert scale was used to evaluate the number one information amassed, with values starting from 1 (Strongly Disagree) to 5 (Strongly Agree). The data evaluation produced methods and widespread deviations based on contributors' responses. The mean values were interpreted as follows: rankings between 1 and 1.8 indicated strong disagreement, 1.9 to 2.6 signified disagreement, 2.7 to 3.4 represented neutrality, and 3.5 to 4.2 indicated agreement, while rankings from 4.3 to 5 denoted strong agreement (Mwiti, 2022).

4.3.1 Government Environmental Regulations

The primary goal was to determine how government environmental regulations influence the uptake of green finance by the commercial banks listed in Kenya. The feedback received was as below:

Table 4.4: Government environmental regulations and the adoption of green finance

Government Environmental Regulations Factors	N	Mean	Standard Deviation
There are government regulations in Kenya providing banks avenues that guide the adoption of green financing by commercial banks in Kenya	368	4.59	0.666
The Green Incentive Bill expects banks to invest a percentage of its investment on green financing	368	4.42	0.939
There are regulations that provide guideline on green financing and lending	368	4.42	0.939
There is a need for the introduction of carbon tax to reduce greenhouse gas emission among banks.	368	3.71	1.032
The government does not provide tax incentives to banks prioritizing green investment.	368	4.68	0.925
Fiscal policies have been created by the Central Bank of Kenya for development of green finance.	368	4.21	0.966
CBK requires that all major lending to enterprises should embed climatic considerations.	368	4.42	1.129
Mandatory annual reporting is required by NSE on ESG performance.	368	4.46	0.94

The findings indicate very high agreement that government policies in Kenya provide avenues of channeling the adoption of green financing by commercial banks (mean = 4.59, standard deviation = 0.666). The participants also strongly agreed that the Green Incentive Bill requires banks to invest a portion of their investment in green financing and that policies provide guidelines on green lending and financing of green (mean = 4.42, standard deviation = 0.939). There was also agreement on the need to have a carbon tax to reduce the emissions of greenhouse gases by banks (mean = 3.71, standard deviation = 1.032).

Respondents strongly concurred that the government does not provide tax incentives to banks prioritizing green investment (mean = 4.68, standard deviation = 0.925). They also strongly concurred that the Central Bank of Kenya (CBK) has enacted fiscal policies facilitating green finance growth (mean = 4.21, standard deviation = 0.966) and that CBK mandates all major lending to enterprises to incorporate climate considerations (mean = 4.42, standard deviation = 1.129). Finally, the results indicated that the respondents strongly agreed that mandatory annual reporting is required by NSE on ESG performance (mean = 4.46, standard deviation =.940).
These findings indicated that there are government regulations in Kenya providing banks a guide to the adoption of green financing by commercial banks in Kenya. These includes the Green Incentive Bill that expects banks to invest a percentage of their investment in green financing, and that there is a need for the introduction of a carbon tax to reduce greenhouse gas emissions among banks.

4.3.2 Green Innovative Strategies

The second objective; to establish the effects of Green Innovative Strategies on the adoption of green finance among the listed commercial banks in Kenya, had these responses:

Table 4.5: Green Innovative Strategies and the adoption of green finance

Green Innovative Strategies factors	N	Mean	Standard Deviation
The bank has adopted green sustainable products and services	368	3.79	1.106
The bank's operations and service are green considerate	368	3.89	1.11
The bank has heavily invested in the reduction of carbon emissions from banking operations.	368	4.1	1.252
The bank in addition to adopting green marketing, promotes green and sustainable innovation projects	368	3.46	1.074
Most of the banking operations are designed in recognition of the environmental protection	368	2.72	0.884
Most listed commercial banks use solar energy as a source of energy for their operations	368	4.03	1.114

The findings indicate agreement that the bank has adopted green, sustainable products and services (mean = 3.79, standard deviation = 1.106). Respondents also agreed that the bank's operations and services consider environmental sustainability (mean = 3.89, standard deviation = 1.110). Additionally, there was strong agreement that the bank has made significant investments in reducing carbon emissions from its operations (mean = 4.10, standard deviation = 1.252) and that, alongside adopting green marketing, it promotes sustainable innovation projects (mean = 3.46, standard deviation = 1.074).

However, the study found that respondents felt banking operations are not fully designed with environmental protection in mind (mean = 2.72, standard deviation = 0.884). Nonetheless, most listed commercial banks were reported to use solar energy for their operations (mean = 4.03, standard deviation = 1.14).

This shows that the bank has adopted green sustainable products and services, as the bank's operations and services are green considerate. There is also a need for the bank to have heavily invested in the reduction of carbon emissions from banking operations, in addition to adopting green marketing and promoting green and sustainable innovation projects. Lastly, as much as there have been heightened discussions on green adoption, banking operations are still not designed in

recognition of environmental protection, although most of the listed commercial banks use solar energy as a source of energy for their operations.

4.3.3 Customer perception and attitude on green finance and value

The third objective was to examine the effects of customer perception, attitude, and value factors on the adoption of green finance among listed commercial banks in Kenya. The responses were as follows:

Table 4.6: Customer perception and attitude on green finance and value factors and the adoption of green finance

Customer perception and attitude on green finance and value factors	N	Mean	Standard Deviation
The perceived value on green products and services offered by banks has contributed to the bank developing more green products.	368	4.07	1.262
The customers prefer products and services that are environmentally friendly.	368	2.85	1.157
Green products are gaining popularity among customers in commercial banks	368	4.02	1.244
Products that have green component are more sought by the customers	368	2.99	1.124
Customers have a positive attitude towards products and services that consider environmental protection.	368	3.8	0.962
Customers are always willing to spend more on green products.	368	3.93	1.302
Customers value green banking services	368	3.59	1.243
Customers prefer banks with strong green banking policies	368	2.45	1.062

The findings show that there was agreement that the perceived value of green products and services offered contributed to the bank developing more green products based on a mean of 4.07 and a standard deviation of 1.262, although they felt that customers did not prefer products and services that are environmentally friendly (mean = 2.85, standard deviation = 1.157). The study indicated an agreement that green products are gaining popularity among customers in commercial banks in Kenya (mean = 4.02, standard deviation = 1.24), even as the respondents disagreed that products that have green components are more sought by the customers (mean = 2.99, standard deviation = 1.124).

The study also indicated that customers have a positive attitude towards products and services that consider environmental protection (mean = 3.80, standard deviation =.962) and that customers are always willing to spend more on green products (mean = 3.93, standard deviation = 1.302), with indications that customers value green banking services (mean = 3.59, standard deviation = 1.243). Lastly, the results indicated that although green products are gaining popularity among customers, it is still not a basis for customers to prefer banks with strong green banking policies (mean = 2.45, standard deviation = 1.062).

This indicates that the perceived value of green products and services offered contributed to the bank developing more green products, as the green products are gaining popularity among customers in commercial banks. There has been a change in customers' perceptions as they develop a positive attitude towards products and services that consider environmental protection. Lately, there have been indications that the customers are always willing to spend more on green products. Additionally, although green products are gaining popularity among customers and customers value green banking services, this is still not a basis to prefer banks with strong green banking policies. Additionally, the customers did not prefer products and services that are environmentally friendly, and the products that have green components are still not the ones that are sought by the customers.

4.3.4 Adoption of Green Finance

The study also sought to establish the adoption of green finance among the listed commercial banks in Kenya and the following were the responses:

Table 4.7: Adoption of Green Finance

Adoption of Green Finance factors	N	Mean	Standard Deviation
The bank has made consistent investment in green mortgages.	368	2.43	1.258
The bank invests yearly in green sustainability disclosures.	368	2.71	0.874
The bank supports investment in green activities.	368	3.28	1.469
The bank has increased its funding to sustainable customer projects	368	3.7	1.145
The bank is providing an incentive through lower interest rates to encourage borrowing towards sustainable projects.	368	3.89	0.92
The bank provides a variety of green products to different segments in the market.	368	4.19	1.209
The bank has adopted green investment in all aspects of its banking system.	368	2.83	1.151

The findings shows that there was disagreement that the perceived value on green products and services offered contributed to the bank developing more green products based on a Mean of 2.43 and Standard Deviation 1.258 and that the bank does not invest yearly in green sustainability disclosures (Mean of 2.71 and Standard Deviation .874) with somewhat agreement that the bank support investment in green activities(Mean of 3.28 and Standard Deviation 1.469) .The results also indicated an agreement that the bank has increased its funding to sustainable customer projects and that the bank is providing incentive through lower interest rates to encourage borrowing towards sustainable projects(Mean of 3.70 and Standard Deviation 1.145) and (Mean of 3.89and Standard Deviation .920) respectively. The findings of the study also indicated strong agreement that the bank provides a variety of green products to different segments in the market although results also indicated that to a large extent the bank has not adopted green investment in all aspects of its banking system (Mean of 2.83 and Standard Deviation 1.151).

This indicated that the perceived value of green products and services offered has contributed to the bank developing more green products and supporting investment in green activities as the bank increases their funding for sustainable customer projects. Several banks are providing incentives through lower interest rates to encourage borrowing towards sustainable projects. Additionally,

several of the listed banks provide a variety of green products to different segments in the market, although results also indicated that, to a large extent, the bank has not adopted green investment in all aspects of its banking system. Noticeably, the bank has not made consistent investments in green mortgages and does not invest yearly in green sustainability disclosures.

4.4 Reliability Results

To assess the reliability of the instrument, the study examined its consistency and stability (Kumar, 2010). This was done using Cronbach's Alpha coefficient, which measures reliability. As outlined by George and Mallery (2003), the interpretation of its values is as follows: "Greater than 0.9 – Excellent, greater than 0.8 – Good, greater than 0.7 – Acceptable, greater than 0.6 – Questionable, greater than 0.5 – Poor, and less than 0.5 – Unacceptable.

Table 4.8: Cronbach's Alpha if Item

Variable	Cronbach's Alpha if Item
Independent Variable	
Government Environmental Regulations	0.864
Green Innovative Strategies	0.842
Customer perception and attitude	0.885
Dependent Variable	
Adoption of green finance among the listed commercial banks in Kenya	0.941

The study established Cronbach's alpha coefficient of Government Environmental Regulations of 0.864, Green Innovative Strategies established Cronbach's alpha coefficient of 0.842, Customer perception and attitude established a Cronbach's alpha coefficient of 0.885, while adaptation of green finance among the listed commercial banks in Kenya established Cronbach's alpha coefficient of 0.941.These were considered acceptable and satisfactory reliability given that the range of 0.7 is acceptable while over 0.8 is good (Sekaran, 2003).

4.5 Factor Analysis and Presentation

Factor analysis was conducted to identify the main government environmental policies, green innovation measures, and customer perception and attitude factors that significantly influenced the

dataset. Additionally, the analysis also attempted to identify whether all the questionnaire statements for each variable were acceptable for further analysis. Results, in conformity with these factors, are provided and explained below in the subsections.

In order to determine if the government environmental regulations dataset was suitable for factor analysis, the research carried out a test for sample adequacy using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. A value for KMO above 0.5 indicates an acceptable sample adequacy, while Bartlett's Test of Sphericity ought to be higher than 0.150 to declare the dataset suitability for factor analysis.

Table 4.9: KMO and Barlet's Test Results for the government environmental regulations Dataset

KMO and Bartlett's Test		Government environmental regulations
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.600
Bartlett's Test of Sphericity	Approx. Chi-Square	6.688
	Df	3
	Sig.	0.01

The findings of the study indicated that that the sample used was adequate to measure the relationship between government environmental regulations and the adoption of green finance by commercial banks in Kenya. Additionally, the Bartlett's Test indicated that the study sample for government environmental regulations was significant in measuring the relationship between government environmental regulations and the adoption of green finance by commercial banks in Kenya (since its p-value was less than 0.05). The results of the Bartletts Test of Sphericity provided further justification that the dataset was satisfactory for factor analysis.

Table 4.10: Total Variance Explained by Government Environmental Regulations Factors

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.708	75.539	75.539	2.958	73.949	73.949
2	.612	12.460	87.999			
3	.330	6.714	94.713			
4	.260	5.287	100.000			
Extraction Method: Principal Component Analysis.						

In Table 4.10, only one factor posted eigenvalues of more than one. The one factor recorded an eigenvalue of 2.958. The one component accounted for a total variance of 73.949% in the entire dataset. This one factor was retained for further analysis while the rest were discarded.

Table 4.11: KMO and Barlet's Test Results for the Green Innovative Strategies Dataset

KMO and Bartlett's Test		**Green Innovative Strategies**
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.600
Bartlett's Test of Sphericity	Approx. Chi-Square	12.895
	df	4
	Sig.	.000

The findings of the study indicated that that the sample used was adequate to measure the relationship between green innovative strategies and the government environmental regulations and the adoption of green finance by commercial banks in Kenya. Additionally, the Bartlett's Test indicated that the study sample for Green Innovative Strategies was significant in measuring the relationship between green innovative strategies and the adoption of green finance by commercial banks in Kenya (since its p-value was less than 0.05). The results of the Bartletts Test of Sphericity provided further justification that the dataset was satisfactory for factor analysis.

Table 4.12: Total Variance Explained by Green Innovative Strategies Factors

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.000	60.010	60.010	3.000	60.010	60.010
2	.819	16.388	76.397			
3	.583	11.654	88.052			
4	.376	7.521	95.572			
5	.221	4.428	100.000			

Extraction Method: Principal Component Analysis.

In Table 4.12, there was only one factor that had an eigenvalue greater than one, which was 3.000. It accounted for 60.010% of the data variance. Hence, it was retained for analysis, whereas the others were eliminated.

Table 4.13: KMO and Barlet's Test Results for the Customer perception and attitude Dataset

KMO and Bartlett's Test		**Customer perception and attitude**
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.600
Bartlett's Test of Sphericity	Approx. Chi-Square	6.688
	df	3
	Sig.	0.01

The study findings confirmed that the sample was sufficient to assess the relationship between customer perception and attitude and the adoption of green finance by commercial banks in Kenya. Additionally, Bartlett's Test indicated that the study sample for customer perception and attitude was statistically significant in evaluating this relationship, as its p-value was below 0.05. Furthermore, the results of Bartlett's Test of Sphericity reinforced the adequacy of the dataset for factor analysis.

Table 4.14: Total Variance Explained by customer perception and attitude Factors

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.708	75.539	75.539	2.958	73.949	73.949
2	.612	12.460	87.999			
3	.330	6.714	94.713			
4	.260	5.287	100.000			
Extraction Method: Principal Component Analysis.						

In Table 4.14, only one factor exhibited an eigenvalue exceeding one, recording a value of 2.958. This single component accounted for 73.949% of the total variance in the dataset. As a result, it was retained for further analysis, while the remaining factors were discarded.

4.6 Diagnostic Analysis

Before conducting the regression analysis, the study performed a diagnostic test to ensure that the model assumptions were met. Specifically, collinearity tests were carried out, as described below:

4.6.1 Collinearity Test

The study utilized Variance Inflation Factors (VIF) to evaluate multicollinearity among predictor variables. A VIF of 1 signifies no correlation, whereas values above 5 may indicate excessive correlation among the predictors (Frost, 2020).

Table 4.15 Collinearity Test

Model		Collinearity Statistics	
		Tolerance	**VIF**
1	(Constant)		
	Government Environmental Regulations	0.193	2.181
	Green Innovative Strategies	0.14	3.137
	Customer perception and attitude	0.256	2.906

From Table 4.9 above, Government Environmental Regulations, Green Innovative Strategies and Customer perception and attitude both have Variance Inflation Factor (VIF) of 2.181, 3.137, and 2.906, respectively. These values indicate no high correlation among the independent variables, and thus the data are available for regression analysis. Moreover, since all the estimated regression coefficients are less than 5, they are not inflated due to collinearity.

4.7 Inferential Analysis

Inferential statistical analysis was most important when conducting estimation of parameters and hypothesis testing. The research assumed that the observed data were representative of the population under research at large. As a procedure of parametric testing, inferential statistics permitted hypotheses about data distribution and population parameters to be assumed. The employed methods involved correlation analysis and regression analysis, some of which involved Analysis of Variance (ANOVA), Model Summary, and Regression Coefficient (Mwiti, 2022).

4.7.1 Correlation Analysis

The study conducted a correlation analysis, a statistical method used to assess the strength of the linear relationship and the association between two variables (Senthil Nathan, 2019). This analysis

enabled the evaluation of how variations in the independent variables, including Government Environmental Regulations, Green Innovative Strategies, and Customer Perception and Attitude, influence changes in the dependent variable, namely the adoption of green finance among publicly listed commercial banks in Kenya.

Table 4.16: Correlation Analysis

Correlations

		Adoption of Green Finance	Government Environmental Regulations	Green Innovative Strategies	Customer perception and attitude
Adoption of Green Finance	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	368			
Government Environmental Regulations	Pearson Correlation	.795**	1		
	Sig. (2-tailed)	.000			
	N	368	368		
Green Innovative Strategies	Pearson Correlation	.474**	.151**	1	
	Sig. (2-tailed)	.001	.004		
	N	368	368	368	
Customer perception and attitude	Pearson Correlation	.809**	.550**	.147**	1
	Sig. (2-tailed)	.000	.000	.005	
	N	368	368	368	368

**. Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation coefficient ranges from -1 to +1, where -1 indicates a perfect inverse relationship, 0 signifies no correlation, and +1 represents a perfect direct relationship (Benesty et al., 2009). A coefficient (r) between 0 and 0.3 suggests a weak correlation, values from 0.3 to 0.5 indicate a moderate correlation, while coefficients above 0.5 demonstrate a strong correlation (Turney, 2024).

The correlation analysis reveals a strong positive relationship between Government Environmental Regulations and the adoption of green finance in publicly listed banks (r = .795). Similarly, Customer Perception and Attitude exhibit a significant positive correlation (r = .809), while Green

Innovative Strategies show a moderate correlation (r = .474). Among the independent variables, slight correlations exist between Government Environmental Regulations and Green Innovative Strategies (r = .151), as well as between Green Innovative Strategies and Customer Perception and Attitude (r = .147). Meanwhile, Government Environmental Regulations and Customer Perception and Attitude display a moderate relationship (r = .550).

Since the correlations among independent variables remain low to moderate, multicollinearity is not a concern. This suggests that strengthened Government Environmental Regulations, evolving Customer Perception and Attitude toward green products, and increased Green Innovative Strategies will collectively drive higher adoption of green finance among publicly listed commercial banks in Kenya.

Furthermore, p-values below 0.05 for all independent variables reinforce these findings, affirming their significance as predictors of green finance adoption.

4.7.2 Regression Analysis

This section looks at the effects of factors influencing the adoption of green finance Vs adoption of green finance. The first factor is Government regulations, the second factor is green innovative strategies, and the third factor is customer perception and attitude. Regression analysis is fundamental in assessing the influence of independent variables on a dependent variable. It analyses how modifications in independent variables affect the dependent variable and assists in identifying the primary factors accountable for these changes (Sarstedt & Mooi, 2014)

Table 4.17: Effects of Green finance factors and the adoption of green finance among the listed commercial banks in Kenya: Coefficient

Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.534	.189		13.424	.000
	Government Environmental Regulations	.190	.088	.239	2.173	.000
	Green Innovative Strategies	.198	.080	.320	2.476	.001
	Customer perception and attitude	.144	.067	.207	2.164	.000

The resulting regression equation from the coefficients in Table 4.11 above is:

Y= 2.534+ .190X1+.198X2+.144X3 interpreted as:

For the joint model t =2.173 for Government Environmental Regulations, t=2.476 for Green Innovative Strategies and t=2.164 for Customer Perception and attitude, showing the t values for the three are all greater than 1.96 hence the variables in the joint model are all statistically significant. This is supported by the p values. p=0.000 for Government Environmental Regulations, p=0.001 for Green Innovative Strategies and p=0.000 for customer perception and attitude, showing the p values for all the three variables are lower than 0.05 and hence they are statistically significant. The outcomes additionally show that a unit variation of .190 in Government Environmental Regulations, a unit change of .198 in Green Innovative Strategies and a unit change of .144 in Customer perception and attitude will result in a unit change in the adoption of green finance among the listed commercial banks in Kenya. These findings affirm that green finance factors (Government Environmental Regulations, Green Innovative Strategies and Customer perception and attitude) (Sig= .000< .05) are suitable predictors of green finance adoption among listed commercial banks in Kenya.

Table 4.18: Effects of Green finance factors and the adoption of green finance among the listed commercial banks in Kenya: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.783[a]	.647	.640	.58433

The coefficient of determination (R Squared) of .647 implies that 64.7% of the changes in the adoption of green finance among the listed commercial banks in Kenya are explained by green finance factors (Government Environmental Regulations, Green Innovative Strategies and Customer perception and attitude). The other 35.3% is ascribed to other aspects not covered in the study apart from green finance factors (Government Environmental Regulations, Green Innovative Strategies and Customer perception and attitude).

Table 4.19: Effects of Green finance factors and the adoption of green finance among the listed commercial banks in Kenya: ANOVA

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.389	3	7.130	120.881	.000[b]
	Residual	124.286	364	.341		
	Total	145.675	367			

a. Dependent Variable: Adoption of Green Finance
b. Predictors: (Constant), Government Environmental Regulations, Green Innovative Strategies and Customer perception and attitude

According to Table 4.22, with α=5%, the numerator degrees of freedom (df) is 3 and the denominator df is 364, yielding a critical F value of 2.605. The computed F value of 120.881 surpasses this threshold, confirming the statistical significance of the complete regression model and its suitability as a predictive tool. This conclusion is further reinforced by a p-value of 0.000, which falls below the 0.05 threshold, indicating a meaningful statistical impact. These results affirm that the model is reliably measurable and serves as a viable predictor for the adoption of green finance within the commercial banks analyzed in this study in Kenya..

4.8 Chapter Summary

This chapter presents the basic details about participants, descriptive statistics, collinearity tests, inferential statistics that included correlation analysis and multiple linear regression analysis.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter includes different sections such as the analysis of the study results, the concluding remarks, and the suggestions regarding the green finance elements and the implementation of green finance by the commercial banks listed in Kenya. The section will additionally address the suggestions and constraints of the research, along with ideas for future studies.

5.2 Summary of Findings

The study was conducted to determine the factors that influence the adoption of green finance in Kenya's listed commercial banks. The results indicated that government environmental regulations, Green Innovative Strategies and customer perception and attitude on the green financing had significant effect on the adoption of green finance among the listed commercial banks in Kenya.

5.3 Discussions of the study findings.

To establish the effect of the government environmental regulations, green innovative strategies, customer perception and attitude on green finance and value on the adoption of green finance among the listed commercial banks in Kenya. The following are discussions on the findings:

5.3.1 Effects of government environmental regulations on the adoption of green finance among the listed commercial banks in Kenya

The results indicated a significant relationship between government environmental policies and the adoption of green finance by the publicly traded banks in Kenya. Moreover, the correlation coefficient is robust between Government Environmental Regulations on Green Finance and green finance adoption by Kenya's listed commercial banks with a positive change in Government Environmental Regulation factors to bring about a unit change in the green finance adoption by Kenya's listed commercial banks with a statistical significance effect. In addition, government environmental regulations would affect the variation in the adoption of green finance among the listed commercial banks in Kenya. The strong relationship between government environmental regulations and the adoption of green finance among the listed commercial banks in Kenya is in line with studies conducted by Mwanu (2021), which creates a connection between the Kenyan

government environmental regulations and the adoption of green finance. The findings of the research also agree with research conducted by Acemoglu (2012) that emphasized that government policies that incentivize companies to use cleaner production technologies can counteract the impacts of climate change.

Results further indicated that there are also current government policies in Kenya providing direction to banks which enable commercial banks in Kenya to adopt green financing. This includes the Green Incentive Bill which requires banks to invest a share of their investment in green finance, that there are laws providing guidance on green lending and financing, and that there is a need for imposing a carbon tax for reducing the greenhouse gas emissions of banks. The research also revealed that the government does not give tax incentives to banks in support of green investment. But the Central Bank of Kenya has made fiscal policies for green finance development, requiring that all major lending to companies must have climatic considerations. The findings of the study also indicated that the government does not provide tax incentives to banks focusing on green investment. However, the Central Bank of Kenya has established fiscal policies that will facilitate the expansion of green finance through the inclusion of climatic factors in all substantial lending to business.

5.3.2 Effects of Green Innovative Strategies on the adoption of green finance among the listed commercial banks in Kenya

The findings demonstrated a notable connection between Green innovative strategies and the implementation of green finance within the listed commercial banks in Kenya. Moreover, a weak correlation exists between Green Innovative Strategies in Green finance and the uptake of green finance among the commercial banks listed in Kenya. The application of green innovation strategies in the banking sector was highlighted by Sahitya and Lalwani (2014) that observed that using solar energy sources in ATMs thus boosting the bank's level of sustainability due to increased adoption of green financing.

The bank has adopted green sustainable products and services, as the bank's operations and services are green considerate. There is also a need for the bank to have heavily invested in the reduction of carbon emissions from banking operations, in addition to adopting green marketing

and promoting green and sustainable innovation projects. Lastly, as much as there have been heightened discussions on green adoption, banking operations are still not designed in recognition of environmental protection, although most of the listed commercial banks use solar energy as a source of energy for their operations. The results support Arulrajah (2016) that establishes that banks are promoting environmental sustainability by prioritizing green finance and Afzal (2022) that established the adoption of green finance require deliberate and innovative strategies if the various sectors are going to attain their objective in the adaptation of green finance.

5.3.3 Effects of customer perception and attitude on green finance and value factors on the adoption of green finance among the listed commercial banks in Kenya.

The results indicated a significant relationship between customer perception and attitude toward green finance and the adoption of green finance among the listed commercial banks in Kenya. Additionally, the correlation shows a high correlation relationship between customer perception and attitude on green finance and the adoption of green finance among the listed commercial banks in Kenya. The findings are consistent with the results by Chen (2016) who established that the green value perception has garnered considerable attention due to consumer buying preferences and advised by Maggon and Chaudhry (2017) established that organizations are obliged to manage the green attitudes of their customers to meet their requirements and preferences.

The recognized worth of green goods and services provided led the bank to create eco-friendlier offerings, as these green products are becoming increasingly popular with customers in commercial banks. These results are consistent with those of Román-Augusto *et al.* (2022), who found that green sustainability can be greatly improved through continuous green financing adoption when the perceived value of green products is elevated. The findings also showed that customers' perceptions have shifted, as they cultivate a favorable attitude toward products and services that prioritize environmental protection. Recently, there have been signs that consumers are consistently eager to invest more in environmentally friendly products. Furthermore, while green products are becoming more popular with consumers and they appreciate green banking services, this alone does not justify a preference for banks that have robust green banking policies. Furthermore, customers showed little preference for eco-friendly products and services, and items featuring green elements remain less popular among buyers. The significance of a favorable

customer perception has been emphasized by Geiger *et al.* (2018), who noted that green perceived value enhances consumers' intention to revisit restaurants. Geiger *et al.* (2018) also mentioned that green perceived quality or value increases the intention to make green purchases, leading organizations to focus on embracing green financing for achieving environmental sustainability.

5.4 Conclusion

The analysis showed a notable association between governmental environmental policies and the adoption of green finance by the commercial banks registered in Kenya. The government has implemented environmental rules and encouraged green finance within the registered commercial banks in Kenya. These rules provide banks with essential guidelines to promote the quick implementation of green financing and to assist these banks in supporting green lending practices. The government should aim to implement a carbon tax to reduce greenhouse gas emissions in banks and provide tax incentives to promote banks' engagement in green investments. Moreover, the country has achieved numerous successes, as the CBK requires all major business loans to include environmental considerations in their activities.

The study also found a high correlation between green innovative strategies and the use of green finance in Kenya's listed commercial banks. The listed commercial banks in the NSE of Kenya have embraced green sustainable products and services and have come to appreciate that green elements are central to their operations. Commercial banks have not invested sufficiently in lowering carbon emissions from their banking activities, and besides embracing green marketing and promoting eco-friendliness, they are also focusing on sustainable innovative initiatives. It should be mentioned that while there has been more discussion on green adoption, the operations of the listed banks are not yet structured with environmental protection in mind, though most of the listed banks use solar power in their activities.

On the effect of customer perception and attitude towards green finance among Kenya's commercial banks, the research also uncovered a notable association between green innovative strategies and the adoption of green finance among Kenya's listed commercial banks. The perceived value of green products and services offered by listed commercial banks has assisted the bank to come up with more green products, as the green products continue to gain huge popularity among customers in commercial banks. The research also indicated that there has been a change

in customers' perception as they create a positive perception regarding products and services that are environmentally protective. With the banks adopting the green concept in their activities, there are indications that consumers are generally prepared to spend more on eco-friendly products. Affirmably, even though green products are gaining popularity with customers and customers love green bank services, this is not yet a reason to prefer banks that have strong green banking policies. Moreover, the customers did not like products and services which are eco-friendly, and the products which contain green elements are still not the ones which are in demand by buyers.

The findings of study validate the posits of institutional theory that pointed out the need for Adoption of Green Finance by commercial banks in Kenya (DV) and the survival within their institutional environment (IV) that leads to a tendency for organizations to become similar or isomorphic which is the organization competitiveness highlighting the consideration of listed commercial banks in Kenya in adapting green finance. The significance effect of Triple Bottom Line also highlights the impact of Kenyan government environmental regulations and strategizes on green financing initiatives as critical on the adoption of green finance among listed commercial banks in Kenya.

5.5 Recommendations

Practice

There is a necessity to advance green finance by altering nations' regulatory structures, aligning financial incentives for commercial banks, and boosting green finance within the banking industry. It is essential to implement laws and regulations that synchronize financial sector financing decisions with the environmental aspects of the Sustainable Development Goals, boosting investments in clean technologies, funding for sustainable products, and climate-smart services.

There is a need for commercial banks to be sensitized by their mandate as banks to enable them to provide detailed disclosures on their environmental, social, and governance (ESG) initiatives and impacts. There is also a need for the listed commercial banks to encourage proper reporting on green finance, green energy use, and investments in sustainable projects. Lastly, there is also a need for commercial banks to enhance their transparency in reporting, not only to hold banks accountable but also to educate the bank on how to attain green sustainability.

There is also a need for increased incentives for banks that actively engage in sustainable practices. This could include reduced reserve requirements, lower capital charges for green assets, or other regulatory benefits that make sustainable banking more attractive. Promote the issuance and investment in green bonds and other sustainable financial instruments. Additionally, there is a need to encourage banks to develop products that support environmentally friendly projects and offer customers options to invest in sustainable assets. The listed commercial banks in Kenya should consider including various green aspects in their operations. The commercial banks should also adequately invest in the reduction of carbon emissions from banking operations. Additionally, there is a need to adopt green marketing and promote green, which should also include prioritizing sustainable innovation projects.

There is a need to change customer perceptions on the value of green products and services offered by listed commercial banks, which has contributed to the bank developing more green products. There is a need for increased sensitization to change their customers' perceptions as they develop a positive attitude towards products and services that consider environmental protection. There is also a need for enhancing the promotion of green products among customers and enlightening the customers on the value of green banking services.

Policy

In terms of carbon tax policy, there is a need for the government to consider carbon tax annual payments as part of its climate resilient development strategy, especially to manufacturing companies that emit a lot of gas and smoke to the environment. This will help cater for greenhouse gas emissions within every financial year. This will encourage consumers, businesses, and governments to produce less greenhouse gas emissions.

Theory

There is need of applying the institutional theory in enhancing the institutional capacity in the adoption of Green Finance by commercial banks in Kenya (DV) and the survival within their institutional environment which may lead to organization competitiveness. There is need for the consideration of the application of Resource Based View (RBV) in listed commercial banks in Kenya in adapting green finance. The study should also apply Triple Bottom Line in evaluating

the impact of Kenyan government environmental regulations and strategizes on green financing initiatives as critical on the adoption of green finance among listed commercial banks in Kenya.

5.6 Implications of the Research

Different stakeholders can derive the findings of the study to exercise judgments differently depending on their need. The study findings have implications on management, knowledge and policy makers.

5.6.1 Contribution to Policy

Commercial banks in Kenya, particularly those listed on the NSE, can have an important impact on green finance. They may also serve as a source of green financing and the advancement of sustainable progress in Kenya. This makes green finance a matter of policy concern. Additionally, commercial banks in Kenya are being identified as one of the critical sectors that can really promote green finance. This research found that commercial banks in Kenya are able to ensure that they develop products and internal policies that incorporate green financing and green operations, and the Ministry of Commerce, the Banking Association of Kenya, and especially the Central Bank of Kenya, who are regulators, will also benefit from the findings of this study and provide policy interventions and guidelines on how to enhance green finance, especially the Central Bank of Kenya. The results could assist central banks in creating various policy instruments and programs to encourage sustainable finance and facilitate the shift from fossil fuels. Finally, the results of the research may imply that the Central Bank of Kenya can create various policy instruments and initiatives to aid in fostering sustainable finance and encourage the shift from fossil fuels.

5.6.2 Contribution to the Management

Commercial banks in Kenya are critical for promoting green finance, and therefore, in order to compete effectively with other financial institutions, it is critical that the bank support renewable energy projects in order to contribute to sustainable development and position the commercial banks and the country for long-term growth in the transition to a low-carbon economy. Consequently, commercial banks should take on a vital role in advancing sustainable finance across Africa. In particular, the senior management of commercial banks in Kenya must formulate strategies to fulfil their role as main financiers for businesses and individuals, thereby greatly

impacting the economy. Additionally, the leadership of commercial banks in Kenya can aid in fostering a sustainable future by creating policies that promote renewable energy projects and green financing alternatives.

5.6.3 Contribution to Knowledge

The research focused on green finance factors, specifically government environmental regulations, green innovative strategies, and customer perception and attitude among listed commercial banks in Kenya in relation to the adoption of green financing. The various measures included investment in green mortgages and sustainability disclosures, allocating a significant portion of profits to green initiatives, research and development for pollution reduction, provision of green money market instruments, and integrating green investment across banking operations to ensure compliance with government environmental standards. The findings indicated a significant relationship between green finance factors (government environmental regulations, green innovative strategies, and customer perception and attitude) and the adoption of green finance among the listed commercial banks in Kenya. Reference to in applying the theory of The Triple Bottom Line to our study, where the theory aims at measuring a company's dedication to sustainable business practices and its long-term environmental impact (Kenton *et al.,* 2023). The use of the theory has been emphasized by Mwanu, 2021; Rahman & Perves, 2016; Chen, Siddik, Zheng, Masukujjaman & Bekhzad, 2022; Khairy, Elzek, Aliane & Agina, 2023)

The other theoretical application of the study is the institutional theory, which highlights that a lot of demand from numerous consumers and regulatory bodies to go green has forced several organizations to revamp their systems and processes to align with sustainability goals (Kimuli, 2023). The findings of this study will add to the scholarly works of Tran, DO, Vu & Do, 2020; Brown et al., 2020; Khairy et al., 2023 that supported the institutional theory. Additionally, the study applies a resource-based view (RBV) that sought to find out if the green banking initiatives carried out by the listed banks in Kenya create a favourable green attitude and value in the minds of their customers, thus becoming a valuable and non-substitutable strategic resource for the listed banks in Kenya to achieve a competitive edge in the banking market. The study supports findings by Shaumya and Arulrajah, 2016; Sahitya and Lalwani, 2014; Khairy *et al.,* 2023).

Scholars can build upon the findings of this study for future development and advancement of the topic. The findings of this study are in support of the significant relationship between green finance

and adoption of green finance among the listed commercial banks in Kenya. This is consistent with the general view and literature by Tran, Do, Vu, and Do (2020) and Mwanu (2021).

5.7 Study Limitations

This study focused on determinants of the adoption of green finance by listed commercial banks in Kenya and, in so doing, examined three determinants of green finance, including government environmental regulations, green innovative strategies, and customer perception and attitude. It did not examine other determinants of green finance adoption. Future research must include a broader range of determinants than these three to provide a more comprehensive picture of green finance adoption in the banking sector.

The study covered only three aspects of adoption of green finance among the listed commercial banks factors (investment in green mortgages and green sustainability disclosures; usage of sizeable amounts of profits generated for consistent investment in green activities.; research and development spending in identifying innovative approaches to reduce pollution; provision of green money market instruments; and adoption of green investment in all aspects of the banking system in order to consistently comply with the government's environmental standards) and may not depict the full picture of green finance among the listed commercial banks in Kenya. Conversely, the study concentrated solely on commercial banks in Nairobi, and therefore the findings do not include the adoption of green finance among the listed commercial banks.

Cooperation Challenges: Some respondents were unwilling to complete the questionnaires within the designated timeframe, while others did not complete them at all. This resulted in a reduced number of study participants, despite the researcher's efforts to encourage participation and communicate the potential benefits of the study.

Confidentiality - There was a negative impact on the research's data quality when some participants were afraid to provide personal particulars in the study. In this part, the researcher provided evidence of his or her sincerity to the participants by providing them with supporting papers and letters of introduction from the University. In addition, a face-to-face interview with the study's principal investigator was conducted.

5.8 Suggestions for further studies

Future studies should seek to incorporate a broader range of participants (from various branches across Kenya) for more comprehensive results. The study additionally advocates for further exploration on the levels of knowledge of green finance by senior managers of listed commercial banks in Kenya to establish the extent to which the management are able to implement green finance in their operation. There is also a need for research on how to increase awareness on green finance among commercial banks listed on NSE in Kenya.

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APPENDICES

APPENDIX I: LETTER OF INTRODUCTION

Ole Sangale Rd, Madaraka Estate,
P.O Box 59857 00200, Nairobi, Kenya.
Cell: +254 703 414/6/7, Twitter: @SBSKenya
Email: info@sbs.ac.ke or visit www.sbs.strathmore.edu

Strathmore UNIVERSITY
BUSINESS SCHOOL

4th June 2024

To Whom It May Concern,

RE: FACILITATION OF RESEARCH – MUTAI SYLVIA CHEPTOO

This is to introduce Mutai, Sylvia Cheptoo who is a Master of Commerce (MCOM) Student at Strathmore University Business School, admission number MCOM/124269/19. As part of our MCOM Programme, Sylvia is expected to do applied research and undertake a project. This is in partial fulfilment of the requirements of the MCOM course. To this effect, Sylvia would like to request appropriate data from your organization.

Sylvia is undertaking a research paper on "**FACTORS INFLUENCING THE ADOPTION OF GREEN FINANCE: AMONG THE LISTED COMMERCIAL BANKS IN KENYA.**" The information obtained shall be treated confidentially and shall be used for academic purposes only.

Our MCOM Programme seeks to establish links with industry, and one of these ways is by directing our research to areas that would be of direct use to industry. We would be glad to share our findings with you after the research, and we trust that you will find them of great interest and of practical value to your organization.

We appreciate your support and shall be willing to provide any further information if required.

Yours sincerely,

Njoki Kiagiri
Manager – Graduate Programmes
Strathmore University Business School.

APPENDIX II: STRUCTURED QUESTIONNAIRE

Dear Respondent,

My name is Sylvia Mutai, and I am conducting a study on the ***Factors Influencing the Adoption of Green Finance among the Listed Commercial Banks in Kenya***
You have been invited to take part in this study and I would appreciate your responses to the following questions. Your name should not be included anywhere on this questionnaire. Kindly answer all the questions by a ticking (√) the suitable response and providing information in the blank spaces where required.

Thank you in advance.

SECTION A: BASIC INFORMATION

1. Gender

a. Male [ ] b. Female [ ]

2. Education Level

a. Secondary [ ] b. Certificate [ ] c. Diploma [ ] d. Degree [ ] e. Post-graduate [ ]

3. What is your work experience?

a. Below 5 years [ ] b. 6-10 years [ ] c. 11-15 years [ ] d. 16-20 years [ ] e. above 20 years [ ]

4. Please indicate the level to which the management has been committed to CSR banking activities in your bank.

Hardly Committed [ ] Not Committed [ ] Somewhat Not Committed [ ]
Not Sure [ ] Committed [ ] Very Committed

SECTION B: FACTORS AFFECTING ADOPTION OF GREEN FINANCE

Please indicate the level to which you agree with the following statements concerning the factors affecting adoption of green finance among the listed commercial banks in Kenya. *Key: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree*

No.	Statement	1	2	3	4	5

Government Environmental Regulations						
1.	There are government regulations in Kenya providing banks avenues that guide the adoption of green financing by commercial banks in Kenya					
2.	The Green Incentive Bill expects banks to invest a percentage of its investment on green financing					
	There are regulations that provide guideline on green financing and lending					
3.	There is a need for the introduction of carbon tax to reduce greenhouse gas emission among banks.					
4.	The government does not provide tax incentives to banks prioritizing green investment.					
5.	Fiscal policies have been created by the Central Bank of Kenya for development of green finance.					
7.	CBK requires that all major lending to enterprises should embed climatic considerations.					
8.	Mandatory annual reporting is required by NSE on ESG performance.					
Green Innovative Strategies						
8	The bank has adopted green sustainable products and services					
9	The bank's operations and service are green considerate					
10	The bank has heavily invested in the reduction of carbon emissions from banking operations.					
11	The bank in addition to adopting green marketing, promotes green and sustainable innovation projects					
12	Most of the banking operations are designed in recognition of the environmental protection					
13	Most listed commercial banks use solar energy as a source of energy for their operations					
Customer perception and attitude on green finance and value						
14.	The perceived value on green products and services offered by has contributed to the bank developing more green products.					
15	The customers prefer products and services that are environmentally friendly.					
16	Green products are gaining popularity among customers in commercial banks					
17	Products that have green component are more sought by the customers					
18	Customers have a positive attitude towards products and services that consider environmental protection.					
19	Customers are always willing to spend more on green products.					
20	Customers value green banking services					

21	Customers prefer banks with strong green banking policies					

SECTION C: ADOPTION OF GREEN FINANCE

Please indicate the level to which you agree with the following statements concerning the adoption of green finance among the listed commercial banks in Kenya. *Key: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.*

No.	Statement	1	2	3	4	5
22	The bank has made consistent investment in green mortgages.					
23	The bank invests yearly in green sustainability disclosures.					
24	The bank supports investment in green activities.					
25	The bank has increased its funding to sustainable customer projects					
26	The bank is providing incentives through lower interest rates to encourage borrowing towards sustainable projects.					
27	The bank provides a variety of green products to different segments in the market.					
28	The bank has adopted green investment in all aspects of its banking system.					

Thank You for Your Cooperation

APPENDIX III: LISTED COMMERCIAL BANKS IN KENYA

No.	Listed Commercial Bank
1.	Absa Bank Kenya PLC
2.	Cooperative Bank of Kenya
3.	Diamond Trust Bank Kenya
4.	Equity Group Holdings
5.	HF Group Ltd
6.	I&M Holdings Ltd
7.	KCB Group Ltd
8.	National Bank of Kenya Ltd
9.	NCBA Group PLC
10.	Stanbic Holdings PLC
11.	Standard Chartered Ltd

Source: NSE (2024)

APPENDIX IV: ETHICAL REVIEW

Strathmore UNIVERSITY

2nd September 2024

Ms Mutai Sylvia,
sylvia.mutai@strathmore.edu

Dear Ms Mutai,

RE: Factors Influencing the Adoption of Green Finance among Listed Commercial Banks in Kenya

This is to inform you that SU-ISERC has reviewed and **approved** your above SU-masters proposal. Your application reference number is **SU-ISERC2358/24.** The approval period is from **2nd September 2024 to 1st September 2025.**

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

Ole Sangale Rd, Madaraka Estate. PO Box 59857-00200, Nairobi, Kenya. Tel +254 (0)703 034000
Email admissions@strathmore.edu www.strathmore.edu

APPENDIX IV: NACOSTI RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **760040**

Date of Issue: **13/September/2024**

RESEARCH LICENSE

This is to Certify that Ms.. Sylvia Cheptoo Mutai of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: Factors Influencing the Adoption of Green Finance among Listed Commercial Banks in Kenya for the period ending : 13/September/2025.

License No: **NACOSTI/P/24/39949**

760040

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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See overleaf for conditions