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Research Article

Examining the Impact of Spillover Effects on the Relationship Between Green Banking Practices and Pro-Environmental Behaviours Among Bankers in Ghana's Greater Accra Region

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Abstract

This study investigates the Impact of Green Banking Practices on the Pro-environmental behaviour of bankers in the Greater Accra Region of Ghana. Utilizing a quantitative research design, the study employs SMART PLS-SEM, SPSS version 25, and Excel to analyze the data in line with the stated objectives. The findings suggest that banks actively engage in environmental protection planning and execution, offering financing to businesses involved in eco-friendly and energy-saving programs. Furthermore, banks demonstrate a commitment to environmental sustainability by fostering a sense of responsibility and dedication to environmentally friendly operations among employees. The study highlights a pronounced positive impact of Green Banking practices on pro-environmental behaviours. Additionally, it identifies the mediating role of the spillover effect in the relationship between Green Banking practices and pro-environmental behaviour. The research suggests raising customer awareness, implementing tax reductions for green bonds, and providing subsidies for environmental preservation activities will encourage additional subscription to green banking practices. Practically, a successful green banking system in Ghana will necessitates collaboration between financial and fiscal institutions to accelerate development of a legal framework, and regulatory mechanisms for green finance, including revisions to the commercial banking law to establish environmental legal responsibilities and crafting regulations on compulsory liability insurance for environmental damages that are likely to occur as a result of non-compliance to the legal regimes for the green banking practices.

Keywords

Green Banking Practice, Spillover-effects, Pro-environmental Behaviour,
Partial-Least Square-Structural Equation Modelling (PLS-SEM), Environmental Protection Planning, Green Finance,
Employee Green Behaviour, Sustainability Performance of Banks

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1. Introduction

The global residents have long felt the effects of human-caused environmental degradation in the name of industrial progress, modernization, and expansion [1]. Thus, governments worldwide make environmental and general eco-system conservation and carbon footprint reduction key components of their sustainable development goals. A new banking method, Green Banking promotes environmental care and corporate social responsibility. Green banking is necessary for market competition [2]. Green banking is a new financial trend that prioritizes environmental protection and growth. The green finance protects the planet from harsh weather, rising greenhouse gas levels, and poor air quality while promoting economic growth [3]. Recent studies argue that green banking removes institutional and market barriers and directs investment to green initiatives, promoting long-term development [4, 96]. Banks should go green and incorporate environmental issues into lending. Many industries depend on banking for capital [5]. Lacking to adequately examine the negative environmental effects of industries and enterprises before financing them could cause environmental damage, so banks must be responsible. As society has become more concerned about environmental performance, many arguments have arisen about environmental degradation, climate change, ethics, social responsibility, group marginalization, strong voices, radicalism, and anti-capitalism protests [6]. Environmental issues are important in emerging nations because they depend on natural resources for growth and development [7]. Laws must ensure sustainable resource use. Environmental awareness has put pressure on all businesses, including financial services like banks, to go green, which is environmentally friendly. Banks must address environmental issues as part of their responsibilities and opportunities [8]. The physical environment has little impact on banks' operations, but customer relationships do. Thus, green banking encourages environmentally friendly business practices and reduces financial transaction carbon emissions [9]. Internet banking, online bill payment, green mortgages, and CDs, green credit cards, and money market accounts with online banks instead of large multi-branch banks are examples of this [10].

1.1. Problem Statement

A green bank, like a traditional bank, considers social, environmental, and ecological issues to protect the environment and natural resources [11]. Also called a sustainable or ethical bank. Green banking's ultimate goal is environmental protection. Technology and behavioural and managerial innovation in banking operations are two types of innovation. Technological innovation can help banks reduce their environmental impact and increase their benefits [12]. These financial technology advances will help banks reduce their carbon footprint and environmental impact [13]. Banks can reduce their environmental impact through behavioural and organisational changes. Because everyone on Earth must conserve the environment. Regardless of market share or competitive position, every bank must engage in green banking to contribute to environmental conservation and management [14]. Thus, banks are socially responsible. Ghanaian banks' market dominance and competitiveness may depend on green banking adoption. The fields of environmental policy, financial services, and socioeconomic development are embracing green banking (GB) [12]. Before funding a project, banks consider its environmental impact [12]. A study on climate change state that, the climate change's negative effects threaten our planet's sustainability and require immediate and meaningful solutions from both developed and developing nations, including financial institutions [8]. Company operations that harm society and the environment worry stakeholders. Thus, global environmental awareness has pressured all businesses, including financial services and banks, to become greener. As a result, the global banking sector has evolved towards an ecologically oriented approach. Finance allocates funds to maximise productivity. Thus, by encouraging investments in green initiatives, the financial sector may help mitigate climate risks and transition to a low-carbon economy [15]. Banking institutions are vital to the global economy and financial system. They could impact economies, societies, and long-term development [16]. Banks have a small direct environmental impact compared to other sectors, but their loans and investments spread polluting businesses [3]. Banking institutions finance many industrial projects, including steel, paper, cement, chemicals, fertilisers, electricity, textiles, and others, that may have serious social or environmental impacts [17]. As financiers, they influence industry initiatives, so green banking may help ensure other firms' responsible conduct. In recent studies, green finance was said to include investments and financing that reduce environmental impact and increase sustainability [18, 93]. Green finance includes environmental and climate risk insurance, sustainable investments, and banking that bases investment and lending decisions on environmental screening and risk assessment [94]. [19] States that green finance in the banking sector can be found in retail banking, project financing, asset management, loan types, and investment finance, all of which are environmentally and socially responsible. By considering all risks and analysing projects from an economic and environmental perspective, banks can lead the transition to a low-carbon and greener economy [18]. They may limit which industries and projects they lend to and charge more for environmental risk projects. Banks can also accelerate the transition to an energy-efficient, low-carbon economy through commercial lending and securities underwriting [3]. According to [11], green banking affects bank performance. [18] Argue that green banking initiatives restore customer trust by improving green brand image. [14] Found a positive rela-

tionship between customer and competitor pressure and Green Banking adoption among Pakistani bank branches, indicating that environmental and ethical pressures affect bank adoption. The moderator of top management commitment positively affected all stakeholder pressures and Green Banking adoption. Green Banking improved branch image and efficiency, according to managers. [6] Find that management support significantly increases bank green banking intentions. However, competitor and customer pressures do not significantly affect banks' green banking intentions. These surprising and disappointing results point out that common employees' change initiatives are internally driven rather than externally driven, requiring the more insight into whether or not their behaviours are environmentally friendly and affects their practices.

1.2. Objective of the Study

The general objective of this study is to examine the effect of Green Banking Practices on the pro-environmental behavior of bankers in the Greater Accra Region. Specifically, the study aims to achieve several objectives. First, it seeks to examine the green banking practices employed by banks in the Greater Accra Region. Second, it aims to evaluate the pro-environmental behavior exhibited by these banks. Third, the study intends to analyze the effect of green banking practices on the pro-environmental behavior of bankers in the region. Lastly, it seeks to investigate the mediating role of the spillover effect on the relationship between green banking practices and the pro-environmental behavior of banks. Through these objectives, the study will provide a comprehensive understanding of how green banking initiatives influence environmental behaviors within the banking sector in Greater Accra.

This research study has five parts. First is the introduction. It describes the study's background and problem. The section also covers study objectives, research questions, scope, significance, and methodology. The study's second section reviews green banking and pro-environmental behaviour literature. Various green banking adoption theories were also discussed. Section three describes the research methodology in detail. The methodology must consider the research design, method, target population, sampling technique, sample size, data collection methods and instruments, and data analysis tools. Research findings and discussions are in section four. This section reported the empirical survey results and supported them with scholarly works. Analysis reflected research goals. Section five concluded the work and draw conclusions from the findings. The study also made important recommendations for academia, industry, and government.

2. Literature Review

The body of recent research on the mediating function of spillover effects on green banking practices is reviewed in this section. It provides significant new information on a number of earlier studies carried out by various specialists and scholars in various settings. It looks at the theoretical, conceptual, and empirical evaluations of past studies on global green banking practices and the function of spillover effects in modulating practitioner behaviour. It also outlines the study's hypothesis, which was developed using the conceptual framework to examine the mediating function of spillover effects in the relationship between pro-environmental banker behaviour and green banking practices.

2.1. Conceptual Literature Review

2.1.1. Defining Green Banking

In recent years, green banking has gained in popularity. This banking idea strives to lessen the bank's direct and indirect environmental consequences. It's a more specific term that emphasizes environmental issues and ecosystem conservation [2]. Green banking is “a critical component of the Sustainable Banking movement. It entails supporting banks and their customers in decreasing their carbon footprint via environmentally friendly methods. Sustainable development, on the other hand, incorporates not just environmental but also economic and social problems. Green Banking refers to banks' environmental stewardship and performance in their daily banking activities [3]. Simply expressed, Green Banking is defined as banking operations carried out in places and ways that contribute to the entire reduction of external carbon emissions and internal carbon footprint. It focuses on reducing a bank's direct and indirect environmental consequences. To begin, it focuses on greening the internal processes of a bank. To reduce the carbon footprint of banking operations, it is necessary to use renewable energy sources effectively, automate procedures, and take other pollution-prevention measures. Second, banks emphasize environmentally responsible financing by analyzing environmental risks in projects before authorizing money and encouraging green ideas and projects. Green Banking is more than just a change in a bank's commercial activities; it is a cultural shift inside the bank that affects all aspects of its operations. Rethinking, renovating, and restructuring a bank's vision, strategic goals, resource allocation, and operational structure are all part of the process. Green banking is a separate business strategy focused on environmental challenges and possibilities. Because it impacts all aspects of banking operations, it demands specific policy design and implementation standards. Acceptance, implementation, and rearrangement of several aspects of banking operations are required for Green Banking [20]. Green banking refers to banking that helps the environment [21, 22]. Green Banking may be practiced by directing a typical bank's essential activities toward environmental sustainability. Establishing banking policies that promote environmental stewardship and economic growth is required. A Green Bank is dedicated to ecologically responsible banking. Green banks provide an efficient market-based

solution to a wide range of environmental issues, including climate change, deforestation, carbon emissions, and biodiversity loss. Furthermore, it investigates and creates new options that benefit both consumers and the environment. Green financing prioritizes companies that advocate for different sorts of environmental preservation.

2.1.2. Dimensions of Green Banking

Green banking is environmentally friendly banking [14]. A typical bank may practice green banking by focusing its primary activities on environmental improvement. This initiative includes banking approaches that promote environmental stewardship and economic prosperity. A Green Bank focuses on environmentally friendly financial activities. Climate change, deforestation, carbon dioxide emissions, and biodiversity loss can all be addressed efficiently through the green bank's market-based solutions [22]. Two of its primary objectives are customer satisfaction and environmental sustainability. Green finance should prioritise funding for environmental conservation [23].

2.1.3. Factors Influencing Green Banking

The bank's senior management applies coercive pressure on the bank branch. All corporate activities are overseen by the top management team, which consists of the company's most significant and influential executives. To successfully implement green banking practices, senior executives must demonstrate a personal commitment to the cause. If top management does not pay attention, banks will struggle to generate the necessary momentum for Green Banking adoption. It was only a matter of time before subordinate offices were forced to install environmental management systems by their bosses. Top executives have a significant influence on the adoption of Green Banking. If an organization's behaviour changes in response to external pressure to improve environmental commitment, the degree of normative isomorphism can be measured by the increased legitimacy the organisation gains as a result [24]. The community, as stakeholders, can have an impact on a company's environmental strategy, either directly or indirectly. An organization's decision to use green management strategies is influenced by its desire to build or maintain community relationships. Community pressure is said to be a powerful force that businesses cannot ignore because it is one of the primary sources of social legitimacy [21]. The banking industry faces intense community pressure to incorporate green banking principles into its core business operations. It is critical that the banking sector become an advocate for environmental change in the communities where it operates. Because a company is dependent on its customers, customer pressure is an important type of coercive pressure. Customers have been shown to have a significant influence on businesses' adoption of green practices. The banking industry is unable to withstand the increasing customer demand for environmental policies and compliance standards. Customers are directly and indirectly responsible for Green Banking's rapid adoption. Customer concern and understanding of environmental concerns promotes green banking adoption [6].

2.1.4. The Nature and Practice of Green Banking in Ghana

The green banking methods used by several institutions worldwide included Internet banking [6, 25]. An emerging banking model, e-banking uses technology like online bill payment, remote deposit, online funds transfer, and E-statements to conserve energy and the environment [25]. In financial transactions, e-banking emphasises using less paper, power, and other resources. E-banking saves time and frustration by eliminating fees and long lines. Green accounts stand out. Customers can check their account balances on eco-friendly ATMs or bank touch screens. Banks may offer green checking account holders lower interest rates to promote green banking. Banks can help the environment by installing energy-saving devices at all branches, offices, and homes. Green banks may use solar-powered ATMs to save energy and the environment. Using solar and wind energy supports green banking and helps the environment. Customers save time and energy with mobile banking. It helps the bank save paper and energy during long operations.

2.1.5. Pro-Environmental Behaviour

Every human action has a purpose and goal. Thus, environmental behaviour affects how people handle environmental issues. Thus, anthropocentric global warming means human activity has greatly impacted our climate [26]. Nothing outside human nature causes the problem. We must be accountable as people. Human environmental actions either mitigate or contribute to global climate change, according to [27]. His view is that our beliefs and values affect how we interact with the world. This theory says that changing people's environmental attitudes and behaviours is the key to solving environmental issues like global climate change. The consumption, manufacture, and delivery of goods and services by individuals, families, and organisations generate most greenhouse gas emissions, according to [28]. Modern environmental issues make it crucial to encourage eco-friendly behaviour in individuals and communities.

2.1.6. Spillover Effect of Green Banking Behaviour

Positive and negative spillover of pro-environmental behaviour exist [29]. Pro-environmental behaviour has a positive spillover effect on other environmental behaviours and attitudes. This includes pro-environmental behaviours and attitudes in a different context or time, triggered by a behaviour change intervention or organically. After buying organic food, a person may buy less packaged products. This is positive spillover [30]. Negative spillover is behaviour that contradicts previous pro-environmental behaviour. Thus, negative spill over occurs when a pro-environmental behaviour decreases other pro-environmental behaviours or increases

environmentally damaging behaviours. A person switching to organic food may increase their water consumption. Some studies suggest that positive and negative spill over may occur simultaneously, resulting in a 'no net' spill over. A recent study found that reminding people of their pro-environmental past had a small spillover effect. Environmental self-identity and guilt mediated a positive and negative spill over path [31]. Positive spill over is also known as catalyst behaviour, virtuous escalator effect, and foot-in-the-door effect [16]. Catalyst behaviour suggests that environmentally friendly actions may change other behaviours. The virtuous escalator effect states that one small environmentally friendly action can lead to more ambitious and environmentally significant actions. The foot-in-the-door effect states that an easy behaviour increases the likelihood of a harder behaviour [3]. A campaign encouraging simple pro-environmental behaviours like turning off office lights would then spread to harder ones like lowering office temperatures in winter or taking public transport instead of driving. However, the carryover effect describes emotional spillover that affects subsequent behaviour [3]. Rebound effect and single action bias are examples of negative spillover effect [32]. The rebound effect occurs when energy demand rises after energy efficiency improvements, reducing savings. The rebound effect is specific to energy behaviours and often discussed in relation to energy-efficient technology that only addresses energy demand, not pro-environmental behaviours [33]. The single action bias occurs when people change one small behaviour but not others. One action reduces worry, so people don't take more pro-environmental actions or compensate for their behaviours [34].

2.2. Theoretical Literature Review

2.2.1. Stakeholder Theory

Stakeholder theory examines how groups and individuals affect an organization's goals [35]. Stakeholders has been defined as groups without whose support the organisation would fail [36]. Humans and non-humans can be described as stakeholders, and it is proposed that the natural environment is crucial in stakeholder management because it is essential for business [37]. This suggests that, corporations owe all stakeholders [38]. Stakeholder theory holds that an organization's performance depends on how well it manages its relationships with major groups like financiers, shareholders, consumers, workers, and communities or societies. Managing stakeholder relationships is morally required. Thus, stakeholder perspectives and actions must be considered in bank administration. While Green Banking emphasizes sustainability in banking operations and products, Green Financing encourages funding environmentally friendly initiatives based on Stakeholder Theory, which suggests that banks are accountable to a wide range of stakeholders [22]. Banks' actions may affect society as a whole, so people expect them to adopt green banking practices to improve environmental sustainability. Banks should have rights and responsibilities with deregulation and reduced government authority for the economy. Customers and other stakeholders want that. Stakeholders affect or are affected by the organization's policies and practices [14]. In organisational theory and business ethics, stakeholder theory gets debated. Beyond the neoclassical view that a company's main goal is shareholder profit. According to stakeholder theory, any group within or outside the company is a stakeholder [39]. Organisations must consider stakeholder interests when making decisions. Stakeholder theory aims to ensure a company's long-term success by managing and integrating shareholders, consumers, suppliers, and other stakeholders. Customers and manufacturers have found that collaboration can protect the environment. Green banking policy stakeholders' collaboration will help achieve environmental sustainability [40]. Legislation and stakeholders must be involved to sustain banking in this area [14]. This theory is important because stakeholders influence and support Green banking adoption and should be prioritised. According to current literature, stakeholder pressures may boost Green Banking adoption.

2.2.2. Social Contract Theory

The core of social contract theory is how corporations should adapt to society. This theory states that a company will act responsibly because it is profitable and because society expects it to [41]. The social contract concept also states that a business is a social entity and should follow family, educational, and religious institutions to improve life and meet its customers' needs. Social contracts theory views corporations as legal entities. A perfect partnership model is proposed in the social contract to determine the company's constitution and economic structure. Thus, the ethical code or 'judicial map' clarifies the implicit social contract, which is company law [42]. Social contract theory states that business and society are equal partners with rights and responsibilities. Businesses and society are interdependent. Economic interests, policy, and society's implicit expectations of business create indirect obligations. According to this view, the social compact guarantees banks will act ethically and be held accountable beyond legal requirements. As a result of society's expectations of banks adopting social contracts, social responsibility may be one of the main reasons for green banking.

2.3. Empirical Literature Review

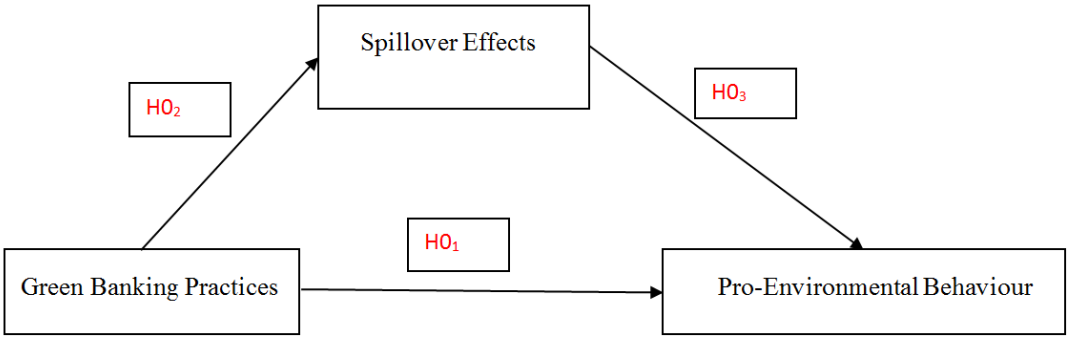
The adoption and impact of Green Banking practices have been studied extensively across different contexts, revealing both commonalities and divergences in findings [94, 96]. These studies explored the Green Banking adoption at the branch level in Pakistan, highlighting the role of external stakeholder pressures such as customer and competitor pressures, while noting that community pressure was not significant. Their study emphasizes the positive impact of top management commitment as a moderator in enhancing Green

Banking adoption, which in turn improved branch image and operational efficiency. This suggests that internal leadership and external pressures are crucial for successful Green Banking implementation. The analysis of banking employees and practitioners found that banks' Customer-Related Practices (BCRP), Employee-Related Practices (BERP), and Operation-Related Practices (BORP) have a beneficial impact on Green Environment Performance (GEP), however banks' Policy-Related Practices (BPRP) do not [43]. Furthermore, BPRP had a significant beneficial effect on Green Financing (GF), whereas BCRP, BERP, and BORP did not. This conclusion also demonstrates that studies on bank customer behaviour change toward sustainability and their impact on the SDGs. Similarly, a study carried out in Bangladesh found that internal practices, including staff, daily operations, and policy-related GB practices, significantly enhance green financing and environmental performance, while customer-related practices did not show significant results [8]. This underscores the importance of internal organizational practices over external customer pressures in driving environmental performance. In contrast, a study focused on the Indian banking sector and provide a conceptual model that links green product creation, green corporate social responsibility, and green internal processes to enhanced green brand image and trust was carried out by [18]. Their qualitative study reveals that a significant proportion of managers believe their banks are actively engaged in these initiatives, pointing to a broad acceptance and implementation of Green Banking practices in enhancing corporate reputation. Again, another study examined the financial performance implications of Green Banking in Indonesia, finding a positive influence on bank performance [44]. However, their study highlights that corporate governance mechanisms like the board of commissioners and audit committees do not significantly moderate this relationship, suggesting that the efficacy of Green Banking practices may be somewhat independent of traditional governance structures. Emphasizing the importance of Green Banking practices in Saudi Arabia, demonstrates a strong positive association between these practices and the banks' green image, mediated by employees' green behaviour [16]. This study suggests that while employee behaviour is crucial, it does not necessarily moderate the relationship between Green Banking practices and green image, highlighting a direct link between corporate practices and reputation. Other studies provided a broader perspective by summarizing various studies on green finance products and identifying key drivers such as environmental policies, social justice, and banking regulations [45]. Their review underscores the multifaceted nature of Green Banking and the diverse factors influencing its adoption and effectiveness. Scholars in Bangladesh focused on the regulatory role and noted that, the central bank policies have significantly promoted Green Banking [46]. This study emphasizes the critical role of regulatory frameworks in facilitating green economic transformations, contrasting with the more internally driven approaches observed in other contexts. More so another study finds that consumer and competitive pressures are significant drivers of Green Banking adoption in Bangladesh [40]. This aligned with recent studies but differ only in the perceived impact of community pressure [96]. This highlights variations in stakeholder influence across different regions and cultural contexts. In Ghana, a study conducted report that internal management support significantly influences Green Banking adoption, whereas external pressures from rivals and customers do not [6]. This finding contrasts with the emphasis on external pressures in the studies from Pakistan and Bangladesh, suggesting regional differences in the drivers of Green Banking. Focusing on the Islamic banking sector in Malaysia, a study and find that inclusive green behaviour among bankers significantly impacts Green Banking development [3]. This emphasizes the role of individual employee behaviour in promoting Green Banking, consistent with the findings in Saudi Arabia. While other studies examined the moderating effects of ownership structures in Indonesia, revealing that Green Banking practices positively impact bank value, they negatively influence profitability, particularly under public ownership [47]. This nuanced finding highlights the complexity of financial outcomes associated with Green Banking. In Pakistan, a study investigated factors influencing bankers' intentions and find that perceived usefulness and ease of use are critical determinants, aligning with the broader technology acceptance model [24]. This reinforces the importance of perceived benefits and simplicity in the adoption of new practices. Several more studies, including [9, 48], provide additional insights into the financial and environmental performance implications of Green Banking in Bangladesh and Nepal. Both studies underscore the positive effects of specific green initiatives on performance, although [9] note that Islamic banks outperform conventional ones in maintaining faith and intellect. Meanwhile, in Sri Lanka another study highlight the mediating role of employee green behaviour between Green Banking practices and sustainability performance, echoing findings from Saudi Arabia about the importance of employee engagement [49]. Finally, other studies explored the internal factors influencing Green Banking adoption, such as peer pressure and recognition in Bangladesh and awareness in Syria [32, 2]. These studies underline the significance of internal cultural and behavioural factors in driving Green Banking practices. These studies collectively suggest that while external pressures and regulatory frameworks are important, internal management commitment, employee behaviour, and organizational practices play crucial roles in the successful adoption and impact of Green Banking across different regions.

2.4. Conceptual Framework and Hypothesis Formulation

The study's conceptual framework, which served as the foundation for the development of the study's hypotheses, is constructed in this subsection. Figure 1 displays the study's

conceptual framework.



Source: Authors construct

Figure 1. *Conceptual Framework.*

2.4.1. The Effect of Green Banking Practices on Pro-environmental Behavior of Bankers in the Greater Accra Region of Ghana

In practice, there is a favourable association between consumer and competition pressure and bank branch Green Banking implementation [95]. Others evaluated the influence of GB practices on private commercial banks' environmental performance and sources of green finance [8]. Their results showed that banks' staff, daily operations, and policy related GB practices had substantial beneficial impacts on green financing, in contrast to banks' customer related GB practices, which were not statistically significant. Furthermore, green project funding by banks has a significant and favourable impact on the environmental performance of banks. According to their study, 63 percent of total respondents believe their bank develops several green banking products and services, 53 percent believe their bank incorporates green internal processes into their daily activities, and 78 percent believe their bank engages in several green corporate social responsibility initiatives [18]. Recounting the study which explored the impact of green banking on bank financial performance using corporate governance systems as a moderator. Green banking has an influence on bank performance, according to the research by [11]. Furthermore, the board of commissioners and the audit committee do not mitigate the influence of green banking on bank performance for the corporate governance mechanism, namely foreign ownership [18]. This study therefore hypothesis that;

$H0_1$: There is a positive relationship between green banking practices and pro-environmental behavior of bankers in the Greater Accra Region of Ghana.

2.4.2. The Mediating Role of Spillover Effect on the Relationship Between Green Banking Practice and Pro-Environmental Behaviour of Banks

The importance of green banking practices across Saudi banks and their impact on the Saudi banks' green image, with the mediating influence of workers' green behaviour was studied by [16]. The study's results demonstrated a substantial positive association between green banking practices and the green image of Saudi banks, implying that the greener banking activities are implemented the better and the banks' image. The findings also revealed that green banking processes have a direct impact on employee green behaviour. Employees' green banking behaviour, on the other hand, does not moderate the link between green banking practices and Saudi banks' green image. In addition, another study examined the impact of environmental variables on green banking acceptance in Bangladesh [40]. According to the report, the most important environmental elements influencing green banking adoption in Bangladesh are consumer pressure, competitive pressure, and community pressure. While others investigated variables influencing bank workers' intentions to embrace green banking [6]. According to the research, there is a substantial positive association between management support and bank intentions to implement green banking. While another research that investigated green behaviours among Islamic bankers and their impact on green banking growth in Malaysia was conducted by [3]. Their results reveal that Islamic bankers' inclusive green behaviour has a substantial impact on the expansion of green banking. All five categories of green behaviours have a major beneficial influence on the expansion of green banking. Again, others investigated the elements that influence bankers' intentions to embrace green banking [24]. According to their findings, perceived usefulness and perceived ease of use are more important in determining Attitude toward usage, which, together with effort expectation and performance expectancy, are key contributing variables to behavioural intention to embrace green banking practices. In the Sri Lankan context, a study investigated the links between green banking practices (GBP), employee green behaviour (EGB), and sustainability performance of banks (SPB) [49]. The findings support EGB's partial mediation function in the link between GBP and SPB. Furthermore, both direct and

indirect effects of mediation analysis go in the same direction. However, in Bangladesh, a study investigated the variables that influence banking personnel decision to choose green initiatives [32]. Hypotheses and a study framework are being established in order to investigate the interaction of bankers' green management choices with perceived green expertise, peer pressure, incentives and recognition, and government requirements in assuring environmental performance. A self-administered questionnaire was used to gather primary data, and exploratory factor analysis was employed to confirm the variance of the variables under consideration, before multiple-regression analysis was used to understand the connection between the variables. Peer pressure, incentives, and recognition were shown to have a favourable link, which may impact workers' acceptance of overall green policies and practices". This study therefore hypothesis that,

$H0_2$: There is a Positive Relationship between Spillover Effect and Green Banking Practice.

$H0_3$: Spillover Effect mediates the Relationship between Green Banking Practice and Pro-environmental Behaviour of Banks.

3. Data and Methodology

The research design, sample techniques, data gathering process, analytical method, and philosophical underpinnings are all included in this section of the study. The research approach highlighted the use of partial least square-structural equation modeling (PLS-SEM) and concentrated on data collecting and analysis techniques that provide clarity on the chosen design and tactics utilized to estimate the sample size for the study.

3.1. Philosophical Foundations

There are numerous philosophical perspectives and discussions regarding the nature and type of knowledge and truth, and as a result, there are various approaches and frameworks used in the study and interpretation of this knowledge. The philosophical paradigm used in this study is positivism, with objectivism serving as the positivist epistemology. According to positivists, the researcher's awareness has no effect on the findings. This suggests that connotation exists only in things, not in the researcher's mind, and that this significance is the researcher's purpose in this study. In general, positivist results are conveyed in a descriptive and factual manner [50].

3.2. Research Strategy

A research strategy guides your thoughts and efforts, allowing one to conduct methodical and timely research and produce satisfying results and unique reporting. This improves alertness, reduces irritation, increases satisfaction, and saves time and resources. Researchers can use qualitative, quantitative, or mixed methods. Decision between these methodologies depends on research rationale and goals and objectives [51]. Accordingly, quantitative research methods discover observations using numerical or past word evidence [52]. Quantitative research uses statistical data to differentiate variables implying that it focuses on acquiring numerical data to understand a phenomenon [53]. However, this strategy works for baseline survey and large-scale data analysis [54]. Standard deviation, mean score, regression analysis, etc. are descriptive research methods. This strategy can be used to establish data and analyse statistics to explain quantitative research methodologies. Scholars and writers describe qualitative research differently based on their preferences. Qualitative research is based on spontaneous events in real life [55]. Qualitative research in applied settings emphasises data use but not ordinal values [56]. However, the mixed or triangulated method allows for simultaneous interviewing and inductive observation for correct responses [52]. Researchers are focusing on qualitative and quantitative methods. Mixed approaches and multi-strategy describe this new study [57]. Modern researchers use both qualitative and quantitative (mixed method) methodologies to get more believable findings for reliable and good interpretation to compensate for the flaw in using a single way to validate the two methods. Combining these two methods increases the study's validity and reliability [58]. The study uses quantitative methods after reviewing the methods. This is because it fits the research type and goals.

3.3. Research Design

Research designs are blueprints or specifications of procedures and strategies to be followed to answer research questions or achieve study goals with the best variable control. In essence, research design turns research difficulties into data for analysis to answer questions at the lowest cost. Research design is a framework, structure, and method used to answer research questions and manage variation, according to [59]. A study design gives the scientist a clear framework for data collection and analysis, according to [60]. Logical, not logistical, research design is difficult. Research design involves planning a research strategy. These are crucial when designing a study [55]. The research design is unrelated to data collection methods or types. Each study design can use any data collection method and quantitative or qualitative data. Research design is logical, not logistical [56]. The research design provides a study structure. The choice of research technique determines how relevant information for a study will be gathered, but the research design process involves several connected considerations [58]. Research structure is a blueprint for the planned research endeavour and binds all the pieces together. Research design is the arrangement of data collection and analysis settings to balance relevance to the study objective with economy and method [61]. Social scientists describe it differently. Research design includes the plan, structure, technique, and investigation tailored to search query

and control variance. The research design predicts, describes, and rationalises the seemingly endless data collection, processing, and analysis decisions [62]. Research design is essential because it streamlines the many research methods, resulting in professional research that maximises knowledge with minimal effort, time, and money [63]. Data collection and analysis are essential to research design, so study methods and methodologies should be linked. Based on its many research designs, the study is descriptive. Because it fits the study's research goals.

3.4. Population and Sample Frame

The study targeted Greater Accra metropolis bank employees. The target audience includes loan and credit officers, relationship officers, branch managers, operations staff, etc. Given the unknown population, the study assumed 15 employees per bank branch. The study targeted employees of 10 banks in Ghana's Greater Accra Region, including GCB Bank, ECO Bank, Stanbic Bank, Access Bank, Société General Ghana Limited, National Investment Bank, Republic Bank, Standard Chartered Bank, ADB Bank, and Consolidated Bank of Ghana.

3.5. Sampling Technique and Sample Size

Probability and non-probability sampling methods exist. The study used non-probability sampling. Samples are chosen subjectively [64]. A simple random sample is a subgroup of a numerical population with equal odds of selection [50]. Many study environments use samples. A researcher selects people or organisations from their population of interest to study the sample. Sampling involves selecting units from a population of interest [65]. Probability sampling techniques like stratified sampling divide a population into two strata based on one more variable. Stratified sampling ensures that a sample represents a strata or subgroup [66]. Stratified random sampling can be disproportionate or proportionate. Compared to disproportionate samples, stratified sampling yields more accurate primary data. The sample size of a study is usually the number of units surveyed. Different terms describe sample size. A specified sample size is the number of data collection units chosen. The final sample size—the number of completed data/information collection units or interviews—is also available. If pro-response invalidity is high or both, the sample size may be much smaller. If interview efficiency exceeds expectations to reach the final sample size, some but not all units may need to be processed/managed. Larger samples better estimates population parameters as found in the study by [67]. Their study sampled 107 respondents after determining its population. This is representative enough to make an informed decision about the phenomenon [68]. The sampling size can be calculated using this formula, [68].

$$S = X_2 NP (1-P)/ d_2 (N-1) + X_2 P (1-P)$$

Where;

S = required sample size

X_2 = the table value of chi-square for one degree of freedom at the desired confidence level

N = the population size

P = the population proportion (assumed to be.50 since this would provide the maximum sample size)

d_2 = the degree of accuracy expressed as a proportion (.05).

The study sampled about 107 using the formula above.

3.6. Sources of Data and Collection Methods

This study used primary and secondary data sources to gather enough information. Primary data uses questionnaires and interviews. Questions on the questionnaires help achieve study goals. Any study needs accurate data collection to avoid invalid results. Effect assessment data collection methods vary. The only end of this chain is qualitative, and the other end is quantitative information collection [69]. This type of information collection gathers data from all relevant sources to solve the research problem, test the hypothesis, and compare results. Data collection methods can be secondary or primary [70].

Questionnaires were closed-ended. Four sections made up the questionnaires. The first part covered the respondent's gender, education, and portfolio years. The second section addressed the study's goals. The questionnaire asked respondents to tick variables on a five-point Likert scale from 1 to 5. Pilot testing of a small sample was done to determine the accuracy, validity, conciseness, significance, appropriateness, and duration of the survey tools used for the research study to improve reliability and validity. This pre-tested the research tool's viability and the reliability of responses for similar evaluation. The respondents' questionnaires were left at their offices and reminded by phone and in person, then collected within a week. To increase response rates, personal administration is used. Since their job is both field and administrative, the researcher personally distributed the questionnaires to respondents at their convenience. It was easier to get positive feedback.

3.7. Validity and Reliability of Data

Validity in many research fields is considered essential [71]. Cohen et al. list the main internal validity study types. The ability of a researcher to repeat results in a given condition using the same method is called data reliability. The validity is crucial in social research but difficult to apply to all studies [72]. Validity determines whether research is valid or invalid. Validity checks if the researcher is measuring what he intends. It is the most important part of any measuring instrument design in research because no matter how good a study design or statistical analysis, the findings will be meaningless if the instrument cannot measure what it was designed to measure [65]. The surveys' reliability will be assessed using

Cronbach's Alpha, which measures internal consistency. SPSS vs. 25 will calculate Cronbach's Alpha for reliability analysis. The alpha coefficient, which ranges from 0.1 to 0.5, can be used to assess the reliability of components from dichotomous and multi-point structured surveys or scales at 5% significance. A higher number indicates a more reliable scale, but 0.7 is usually sufficient for research [65]. Validity is the accuracy of an assessment of whether it measures what it's supposed to. A reliable test may not be meaningful. Validity can be assessed three ways. All three validity evidences would support a test's validity and test-based inferences [73, 74].

3.8. Data Processing and Analysis

The definition of positivism is based on empirical evidence, which is sense-based data [75]. Microsoft Excel (KB4011684) 64-Bit Edition, version 1.0 will be used to process the data. This is a powerful spreadsheet software enhancing data analysis and productivity with modern features and real-time collaboration and occupy the tabulated containers and process data, especially the financial variety. In essence, it runs calculations on the data and creates an output that's then placed in a new cell. Certainly, this baseline function lays at the heart of the program, but the newest version builds on this data-crunching framework by adding new features and graphs can be produced from the data [76]. It supports charts and graphs with calculations and graphing tools as used in [77]. Two data analysis levels were used. A descriptive analysis using standard deviation and means score ranking. Second, regression analysis described the data inferentially. Descriptive and inferential analysis will be done with SPSS. Since the software is mathematical or statistical, variables were coded numerically. Descriptive statistics like mean score and standard deviation and inferential regressions were used. SPSS version 25 was used to enter questionnaire data. Regression analysis is a quantitative research method used to design and evaluate multiple variables with a relationship between them [78]. The questionnaires and raw data were organised for analysis. All data was cleaned and checked for consistency before entering the software. Statistics were used to analyse the data and display the results in tables, charts, and graphs. Mostly frequencies, percentages, and mean were used to summarise responses. The study estimated variable relationships using SmartPLS 3.0. This is used to address absence of symmetric distributions of variables measured by a theory still in its beginning phase or with little “consolidation”, formative models, and/or a limited amount of data. The growing use of SmartPLS has demonstrated its robustness and the applicability of the model in the areas that are being studied [97, 98].

4. Results and Discussion

This section explains how the results were obtained, assessed, and derived, along with how they were interpreted. It displays the respondents' biographical profiles, the model that illustrates the factor loading findings, the correlation matrix, the correlation statistics for the chosen variables, the collinearity evaluation, the inner structural model, and, lastly, the regression analysis of the study's goals.

4.1. Bio Data of Respondents

The respondents' biographical profiles include education, gender, age, and years in the position. Male respondents were 46% and female respondents 54%, according to Table 1. About 11% of respondents were 20–29. The 30-39 age group comprised 36% of respondents. The 40-4-year age group had 36% of respondents, while the 50+ group had 17%. On the number of years they had been with the organisation, 6.5% had been there less than a year, 33% had been there 3-5 years, and 28% had been there 4-6 years. About 32% of employees have been there for over 10 years. This suggested that most respondents have been with the company long enough to understand the research's goals and will be honest about their opinions. About 7% of respondents had a diploma, 32% had a degree, 40% had a master's degree, and 21% had other graduate qualifications (ACCA, ICAG, CIM, etc.). This indicates that the respondent was well-educated enough to understand the questionnaire and answer the questions correctly. Bank positions held by respondents. Officers comprised 20% of respondents. About 16% of respondents were principal officers. About 21% were senior principals. Junior officers were 14% and managers 30%. When asked how long they had been in their current position, 9% said 1-4 years. 24% of respondents had been in their current position for 5-10 years, while 68% had been there longer. This suggests that most respondents have enough experience in their current position to understand the questions.

Table 1. *Biographical Profile of the Respondents.*

		Frequency	Percent
Gender	Male	49	45.8
	Female	58	54.2
	Total	107	100.0
Age group	20-29 years	12	11.2
	30-39 years	39	36.4
	40-49 years	38	35.5
	Over 5 0ears	18	16.8
	Total	107	100.0
Years in organisation	Below one year	7	6.5
	1-3 years	36	33.6
	4-6 years	30	28.0

		Frequency	Percent
Educational level	Above 6 years	34	31.8
	Total	107	100.0
	Diploma	8	7.5
	Degree	34	31.8
	Masters	43	40.2
	Others	22	20.6
	Total	107	100.0
Current position	Officer	21	19.6
	Principal officer	17	15.9
	Senior principal officer	22	20.6
	Junior Officer	15	14.0
	Manager	32	29.9
	Total	107	100.0
Years in position	1-4 years	10	9.3
	5-10 years	24	22.4
	10+ years	73	68.2
	Total	107	100.0

Source: Author's Field work.

4.2. Structural Equation Modelling

4.2.1. Assessment of Normality

One of the crucial suppositions for the successful usage of many of the statistical procedures to be employed in the current study is the normality of data distribution [79]. Accordingly, the data set for the current study was evaluated using the skewness and kurtosis to assess how normally distributed the data set was [80]. The data set is considered to be normally distributed when skewness and kurtosis fall in between -2 and +2 with most of the variables having higher means [81]. For the current study, SPSS was used to test for normality, and the results indicate that, the data was normally distributed, as evidenced by figure 2 below.

4.2.2. Evaluation of Outer Measurement Model

The outer measurement model calculates observed and unobserved variable reliability, internal consistency, and validity. Single observed and construct reliability tests assess consistency, while convergent and discriminant validity tests assess validity. By comparing observed variables' standardised outer loadings to unobserved variables, a single observed variable dependability characterises an individual's variance [82]. Variables with outer loadings of 0.7 or higher are acceptable, but those below 0.7 should be ignored. However, this study's outer loading cut-off was 0.7. Table 6 outer loadings were 0.774–1.00. Internal consistency in construct reliability was assessed using Cronbach's alpha and Composite Reliability (CR). Since it preserves the observed variables' standardised loadings, CR is a better internal consistency estimate than Cronbach's alpha [96]. However, Cronbach's alpha and CR value analyses were identical. Table 6 shows that all structures had Cronbach's alpha and CR above 0.80. Cronbach's alpha and CR showed that the scales were reliable, with all latent construct values above 0.70. [83]. The Average Variance Extracted (AVE) of each latent construct was calculated to ensure convergence. Model latent constructs should absorb at least 63% of observed variable variance. Thus, all structures should have AVEs above 0.5. Table 6 shows that all AVE values were greater than 0.5, validating the research model's convergent validity. Convergent validity and internal consistency of the measurement model were confirmed by these findings. Next, latent construct discriminant validity was tested [81]. In the path model, a construct's manifest variable is distinguished from others if its latent variable cross-loading value is greater [88]. Discriminant validity was assessed using Fornell and Larcker criteria and cross-loadings. A construct cannot have the same variance as another construct greater than its AVE value, according to the proposed standard. Table 6 shows the Fornell and Larcker criteria test of the model, comparing squared correlations to other latent component correlations. Table 6 shows that discriminant validity was good because all correlations were less than the squared root of the average variance along the diagonals. This proved the model's discriminant validity by showing that each construct's observable variables indicated the latent variable. Cross-loading of all observed variables was greater than construct inter-correlations of all other observed variables in the model (Table 6). These results validated cross-loadings assessment requirements and verified the measurement model's discriminant validity. Thus, the proposed conceptual model was expected to meet reliability, convergent validity, discriminant validity, and research model verification standards.

Table 2. *Evaluation of Outer Measurement Model.*

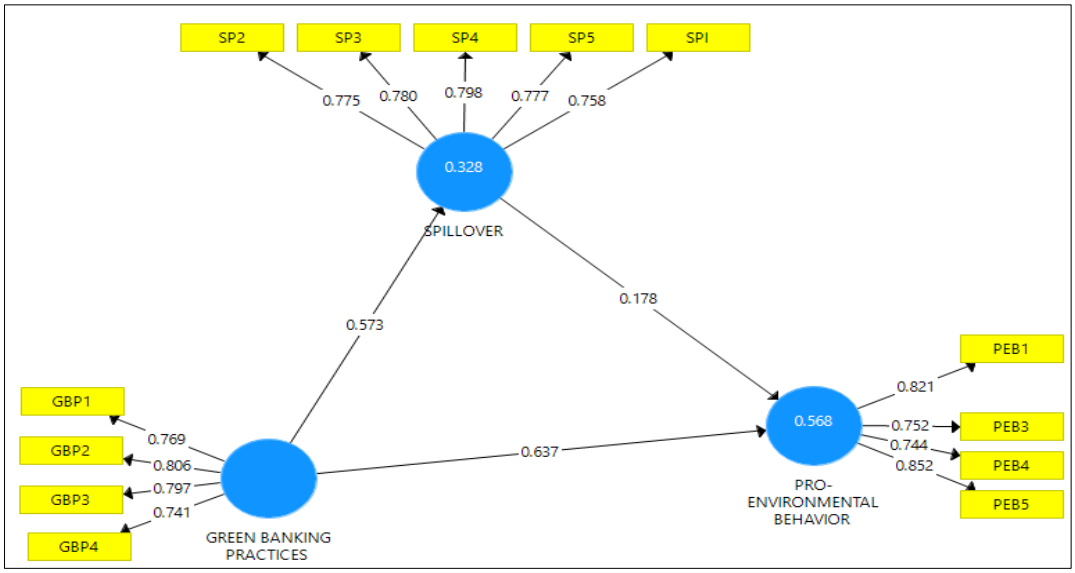
Item	ITEM	LOADING	CA	CR	AVE
Pro-Environmental Behaviour	PEB1	.971	0.783	0.860	0.606
	PEB2	.825			
	PEB3	.865			
	PEB4	.904			
	PEB5	.973			
Green Banking	GBP1	.864	0.805	0.871	0.630

Item	ITEM	LOADING	CA	CR	AVE
Practices	GBP2	.881			
	GBP3	.872			
	GBP4	.839			
	GBP5	.772			
	GBP6	.896			
	SPI	.941	0.837	0.884	0.605
Spillover Effect	SP2	.904			
	SP3	.774			
	SP4	.999			
	SP5	1.000			

Source: Author's Field work

4.2.3. Model Depicting Results of the Relationships

Details of the model illustrating the relationships derived from the study's variables are shown in Figure 2.



Source: Construct from Author's Field work

Figure 2. *Model Showing the Results of the Relationships.*

Table 3. *Fornell-Larcker Criterion.*

	Green Banking Practices	Pro-Environmental Behavior	Spillover
Green Banking Practices	0.779		
Pro-Environmental Behavior	0.739	0.793	
Spillover Effect	0.573	0.543	0.778

Source: Author's Field work

Table 4. *Cross Loading.*

	Green Banking Practices	Pro-Environmental Behaviour	Spillover Effect
GBP1	0.769	0.582	0.397
GBP2	0.806	0.613	0.511

	Green Banking Practices	Pro-Environmental Behaviour	Spillover Effect
GBP3	0.797	0.538	0.484
GBP4	0.741	0.568	0.383
PEB1	0.705	0.821	0.448
PEB3	0.467	0.752	0.449
PEB4	0.460	0.744	0.371
PEB5	0.657	0.852	0.454
SP2	0.443	0.404	0.775
SP3	0.442	0.427	0.780
SP4	0.579	0.468	0.798
SP5	0.394	0.388	0.777
SPI	0.321	0.414	0.758

Source: Author's Field work

The researcher also, used the Heterotrait-Monotrait Ratio (HTMT) approach to assess the discriminant validity of the constructs [84, 85]. Table 5 shows the HTMT from the analysis of data collected, from the table, it can be established that, all the constructs have achieved acceptable levels of HTMT below 0.85.

Table 5. *Heterotrait-Monotrait Ratio (HTMT).*

	Green Banking Practices	Pro-Environmental Behavior	Spillover Effect
Green Banking Practices			
Pro-Environmental Behavior	0.607		
Spillover Effect	0.688	0.657	

Source: Author's Field work

4.2.4. Collinearity Assessment

From the table below Table 6, it is clear that all the predictors show Variance Inflation Factor (VIF) values less than 3.0 with the highest VIF being 1.918 for availability of suitable substitutes and the lowest being 1.05 recorded against the exogenous construct, ineffective communication.

Table 6. *Collinearity Assessment.*

	VIF
GBP1	1.638
GBP2	1.639
GBP3	1.735
GBP4	1.490
PEB1	1.652
PEB3	1.593
PEB4	1.544
PEB5	1.918
SP2	1.815
SP3	1.715
SP4	1.732
SP5	1.807
SPI	1.785

Source: Author's Field work.

4.3. Evaluation of the Inner Structural Model

The study confirmed that the measurement model was valid and reliable. The next step was to measure the Inner Structural Model outcomes. This included observing the model's predictive relevancy and the relationships between the constructs. The coefficient of determination (R^2), Path coefficient (*b* value) and T-statistic value, Effect size (f^2), the Predictive relevance of the model (Q^2), and Goodness-of-Fit (GOF) index are the key standards for evaluating the inner structural model [86, 87].

4.3.1. Measuring the Value of R2

The coefficient of determination measures the overall effect size and variance explained in the endogenous construct for the structural model and is thus a measure of the model's predictive accuracy [79]. In this study, the inner path model was 0.568 for the quality endogenous latent construct. This indicates that the independent constructs substantially explain 56.8% of the variance in the quality, meaning that about 56.8% of the change in the green banking practice was due to pro-environmental behaviour of banks [84]. Accordingly, an R^2 value of 0.568 is considered substantial, an R^2 value of 50 is regarded as moderate, and an R^2value of 0.26 is considered as weak [80]. Hence, the R^2 value in this study was substantial.

Table 7. *Assessment of Coefficient of determination (R2).*

	R Square	R Square Adjusted
Pro-Environmental Behavior	0.568	0.560
Spillover Effect	0.328	0.322

Source: *Author's* Field work

4.3.2. Estimation of Path Coefficients (b) and T-statistics

The PLS path coefficients and the regression analysis standardized b coefficient were identical. The hypothesis's significance was assessed using the b value. For a unit variation in the independent construct, the b represented the predicted variation in the dependent construct (s). The b values of each route in the hypothesized model were calculated; the higher the b value, the stronger the significant influence on the endogenous latent construct. The b value, on the other hand, has to be validated for its significant level using the T-statistics test. The bootstrapping approach was employed to assess the hypothesis's relevance. For this investigation, a bootstrapping approach with five thousand sub-samples with no sign changes was used to assess the significance of the path coefficient and T-statistics values, as shown in table 8. The path coefficient of the impact of green banking practice on pro-environmental behaviour of banks showed a significant result (β=0.739, P-value = 0.000). This suggests that, the increase in green banking practice positively affect pro-environmental behaviour of banks in the Greater Accra Region of Ghana. This might be attributable to the environmental conditions in the Greater Accra Zone which is mostly dry in the greater months of the years. Therefore, banker alike are very conscious of the consequences posed by such situation and therefore are willing to do more to protect the environment. The mediation analysis was performed to assess the mediating effect of spill over on the relationship between green banking practice and pro-environmental behaviour. The results revealed that the total effect of green banking practice on pro-environmental behaviour was significant (β=0.739, P-value = 0.000). With the inclusion of the mediating variable, the impact of green banking practices on pro-environmental behaviour was still significant (β=0.637, P-value =0.00). The indirect effect of green banking practices through spill over on pro-environmental behaviour was insignificant (β=0.102, P-value =0.076). This means that, the relationship between Green Banking Practice and Pro-environmental Behaviour is fully mediated by the Spillover Effect. The Confidence Intervals Bias Corrected was also significant implying that the mediation was significant.

Table 8. *Assessment of Significant Path.*

Total effect		Direct effect		Indirect effect					
coefficient	p-value	coefficient	p-value		coefficient	SD	T-value	P-value	BI (2.5%-97.5)
0.739	0.000	0.637	0.000	GBP-SP-PEB	0.102	0.057	1.778	0.076	0.012-.240

Source: Author's Field work

4.3.3. Measuring the Effect Size ($f2$)

The f^2 is the degree of the impact of each exogenous latent construct on the endogenous latent construct. When an independent construct is deleted from the path model, it changes the value of the coefficient of determination (R^2) and defines whether the removed latent exogenous construct has a significant influence on the value of the latent endogenous construct. When the f^2 values is 0.35 (strong effect), 0.15 (moderate effect), and 0.02 (weak effect) [88]. Table 9 shows the f^2 from the SEM calculations. As shown in Table 13 the effect size for green banking practice was 0.632. Hence, according to their recommendation, the f^2 of the exogenous latent constructs of green banking practice had a strong effect on the value of R^2 [89].

Table 9. Effect Size Assessment (f2).

	Green Banking Practices	Pro-Environmental Behavior	Spillover
Green Banking Practices		0.632	0.489
Pro-Environmental Behavior			
Spillover Effect		0.049	

Source: Author's Field work

4.3.4. Predictive Relevance of the Model (Q^2)

Q^2 statistics are used to measure the quality of the PLS path model, which is calculated using blindfolding procedures, and cross-validated redundancy was performed [81]. The Q2 criterion recommends that the conceptual model can predict the endogenous latent constructs. In the SEM, the Q^2 values measured must be greater than zero for a particular endogenous latent construct. From table 10, it shows that the Q^2 values for this study model was equal to 0.339, which was higher than the threshold limit, and supports that the path model's predictive relevance was adequate for the endogenous construct.

Table 10. Predictive Relevance (Q^2).

	SSO	SSE	Q^2 (=1-SSE/SSO)
Green Banking Practices	428.000	428.000	
Pro-Environmental Behavior	428.000	282.911	0.339
Spillover Effect	535.000	435.492	0.186

Source: Author's Field work.

4.3.5. Assessment Goodness-of-Fit Index

Goodness-of-Fit (GOF) is applied as an index for the complete model fit to verify that the model sufficiently explains the empirical data [90]. The GOF values lie between 0 and 1, where values of 0.10 (small), 0.25 (medium), and 0.36 (large) indicate the global validation of the path model. A good model fit shows that a model is parsimonious and plausible [91]. The GOF is calculated by using the geometric mean value of the average communality" (AVE values) and the average R^2 value(s), and the GOF of the model is presented by table 11.

Table 11. Assessment of Goodness-of-Fit Index.

	Saturated Model	Estimated Model
SRMR	0.082	0.082
d_ULS	0.609	0.609
d_G	0.266	0.266
Chi-Square	153.682	153.682
NFI	0.766	0.766

Source: Author's Field work.

4.3.6. Correlation Coefficient of Latent Variables

Finally, Table 12 shows the latent variable correlation coefficient and suggest that there was a strong correlation between the latent exogenous constructs and the latent endogenous construct.

Table 12. Correlation Coefficient of Latent Variables.

	Green Banking Practices	Pro-Environmental Behavior	Spillover Effect
Green Banking Practices	1.000	0.739	0.573
Pro-Environmental Behavior	0.739	1.000	0.543
Spillover Effect	0.573	0.543	1.000

Source: Author's Field work.

5. Conclusions and Recommendations

This section wraps up the study and provides the results, conclusions regarding the degree to which the research achieved its objectives, and recommendations based on the results. The summary relives the important points of the research study while offering a brief overview. The conclusion draws conclusions from the empirical study and offers suggestions based on the findings that are relevant to managerial implications as well as future research.

5.1. Summary of Findings

5.1.1. The Green Banking Practices in the Banks in the Greater Accra Region

With regards to the first objective of examining the green banking practice in the Greater Accra Region. The results indicated that the banks engage in setting up energy-efficient buildings. Also, the banks provide training and education to staff on environmental protection and energy-saving practices [92]. Likewise, the banks involve in environmental protection-related planning and implementation. Again, the banks acquire its computers, printers and other stationery from environmentally friendly companies. Further, the banks extend loan facilities to companies engaged in environmental protect energy-savings saving-related projects. Similarly, the banks rewards branches that engage and support green banking initiatives. These findings support those of [18], who discovered that 63 percent of total respondents believe their banks are involved in the development of several green banking products and services, 53 percent believe their banks incorporate green internal processes into their daily activities, and 78 percent believe their banks are involved in several green corporate social responsibility initiatives. Similarly, [16] shown that green banking processes had a direct impact on employee green behaviour. Employees' green banking behaviour, on the other hand, does not moderate the link between green banking practices and Saudi banks' green image. Again, [12] indicated that Bangladesh's central banks played a significant role in greening the country's financial system by introducing numerous green policies and regulatory measures.

5.1.2. The Pro-environmental Behaviour of Banks in the Greater Accra Region

The second objective of examining pro-environmental behaviour. The results indicated that the banks are committed to the course of the environment by encouraging employees to have a sense of duty and obligation to environmentally friendly practices. Also, the banks are pro-environmental conscious by assisting employees in making decisions that reduce environmental issues consciously. Likewise, the banks involve in green self-efficacy pro-environment mechanisms that work to reduce the Spillover Effect on the environment [93]. Again, the banks incorporate environmental consciousness in employee recruitment, teachings, and an award system for a green workforce that supports environmentally sustainable principles and initiatives. Further, the banks encourage its staff to adopt pro-environmental behaviours through satisfactory, simple, and sustainable consuming a green lifestyle. The findings are consistent with those of [32] who discovered that peer pressure, incentives, and recognition may encourage workers to embrace overall green policies and practices. More so, [94] observed that energy-efficient equipment and green policies had a substantial influence on the environmental performance of banks; green loans and green projects did not. Similarly, environmental training had a little impact on the bank's environmental performance. Furthermore, [8] found that banks' staff, daily operations, and policy-related green banking practices had substantial beneficial impacts on green financing, as opposed to banks' customer related green banking practices, which were not statistically significant. Furthermore, green project funding by banks has a significant and favourable impact on the environmental performance of banks. Furthermore, in contrast to staff and customer related green banking activities, banks' everyday operations and policy related practices of GB were discovered to have considerable influence on banks' environmental performances. Similarly, [45] discovered that environmental and climate change policies, interest rates, religion, hazards, social inclusion and social justice, and banking regulations all influence green financing policies from banks.

5.1.3. The Effect of Green Banking Practices on Pro-environmental Behavior of Bankers in the Greater Accra Region of Ghana

On the third objective of examining the impact of green banking practice on pro-environmental behaviour of banks. The results showed a significant positive impact of green banking practices on pro-environmental behaviour. This means the increase in green banking practice positively affect pro-environmental behaviour of banks in the Greater Accra region of Ghana. This might be attributable to the environmental conditions in the Greater Accra Zone which is mostly dry in the greater months of the years. Therefore, banker alike is very conscious of the consequences posed by such situation and therefore are willing to do more to protect the environment. This research supports the findings of [12] who discovered that Bangladesh's central banks had a significant role in greening the country's financial system by introducing different green policies and regulatory measures. Furthermore, [24] indicate that perceived usefulness and perceived ease of use are more important in determining Attitude toward usage, which, together with effort expectation and performance expectancy, are key contributing variables to behavioural intention to embrace green banking practices. Their shown that Islamic bankers' inclusive green behaviour has a substantial impact on green banking growth [3]. All five categories of green behaviours have a major beneficial influence on the expansion of green banking. Green banking practices, on the other hand, have a negative influence on bank profitability but a favourable impact on bank value, according to [47]. Meanwhile, public ownership exacerbates the negative impact of green banking on profitability. The favourable effect of green banking practices on bank value is weakened by foreign ownership.

5.1.4. The Mediating Role of Spillover Effect on the Relationship Between Green Banking Practice and Pro-environmental Behaviour of Banks

On the mediating role of Spillover Effect on the relationship between green banking practice and pro-environmental behaviour. The results revealed that the total effect of green banking practice on pro-environmental behaviour was significant. This means that, the relationship between green banking practice and pro-environmental behaviour is fully mediated by the spillover effect. This support the findings of [49] who confirm the partial mediation role of EGB in the relationship between GBP to SPB. Moreover, both direct and indirect effects of mediation analysis reveal the same direction, significantly.

5.2. Conclusion

First, the research examined green banking practices in Greater Accra based on data analysis and conclusions. Banks invest in energy-efficient building construction, the findings show. Banks also train employees in energy conservation and environmental protection. Banks also plan and execute environmental protection. Again, the banks buy computers, printers, and stationery from green companies. Businesses involved in energy-saving and environmental protection receive financing from banks. The second goal is to study eco-friendly behaviour. The report states that the bank promotes environmental responsibility and green operations among its employees. Banks also help employees make eco-friendly choices. Banks use green self-efficacy pro-environment strategies to reduce environmental spillovers. The banks reinforce environmental awareness in hiring, education, and awards to create a green workforce that supports eco-friendly practices. The third goal is to examine how green banking affects banks' environmental behaviour. The findings show that green banking practices boost pro-environmental behaviour. This suggests that green banking practices improve Greater Accra banks' pro-environmental behaviour. This may be due to the dry summers in Greater Accra. Bankers are aware of the consequences of such a scenario and are focused on how spillover effect mediates the link between green banking practice and pro-environmental behaviour. The results showed that green banking practices significantly influenced pro-environmental behaviour. The spillover effect appears to fully mediate the link between green banking and environmental behaviour.

5.3. Recommendations and Policy Implications

Government environmental performance rules should be considered a variable given climate change. Peer pressure, awards, and recognition may influence employee acceptance of green policies and practices. Customer awareness must also rise. Green banking includes sustainable resource use and financing. Green Banking implementation requires client education and awareness. Green Banking's success depends on banks' comprehensive green training and instruction. Local green banks need interest rate reductions for green loans, fiscal subsidies for environmental protection, and tax breaks for green bonds. Thus, Banks of Ghana, which re-lends, and financial regulators, which review and approve green bond issuance and other financing operations, must cooperate. Thus, fiscal and financial authorities must collaborate to create Ghana's green banking system. A recent report found that Ghana has not yet adopted green money laws and standards. Thus, a legal framework and regulatory mechanism for green finance must be developed quickly, including revising Commercial Banking Law to establish financial institutions' environmental legal responsibilities, crafting regulations on compulsory environmental pollution liability insurance, and mandating environmental information disclosure for listed companies and bond issuers. Banks can use certain green practices to help them achieve their sustainability development goals. This study supports Sustainability Theory by emphasizing the significance of balancing environmental, social, and economic considerations in banking operations,

hence validating the need for a "Triple Bottom Line" strategy in business plans. Finally, green banks need fast, accurate, and trustworthy corporate environmental protection information to make green loans. Information platforms and corporate credit information systems may help environmental protection and financial affairs departments collaborate.

5.4. Suggestions for Future Studies

There are numerous approaches to research how green banking practices affect any economy. Numerous approaches and strategies could be investigated in any setting, and studies into the best ways for practitioners in the banking and finance sector to design and deliver pro-environmental behaviours as well as the role of the spillover effect as a mediator to provide good regulatory strategies for compliance could surface. Future research might address the gaps in green banking practices by conducting cross-country, comparative, and wider national coverage studies. Last but not least, long-term trends and problems in the banking industry's efforts to support environmental protection through green banking practices may be identified by longitudinal studies that monitor green banking practices and the pro-environmental behaviour of practitioners.

5.5. Limitations to the Studies

Despite the fact that our case study provides compelling evidence that green banking practices enhance the conduct of banks in the Greater Accra Region and, consequently, throughout Ghana, all of the banks included in our study sample have branches in almost every region of the nation. Although our case study banks have branches all over the nation, we acknowledge the limits of our study because the results may not be representative of the entire nation. In terms of methodology, we recognize that, as is typical when using PLS-SEM, the analysis in our study may produce biased component estimation, loadings, and path coefficients due to inconsistent ratings of latent variables. Since PLS-SEM is a correlation-based analysis, it is difficult to concurrently address the problems of measurement scale, missing data, outliers, non-linearity, non-normality, and limited data range. Once more, both conscious and unconscious biases might influence quantitative data processing, thereby compromising the impartiality of our conclusions. Notwithstanding these drawbacks, PLS-SEM is highly helpful in our research because there were few participating banks and the data distribution was skewed to only the Greater Accra Region of Ghana, which might reduce the generalizability of the study's conclusions.

Abbreviations

ATMs	Automated Teller Machines
AVE	Average Variance Extracted
CR	Composite Responsibility
EGB	Employee Green Banking
GBP	Green Banking Practices
GOF	Goodness of Fit
GB	Green Banking
HTMT	Heterotrait-Monotrait Ratio
PEB	Pro-Environmental Behaviour
PLS-SEM	Partial Least Square – Structural Equation Modelling
SPB	Sustainability Performance of Banks
SPSS	Statistical Package for the Social Sciences
VIF	Variance Inflation Factor

Conflicts of Interest

The authors declare no conflicts of interest.

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