



**SUSTAINABLE GREEN LOANS AND LONG TERM INVESTMENTS RELATED TO CLIMATE CHANGE AMONG
COMMERCIAL BANKS IN KENYA**

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ABSTRACT

Climate change is considered as a more than just an environmental danger since it affects so many economic sectors; it is also anticipated to worsen. The goal of this study was to look at the present condition and developments in green and climate financing techniques used by Kenyan commercial banks. The need to address social, economic, and environmental issues while generating new ideas and best practices is central to the concept of sustainability. Economic growth is made more sustainable by taking into consideration social and environmental problems. The main objective of the study was to evaluate the sustainable green loans and long term investments related to climate change among the commercial banks in Kenya. The study was anchored on; contingency theory, innovation theory and conspiracy theory. Exploratory research design was employed for the study. The population target was made of 39 commercial banks and purposive sampling was applied where by, all the mentioned 39 banks were considered for the study since it was manageable. Data was gathered through excel sheet for secondary data collection. The analysis of both descriptive and inferential statistics of the study was based on STATA which was the computer software package applied during the study. The results of the study after the analysis indicated sustainable green loans had significant effect on long term investments related to climate change among commercial banks in Kenya.

Key words: Sustainable Green Loans, Climate Finance Practices, Long Term Investments

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INTRODUCTION

The transition to a more urbanized society and global environmental change have combined to create a serious problem for us with planetary sustainability. Environmental, social, and governance (ESG) factors are taken into account while choosing investments for a portfolio and managing it. In order to encourage the convergence of global change research and sustainable development, the notion of sustainability blurs the distinction between environment and development (Turner 1997). Given the growing interest and need for monitoring and reporting among many stakeholders, the absence of suitable indicators, measurements, and data to assess the success of climate efforts is a key issue (GFLAC & UNDP, 2018). A broader role is being given to institutional investors and funds by the global greening of financial markets in addition to commercial financial institutions. The multilateral development banks, for instance, devised a framework for fostering alignment during the COP24 in Katowice (MDBs, 2018). Failure to reallocate resources would lock in high-carbon activities that would cause temperatures to exceed 1.5 °C thresholds, as well as expose governments and private investors to transition and physical climate risks that could amplify as they move through the economy, cause significant income loss, and consequently lower living standards. (2019c CPI; 2018 OECD).

Public finance is essential in inspiring private participation because it helps people see the value of every dollar spent on resilience or mitigation. Additionally, one must comprehend the various nations' low-carbon growth strategies. In fact, a sizable number of bilateral and multilateral development finance institutions (DFIs) have recently reaffirmed their commitments to quickly increase investment levels in the short term and work toward making all development bank financing compatible with climate and Sustainable Development Goals (SDG) targets in the long term (IDFC, 2019; MDBs, 2018). Barney (1991) contends that a competitive advantage is an plus gained over

competitors by contributing customers better value, either through lesser fees or by providing extra assistances and services that validate alike or even upper fees. Firms can similarly increase competitive advantage by the expansion of basic proficiencies and lenient management features like culture, social capital and advanced knowhow or by concentrating on value chain suitable through uniformity of activities, strengthening of processes to make synergy and adjusting their energies and performance capability (Manketelow, 2014).

Africa is experiencing global warming, and governments must deal with it while still pursuing a variety of other development objectives. The task at hand is difficult. Africa's immediate priority should be to lessen the susceptibility of its most vulnerable people because the effects of climate change will almost certainly get worse until at least the middle of the century. The most efficient way to lower preventable fatalities from droughts, floods, and other natural catastrophes is to strengthen disaster risk governance. Although Africa is making progress in terms of development, the continent lacks the resources needed to adapt to climate change, and vulnerable populations are expanding. Low levels of development and occasionally poor government capacity, particularly in Sub-Saharan Africa, make it difficult to respond to climate change

Kenya has the chance to take on an exciting position as a regional leader in the promotion and development of renewable and clean energies (Wolde-Rufael, 2009; Uddin et al., 2013). The geographic location of Kenya provides access to a variety of appealing and inexpensive renewable energy options (Ndiritu and Engola 2020; Oluoch et al. 2021). With one of the world's greenest power mixes, Kenya is a global leader in renewable energy (Kiplagat et al. 2012). Kenya is in a fantastic position to achieve a successful and global leading energy transition given its grid expansion techniques and low cost in comparison to fossil fuel sources (Njoroge et al., 2020). In order to start and lead the implementation of Sub-Saharan Africa's CO2 Emission Trading Scheme (CETs), Kenya has the

potential to do so (Huho and Kosonei, 2014; Carvallo et al., 2017; Juma and Khademi-Vidra, 2019).

In order to address climate change, Kenya has made significant efforts over the years to alter the country's plans, policies, initiatives, strategies, and programs (The National Treasury; Climate Policy Initiative; The Kenya Climate Innovation Center, 2021). The United Nations Framework Convention on Climate Change, the Paris Agreement, and the Kyoto Protocol are all signed by Kenya. Kenya is committed to the sustainable environment program, despite the fact that the government understands that these green initiatives are underfunded and that this is because there aren't enough public resources (Mooldijk & Lütkehermöller, 2021). Banking institutions have been urged to promote green investments in cooperation with other institutions through the Kenya Bankers Association, an umbrella group of regulated commercial banks in Kenya (Kenya Bankers Association, 2021).

Linkage between Climate Finance Practices and Sustainable Financing

The globe is well aware of its disastrous sensitivity to climate change, despite being an innocent victim. Even if climate-related disasters are becoming more resilient, they nonetheless cause significant economic losses by slowing down economic growth and impeding efforts to reduce poverty. The failure of climate change programs and other environmental dangers, such as extreme weather, are increasingly seen by world leaders as the most pressing global issues (World Economic Forum, 2020). GHG emissions, deforestation, and the degradation of natural resources as a result of certain countries' hurry to speed economic development have grown to be important sources of worry. The effect of climate change on many industries have a domino effect, which indicates that the effects on one industry have an impact on other industries. In numerous international development agendas, the tight relationship between addressing climate change and sustainable

development is underlined. Global warming and sustainable development must be integrated into nations' development plans and goals, and they must complement one another at all levels and in all spheres of society.

The banking sector must supply the significant sums of money needed for the deployment of NDCs in emerging economies. Significant funding hasn't been mobilized yet due to a number of issues, including a lack of knowledge about climate finance opportunities and a lack of a clear plan. According to the study, local climate finance markets should be formed in alliance nations to increase climate financing (van Rooijen & van Wees, 2006). While reducing and correcting any unfavorable effects like stranded assets, job losses, and a weakened local economy, integrating a fair transition logic into financial sector operations can produce favorable social and environmental outcomes. There is a large financial gap that has to be closed in order to achieve these goals, according to numerous studies (Buchner et al., Citation2019; IPCC, Citation2018; UNCTAD, Citation2014). Since central banks and regulators are growing more interested in this subject, the impacts of climate change on financial stability are receiving more attention (Carney, 2015; Lagarde, 2020).

A key driver of development today is sustainable financing. Sustainable development is therefore given more attention. In Kenya's case, making sustainable investments, particularly in the areas of the environment, education, health, power, and financial inclusion would help address the continent's needs for sustainable development and the expansion of the financial sector. Additionally, the strategic integration of Kenya's various sustainable finance practices with the SDGs would create new opportunities and spur innovation. Access to private capital is frequently seen as a means of bringing about this change (African Development Bank et al., 2015), but the enabling political, regulatory, and economic conditions that would encourage refocusing the majority of private sector investment toward achieving these goals

remain unchanged (Parker et al., 2012; Almassy et al., 2015).

International organizations and central banks have been involved in a variety of programs that have increased their interest in climate change. For instance, in 2015 the Financial Stability Board (FSB) formed the Task Force on Climate-associated Financial Disclosures (TCFD) with the goal of developing voluntary and standardized disclosures of financial risk related to climate change. The Network of Central Banks and Supervisors for Greening the Financial System (NGFS) was established in 2017 by eight central banks and supervisors with the goals of exchanging best practices, advancing environmental and climate risk management in the financial sector, and mobilizing mainstream finance to support the shift to a sustainable economy. Nevertheless, despite the potential for "a massive increase in productivity for a wide variety of goods and services," Digital technologies do not come without risk, despite the potential for "a massive increase in productivity for a wide range of goods and services" (Sachs, 2019).

A coordinated approach across the two strands of finance would be necessary to increase the effectiveness of climate and sustainable development spending given the significant interconnection of these two spheres of policy (OECD, 2019). Additionally, alignment between donor and recipient nation goals is necessary to increase the financial effectiveness and ownership of climate and sustainable development policies, particularly with regard to the emphasis placed on mitigation vs. adaptation (UNFCCC, 2017, Bouyé et al., 2018). A major issue for development and economic policy now is the tracking and reporting of climate money flow. In order for the government to make informed judgments on climate policy, tracking helps to provide accurate data on budgets and spending related to climate change. The basis for the nation's data-driven decisions on climate investments will be climate finance data, along with other climate data such as GHG inventories and risk assessments. The establishment of a uniform

framework for identifying climate-related activities and monitoring the nation's public climate money necessitates the need for climate finance monitoring.

Sustainable Green loans

Floods, emissions, storms, and droughts are becoming more frequent and severe due to climate change, endangering sustainable development. As carbon dioxide emissions increase, there are growing environmental concerns on a global scale (Schumacher et al., 2020). Although many people believe that the 1960s and 1970s saw the beginning of the first fully concentrated societal movement in favor of ecology, many of the current "going green" programs actually had their roots in those years. Public sector involvement is predicted to be significant in the shift to a green economy. In order to achieve sustainable development based on the Paris climate agreement, money from carbon-dense projects must be transferred to sustainable green investments (Tolliver et al., 2020).

Many nations are expanding their public investments in infrastructure and renewable energy, seizing the opportunity to aid in the epidemic's recovery and the requirement to boost energy security and resilience in reaction to the Ukraine crisis's detrimental economic repercussions. Despite the enormous expansion of green finance, there is still a considerable funding shortfall. Green bonds and loans totaling more than 450 billion euros were offered in 2021, which is more than half the amount required for Europe to invest yearly to become carbon neutral by 2050. In order to demonstrate concern and accountability for the actions taken by businesses, it is anticipated that the concept of "green finance" will not only help reduce carbon emissions but also mitigate climate risk, facilitate the transition to a zero-carbon economy, and enhance community quality of life (Kemfert et al., 2020).

The Green Fund's capacity to immediately mobilize resources, serving as a bridge to longer-term sources of funding, would be an important feature. It is anticipated that despite the encouraging

statements made at or before Copenhagen, at least some contributing states will find it difficult to implement financial transfers to provide the necessary subsidized resources in the near future. What void might the Green Fund fill? Green finance has done very well when it comes to factors influencing national and global economies. The research on the subject is primarily concerned with how green finance links to other environmentally beneficial practices like renewable energy, despite several attempts to examine the topic (Li et al., 2021; Taghizadeh-Hesary & Yoshino, 2020; Zhang et al., 2020).

In terms of economic issues affecting both national and global economies, green funding has performed well. Yet, a variety of elements influence economic expansion, calling for a careful analysis of climate change and green finance. The green finance variables, such as green investments, green security, or green credit, which aid nations in achieving the evident goal of environmental improvement, have a direct bearing on the world economy (Chien et al., 2021d). Financing or investments for sustainable endeavors conducted through financial institutions are referred to as "finance" (He et al., 2019). The basic pillar of the Green Deal is the restructuring of the nation's primary energy, transportation, building, and food production systems. This is based on laws that were passed to combat climate change ten years ago.

The Green Fund would need to give its creditors believable assurance before it could access private funding through international capital markets. In return for their contributions, contributors would get ownership shares in the fund, which would allow the fund to be capitalized. This buffer may be increased over time using revenue from a low lending rate levy on fund borrowers and additional budgetary transfers from contributing nations in order to avoid losing equity in the fund in the event that borrowers from the Green Fund default. In order to make donors' equity shares liquid and countable, it would also probably be required to incorporate a margin up front to account for

prospective encashment demands. The initial endowment may need to be raised by about 20%, or approximately \$120 billion, as a result, in my opinion. To work toward an early agreement on one of the more straightforward carbon pricing concepts currently under discussion, and to send at least some of the proceeds to the Green Fund. This would be done using a current UN High-Level Advisory Panel on Climate Change Financing report. Estimates of the possible revenue from global taxes on shipping and aviation, for example, range from \$10 billion to \$20 billion annually. In fact, a combination of these alternatives may be employed as required to make sure the fund is able to achieve its financial objectives throughout the start-up phase.

Statement of the Problem

Kenya's thriving, fast expanding economy is one of the largest in Africa's eastern area, serving as a commercial and investment hub for both central and eastern Africa. Despite diversification, the economy remains strongly reliant on natural resources. As a result, Kenya is very vulnerable to the effects of climate change, environmental changes, and the socioeconomic implications. Green finance has a terrible track record in Kenya; historically, investments in Kenya have come from NGOs using money with no cost of capital to replace contributions, which is a tremendous move on their part. However, the financial rewards were not enormous, giving rise to the misconception that investing in the environment and climate was a philanthropic gesture rather than a viable sector of business. Even banks are not immediately influenced by the blatantly harmful effects of climate change, banking operations do significantly contribute to environmental protection. The bulk of commercial endeavors rely on bank support for capital generation through loans that support investment, manufacturing, or consumption of particular goods or services. Since they function as middlemen, banks are crucial in ensuring that businesses engage in lucrative but long-lasting commercial activity (Bohara, 2018).

Long-term climate change spending continues to fall short of what is required to meet the NDC, with adaptation bearing the brunt of the burden. Increased public and private climate finance is required to meet the climate change targets outlined in the Nationally Determined Contributions (NDC). In order to find and connect projects with long-term financing, the financial industry is anticipated to play a crucial role. The estimated resource requirements for 2020- 2030 are USD 17.7 billion, with the domestic economy providing USD 3.7 billion (21%), meaning a growing reliance on the financial sector GOK (2021a). Poor countries make up a small portion of the problem despite being the most susceptible to the effects of climate change and having the least ability to adapt (Dell ET, al., 2008). As a result, in order to achieve its NDC goals and establish a resilient economy, Kenya must increase its adaptation investment. To satisfy the SDGs' investment objectives, the global community must shift the conversation from "billions" in official development (ODA) aid to "trillions" in all forms of investments: public and private, national and global, in both capital and capacity. A worldwide transformation in attitudes, processes, and responsibility is required to reflect and modify the new reality of a developing world with vastly different national settings (African Development Bank et al., 2015).

The results of recent empirical studies on climate financing are conflicting. With a focus on developed economies, climate risk scores (Weyzig et al., 2014; Battiston et al., 2017; Neito, 2019; Wambui, 2020) and climate scenario stress testing analysis (Ojea-Ferreiro, 2022; Allen et al., 2020; BOE, 2021) have been used to evaluate the impact of transitory and physical risks on financial stability. Quite a number of studies have been done on climate financing but with little focus on sustainable green loans and long term investments related to climate change among the supporting commercial banks. Such findings from scholars as mentioned within the literature raises differences that bring up gaps that are methodological, geographical, conceptual and

contextual that necessitated for the study to be undertaken.

Study objective

To evaluate the effect of Sustainable green loans on long-term investments related to climate change among commercial banks in Kenya. The study was guided by the following research hypothesis

- **H₀₁:** Sustainable Green loans has no effect on sustainable investment among commercial banks in Kenya.

LITERATURE REVIEW

Theoretical Literature Review

Contingency theory

Researchers at Ohio State University studied leadership behavior, and their findings led to the development of contingency theory in 1950 (Donaldson, 2001; Nohria & Khurana, 2010). According to the research, exemplary leadership techniques develops from the development of outstanding rapport and interpersonal connections, as well as the adoption of structure that ensures task completion and goal achievement. Contingency theory is now widely accepted and so no longer debatable (Meyer et al. 1978). His assessment is supported by the prominence of contingency theory in the management and applied literature. While commonly acknowledged as an alternative, pragmatic public relations theory, it has been criticized for failing to meet a major condition for a good theory, parsimony (Blumer, Ehrenfeucht, Haussler & Warmuth, 1987).

The contingency hypothesis has received a lot of attention and criticism for being extremely simple and failing the reality test. Theoretical statements lack precision and give no hints as to the required level of involvement. The first two variables interact, according to contingency theorists, when they assert that a relationship between two variables predicts a third (Namboodiri, Carter, and Blalock, 1975). Rarely is the mathematical basis for the proposed relationship between structure and technology (or environment) explicitly stated. This

ambiguity makes it possible for the mathematical function defined by verbal theory to be represented in practice by a function with entirely different characteristics. The implied purpose of the verbal theory is only a statement about how structure is meant to interact with technology (or the environment) for increased effectiveness.

Despite the shortcomings, the environment has changed in recent decades, becoming more complicated, turbulent, and unpredictable than it formerly was. As a result, stakeholders now confront new difficulties when trying in order to decide in unpredictable circumstances (Baines and Langfield-Smith 2003; Chenhall 2003; Otley 2016). A number of decision-makers have recently faced difficulties as a result of environmental uncertainty, concerns about the accuracy of information flows, illogical behaviors of the financial markets, and excessive economic volatility. An extraordinary situation has arisen as a result of the COVID-19 outbreak. The uncertainty of the scenario makes decision-making in this situation uncommon (Aon 2020).

In addition to the likelihood of catastrophic disasters, other climate-related events, such as the implementation of new regulations, technology, and costs, might have an influence on climate funding. Because these catastrophic incidents are not isolated and regularly reoccur, organizations find it difficult to plan for the consequences of climate change. Contingencies are external events that have an influence on organizations but that they cannot directly control (Sousa and Voss, 2008). Climate change is an issue that creates worldwide hazards and uncertainties as a result of a recent series of extreme weather occurrences (Winn et al., 2011; Slawinski et al., 2015) (Kuklicke and Demeritt, 2016; Carrao et al., 2016). These incidents have had a negative impact on both companies and individuals. These occurrences have had a negative impact on both industrial operations and enterprises (Gasbarro and Pinkse, 2016). Because there is no one strategy to applying the concept of contingency (Horisch, 2013), this work

utilizes the words sustainability and resilience for climate change (Lee, 2012a, 2012b) as organizations manage with risk-related contingencies from climate change that influence their operations.

More transparent, externally-focused, non-financial information and a stronger dependence on flexible and interpersonal management accounting have both been linked to environmental uncertainty (Chenhall, 2003). Several of these technological and political rules and constraints are causes of environmental uncertainty (Chenhall 2003). Changes in any of the environmental variables may prompt the organization to respond by altering its policies (Woods, 2009). Businesses deciding on capital investments face considerable strategic risks related to technology availability and carbon price (Deloitte 2007). Due to the lack of technology that may currently be used to mitigate carbon emissions and the costs associated with electricity generation using fossil fuels, high-energy consumers are particularly at danger (Lund, 2007; Reinaud, 2005). Current emissions are at a level where the physical effects of climate change will be apparent in the future at a broad scale (Slawinski et al. (2015).

In order to meet demand related to climate change, using low-carbon operational methods may be regarded as a strategic skill. Carbon efficiency is incorporated into the planning, execution, and control of business processes in low-carbon operations to gain a competitive edge. Low-carbon operations comprise the development of low-carbon products as well as low-carbon production and logistics processes (Böttcher and Müller 2015). Low-carbon processes include those that monitor and maintain a process's carbon footprint as well as those that minimize greenhouse gas emissions through the creation of energy-efficient methods (Tang and Zhou, 2012; Furlan Alves Matos, et al., 2017). The three techniques studied by (Weinhofer and Hoffman 2010), who examined a global sample of power producers, are carbon reduction, carbon independence, and carbon compensation. Examples of these strategies include investing in carbon offset

projects and utilizing emissions trading systems (creating carbon-free goods and processes).

Notwithstanding the fact that climate change is a global issue that affects both the current generation and generations to come, contingency literature advocates for government intervention to limit the impact of climate change's negative externalities through effective sustainable financing. Because there are no "World Governments" or other institutions to control GHG emissions on a global scale by monitoring compliance, encouraging continuous improvement, and providing data for internal decision-making as well as for external reporting, it is very difficult to regulate and mitigate climate change (Henri & Journeault, 2010).

Theory of Innovation

Schumpeter famously defined innovation as "the doing of new things or the doing of things that are already being done in a different way" (Anderson, N., & De Dreu, C. K. W. 2004). Innovation with the influx of new researchers in the 1980s and 1990s, innovation theory became much more diverse. In the diffusion of innovation theory, (Rogers 2010) proposed the perceived risk of adopting technology. All breakthroughs rely on educated actors to implement new technology and enable the potential provided by technology (Helpman, 1998; Bresnahan & Trajtenberg, 1995; Garcia & Calantone, 2002). However, technological advancements need interpretation. The use of new technology is contingent on actors recognizing what a new product is great for and developing things for customers that they would find useful (Rosa et al., 1999; Read et al., 1999).

Local or regional innovation capabilities is thus limited by power imbalances that manifest at various scales and through the interaction of multiple institutions. On the other side, innovation might help to address these power disparities. Companies may strengthen their positions in the relationship between the local and the global by creating conditions that allow their operations to become more competitive and less 'disposable' (Coe et al. 2004). For firms that rely on a value

chain, innovation may entail the creation of own brands or the discovery of new means to reach final clients without the involvement of an intermediary organization (Tokatli 2007).

The subject of technology and innovation study has been acknowledged as being highly interdisciplinary since the early studies by Liker (1996) and Chen (1999). Studies like Linton and Thongpapanl (2004), Ball and Rigby (2006), Linton and Embrechts (2007), and more recently Hall (2018) and Pitt et al. (2021) have further investigated the disciplinary links within the subject. These studies collectively demonstrate the broad and extensive range of applications for innovation. Research on innovation systems is a noteworthy area of study (Lundvall, 1992; Nelson, 1993; Edquist, 1997; Watanabe et al., 2000; Tukker et al., 2008), with firm innovation activities at the center of economic and innovation processes and related systemic contexts supporting or impeding innovation capabilities. Instead of geoengineering, the majority of innovation literature emphasizes mitigation and adaptation. As shown by our research, innovation studies within the mitigation theme frequently looked at how the interplay between organizations, legislation, and user practices influences or is influenced by the adoption of alternative sources of energy technologies.

In order to enable national and subnational decarbonization operations as the consequences of climate change grow more pronounced, innovation is expected to be essential. Most technologically advanced innovations targeted at lowering the causes of or lessening the effects of climate change are riskier and less certain (Wu et al. 2020). Innovations in the fight against climate change include energy efficiency, low- and non-carbon technology, carbon reduction technologies, and technologies for carbon capture and storage (Newell, 2009). However, addressing global challenges through innovation requires organizational, social, and economic changes in addition to technological advancement, as acknowledged by the field of innovation studies and

its diverse range of perspectives, including technology, innovation management, and innovation policy. In order to combat the effects of global warming, both the public and private sectors currently have access to a wide range of technological solutions, from carbon-free or low-carbon technologies to reduce the sources of greenhouse gases (GHGs) to advancements in carbon capture and storage (Sovacool, 2021b; UNGC-Accenture, 2015).

One conclusion is that innovative technologies like renewable energy (particularly solar photovoltaic and micro inverters), smart electricity systems, and decentralized energy storage are now more practical due to expanded deployment, which has led to significant cost reductions (IRENA, 2021; Viardot et al., 2013). A further finding is that without more support from governments, investments in low-carbon innovation are still too low and unlikely to expand much. (Reid and Toffel, 2009). The use of "geoengineering" techniques to stop or reduce global warming through the purposeful, significant modification of the environment is one of the more controversial technologies (Sovacool, 2021b; winter, 2014). In order to reflect the sun's rays, geoengineering proposals include dispersing reflecting particles into the atmosphere, burying carbon in the ground, and creating large mirrors in space (Sovacool, 2021b; CB Insights, 2019).

The 2030 vision is not a deception because it states unequivocally that Kenya wants a healthy, safe, and sustainable environment by that year. It also outlines a number of signature projects aimed at reducing climate variability and preparing for it. Other initiatives to incorporate climate change issues include the 2004 energy policy, which required the government to invest heavily in geothermal and renewable energy. This paved the way for the establishment of the Geothermal Development Company (GDC) as well as numerous energy sector reforms to improve efficiency and sustainability.

Conspiracy Theory

Conspiracy theories thrive in an environment of uncertainty around the public's knowledge of climate change. Conspiracy theory acceptance has been linked to a variety of factors, including uncertainty (van Prooijen and Jostmann, 2013), feelings of helplessness (Abalakina- Paap et al., 1999), political cynicism (Swami, 2012), magical thinking (Barron et al., 2014), and mistakes in logical and probabilistic reasoning (Brotherton and French, 2014). By addressing these issues, the need for conspiratorial justifications can decline. Conspiracy theories alleging that climate change is a fraud and was created to deceive the public persist, despite the fact that active climate scientists unanimously agree that it is happening, harmful, and human-caused (Cook et al., 2016).

The stifling of essential desires may be fostered by conspiracy theories, creating a feedback loop that encourages the individual to hold onto and expand their conspiracy theory beliefs (Douglas et al., 2017; van Prooijen, 2020). For instance, it has been shown that exposure to conspiracy theories increases feelings of impotence and lowers feelings of control and autonomy (Jolley and Douglas, 2014a,b; Douglas et al., 2017). This is hardly surprising given that conspiracy theories undermine the quest for autonomy by emphasizing how individual actions cannot impact the existing quo, even while they offer a different explanation for unfortunate events. In addition, they underline how numerous things are connected to one another and how the public is kept in the dark about the facts, which may annoy people since they feel incompetent. By highlighting how the ingroup is mistreated by the out-group and how the in-group is the subject of hostile plots, conspiracy theories can eventually intensify feelings of social alienation. In addition, conspiracy theories frequently lead to interpersonal conflict between conspiracy theorists and non-theorists, which could endanger friendships and relationships as well as exacerbate the dissatisfaction with the desire for relatedness.

The climate deniers implicated in Climate gate in 2009 asserted that researchers falsified data in their research publications and suppressed their opponents in order to secure funding (i.e. taxpayer money). There is no scientific agreement on the matter, according to certain skeptics of climate change, and they occasionally claim that any evidence showing there is an agreement is false. Some of them even claim that governments have skewed science by diverting cash from research grants to other endeavors. In 2002, in response to Clive Hamilton's criticism of the group, the Lavoisier Group asserted that thousands of climate scientists had falsified their studies to promote the idea of climate change in order to maintain their research funding. An article written by the Cooler Heads Coalition provided support for this assertion. Climate change poses a major danger to these fundamental and beloved beliefs about people's morality and the legitimacy of societies (Bandura, 2007). The ability of climate change conspiracies to defy the apparently overwhelming evidence that humans are harming the environment may therefore be their main psychological attraction. On people's sense of calm in general, denial of climate change is likely to have a significantly higher favorable effect.

Furthermore, the widespread belief in climate change conspiracies has led to ineffective or nonexistent mitigation efforts for the harm caused by global warming. There is proof that some of individuals who make such conspiratorial claims are involved in well-funded information campaigns intended to sow discord, challenge the scientific consensus on climate change, and minimize the expected effects of global warming. Long after the majority of scientists had come to their conclusions, individuals and groups continued the global warming argument. It is currently unclear how much belief in climate change conspiracies affects people's pro-environmental activities in daily life (also known as private-sphere pro-environmental behavior; Stern, 2000), which is also crucial for climate change mitigation (Dietz et al., 2009).

According to a conspiracy theory, those who have invested heavily in renewable energy firms stand to lose a great deal of money if it turns out that global warming is a lie. This theory contends that environmental organizations pay climate scientists to falsify their research in order to protect their financial investment in renewable energy sources. In addition, in October 2020, a commentary titled "Avoiding a Climate Lockdown" that appeared on Project Syndicate, a reputable nonprofit media outlet that offers commentary and analysis on current events, was connected to about 3,500 accounts, 498 of which appeared to be bots, and another 49 of which appeared to be connected to influencers who provide false information. What can (or should) be done about climate change denial ideas then? These tactics include outright outlawing conspiracy ideas, imposing financial penalties (like as taxes) on those who spread them, and participating in "cognitive infiltration"—joining conspiracy organizations and refuting their conspiracy theories (Sunstein & Vermeule, 2009). These recommendations, however, could be argued to be undemocratic, irrational, and unrealistic. Since climate change denial increasingly reflects ideological perspectives, they may also backfire and the possibility of "conversion" using scientific data is limited (Bain et al., 2012).

Although though they are sometimes ridiculed as the frivolous fantasies of outcasts on the edge of society, conspiracy theories have the power to influence people's intentions in important ways. It is vital and necessary to look into how those who deny climate change affect society. They don't have little or no significance. Environmentalists and elected leaders should be aware that conspiracy theories can undermine government initiatives to encourage environmentally beneficial behavior. The challenge of future study will be to identify ethical alternatives to counteract the negative impacts of climate change denial through resilient finance.

Conceptual Framework

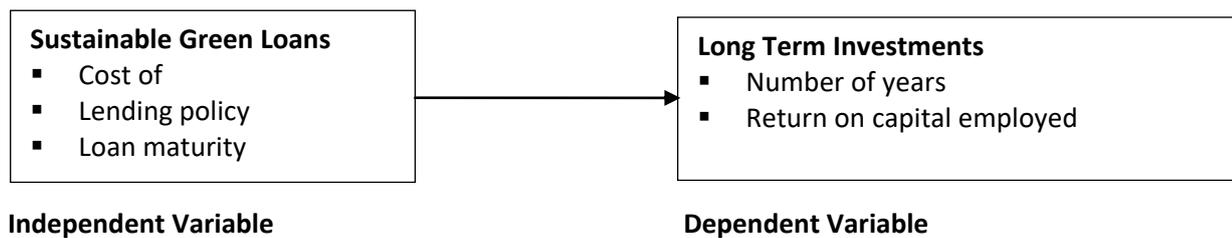


Figure 1: Conceptual Framework

METHODOLOGY

Research Design: Exploratory research design was used in this study. According to this type of research design, the researcher has a lot of flexibility and can adapt to changes as the research progresses. It is usually low cost, it helps lay the foundation of a research, which can lead to further research. It enables the researcher understand at an early stage, if the topic is worth investing the time and resources and if it is worth pursuing. It can assist other researchers to find out possible causes for the problem, which can be further studied in detail to find out, which of them is the most likely cause for the problem.

Target Population: The target population, according to Scheiber and Scheiber (2014), is made up of the actors who are most adversely affected by the issue that initiatives are attempting to address. They are the projects' intended direct beneficiaries and, in certain circumstances, indirect recipients. Using purposive approach, all 39 commercial banks in Kenya having climate resilience strategies and licenses as of December 2022.

Sample Frame: The sampling frame for this study consisted of all 39 licensed commercial banks that were still in operation in Kenya as of December 2022, as stated in the Central Bank of Kenya database.

Research Instrument: The data collection instruments are tools used to collect information from the intended target population (sample size). The data collection instruments to be used in this study were developed by the researcher. The study

used an excel sheet on recording the secondary data.

Pilot Test: According to Hurdley (2002) a pilot study, is a small scale preliminary study conducted in order to evaluate feasibility, time, cost, adverse events, and effect size (statistical variability) in an attempt to predict an appropriate sample size and improve upon the study design prior to performance of a full-scale study. In order to ascertain validity of the research instruments, the researcher piloted the instruments by distributing ten (10) to pilot group of respondents in commercial banks in Malindi town, which were not part of the banks to be sampled.

Data Analysis: The researcher used the computer software Statistical Package for Social Scientists (STATA) version 24 for windows to conduct initial data analysis using simple descriptive statistical measures such as, mean, standard deviation and variance to give glimpse of the general trend. However, deeper analysis involving correlation analysis and multiple regression analysis was used to determine the nature of the relationship between variables at a generally accepted conventional significant level of $P=0.05$ (Sekaran, 2003). Regression analysis was applied to analyze the relationship between a single dependent variable and the independent variable respectively (Hair et al., 2005). The beta (β) coefficients for each independent variable was generated from the model. The regression model which was used in the study shown below:

$$y = \alpha + \beta_1 X_1 + \epsilon$$

Where;

Y= long term investment

α = constant
 β_1 = parameter estimate
 X_1 = sustainable green loan
 ε is the error of prediction.

FINDINGS AND DISCUSSION

Response Rate

Panel data analysis of secondary data from this chapter's sources included 39 commercial bank reports in Kenya—of which only 12 banks provided substantial data for study is presented. The exploratory and diagnostic analyses of the panel data were presented first in this chapter. Serial correlation, heteroscedasticity, multi-collinearity, and criteria for selecting random effects models over fixed effects models are all covered in the section on diagnostic analysis. Additionally, it looks for significant variations in climate finance among

Kenya's commercial banks. Panel data was then used to examine the study's findings to determine how the four independent variables affect sustainability investments.

Descriptive Statistics of the Variable in the Study;

Sustainable Green loans

All variables of Banks registered on the Kenyan Stock Exchange were subjected to a descriptive statistical study using annual data from 2018 to 2022. The mean value provides the average percentage financing of variables, whereas the standard deviation measures dispersion from the mean. The maximum value represents the highest percentage amount ever recorded in the study's data, while the minimum value represents the lowest percentage amount ever observed.

Table 1: Sustainable Investment

Variable		Mean	Std. Deviation	Min	Max
SI	Overall	23.69333	8.343837	12	48

Sustainable investing methods employed by Kenyan commercial banks are represented by the dependent variable, demonstrating their commitment to preserving the environment, promoting social responsibility, and putting in place effective governance frameworks. Environmental indicators, on the other hand, have a direct or indirect relationship with the environment. In order to compute the environmental sustainability score,

which combines economic, social, and environmental sustainability, they take into consideration energy consumption, which is represented by fuel prices (zçelik & AVCI ZTÜRK, 2014). As a result, when looking at Table 8, we can see that the average percentage funding of sustainable investments spans from 12% (min) to 48% (max), with a mean of 23.69%.

Table 2: Sustainable Green Loans

Variable		Mean	Std. Deviation	Min	Max
SGL	Overall	21.71383	14.58396	3.7	53.4

Table 2 shows that, with a mean of 21.71%, the average percentage funding of sustainable Green loans ranges from 3.7% (min) to 53.4% (max).

Table 3: Inferential statistics

	SI	SGL
SI	1.0000	
SGL	0.1370	1.0000

The Breusch-Pagan LM test was first used to assess the suitability of fitting a POLS in comparison to

panel models. It is nonsensical to utilize POLS because, as shown in table 2.1 3 below, $P < 0.001$

indicates that there are large disparities in sustainable investment among commercial banks.

Table 3: Chi-Square values for the Breusch-Pagan LM Test

Dependent variable	χ^2 -value	p-value
Sustainable Investment	93.62	0.0000

Analysis of linear regressions;

Model Fitting

$$Y_{it} = 0.0105 - 0.1130X_{it}$$

The between r-squared is 0.1130% which means that 11.30% in long term investments is explained by Sustainable Green Loans.

CONCLUSIONS

The empirical results are consistent with hypotheses H_1 , according to which the independent variable significantly influence the dependent variable. The model explained 11.30% of the variances between the variables according to the r-squared. Hence, Sustainable Green Loans was significant and positively associated to long term Investment.

RECOMMENDATIONS

This research will greatly add to the amount of evidence presently available on the topic and will broaden our understanding of the connection between green financing and commercial banks' financial success in sustainable investments. More theoretical knowledge and actual investigation will

both benefit researchers in this field of finance. The general public is also expected to benefit from the study as a stakeholder because recommendations are likely to support investments in green opportunities, provide a pathway to funding for green projects, and ensure the preservation of the environment through the production of sustainable goods and the provision of environmentally conscious services that will noticeably increase people's standards of living.

Areas for further studies

In this study, Kenyan commercial banks were investigated to see how climate financing strategies affected sustainable investment. In order to find a solution, more research can be done in other countries to determine whether the findings are consistent. Additionally, more research may be done to determine how well the environmental and climate change policies of commercial banks would fare in the face of global warming. Finally, given the setting and scope of the study, an analysis of the literature on climate financing strategies and sustainable investment may be helpful.

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