



## Applied regression modeling to propose policy recommendations for green banking development in Vietnam

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### ABSTRACT

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In Vietnam, green banking plays a critical role in successfully implementing the National Strategy on Green Growth for 2021-2030, vision to 2050. Green banking helps businesses invest in projects, programs and infrastructure to reduce emissions and protect the environment. Therefore, qualitative and quantitative investigations were conducted to identify the critical factors of green banking development. The structural equation model (SEM) analyzes the complex relationships between several factors related to green credit based on a survey of 450 staff members. The research provides lawmakers and bank executives with the scientific basis for new ideas. This study seeks to improve green banking institutions and offer specific solutions to promote banking and credit products and apps to help enterprises expand their green credentials. The findings also support the government and functional agencies in improving project appraisal stages and strengthening hygiene and safety credit inspections in credit policies for green banks. Finally, the results have green credit applications that advise the government to enhance the regulatory framework of green banking under international standards to provide transparency. Simultaneously, improving the practicum framework for green economic sectors and developing conventional green financial markets is necessary to create a foundation for green banking development in the future.

**Contribution/Originality:** This study's contributions aim to shift priorities toward green credit and green banking development practices. The research results contribute to commercial banks promoting the development of green credit and green banking, preparing them for the business community and contributing to implementing the national green transformation strategy.

### 1. INTRODUCTION

Greening the economy is a global trend; green credit is an inevitable trend for many banks worldwide and has become a mandatory criterion for many international credit rating organizations while also playing an essential role in successfully implementing the national strategy on green growth and sustainable development, including green banking (Lv, Zhang, & Zhang, 2023; Sadiq et al., 2022; Umar, Ji, Kirikkaleli, & Xu, 2020). Green credit is a critical factor for banks. The role of green credit capital is significant in solving the challenges posed by the agrarian sector's sustainable growth and environmental protection goals. Banks have aimed to apply green credit solution packages, with many incentives for corporate and individual customers to borrow capital to implement green projects (Shahzad, Qu, Zafar, & Appolloni, 2021; Wang, Qi, Zhou, Zhou, & Huang, 2022;

Zhang, Xu, Wang, & Shi, 2023). Many studies have shown that, to improve green production efficiency and develop banks in a green and sustainable direction, it is necessary to promote the transformation of large production models to build green production along the product value chain and create value linkages from production processing to product consumption (Chen, Siddik, Zheng, Masukujjaman, & Bekhzod, 2022; Zou, Cheng, Jin, & Pu, 2023). Therefore, the government has recently implemented policies to green the banking sector aimed at the dual goals of economic growth and environmental protection. In 2022, the green banking sector set an industry-wide value-added target of 3%. The industry needed priority policies to achieve this result while aiming to develop green banks. Credit solutions are essential in creating and connecting entities in green production, thereby adding value to agricultural production. The State Bank's Credit Department reported that the green credit amount will increase by about 25% annually from 2017 to 2022. More than 474,000 billion Vietnam Dong (VND) of green project loans were outstanding in 2022, representing 4.1% of the total economy-wide debt and a rise of 7.08% from the previous year; 32% of these loans were for green banks. Credit growth is not without its constraints, although financial institutions are free to reject investment proposals because of the absence of green economic growth restrictions in the laws that currently govern the granting of loans. Business investment satisfies the criteria for environmentally friendly economic growth. In addition, green growth regulations mean that investment initiatives in businesses need a lot of money and a long period to recoup that money. Thus, loan institutions frequently focus on business investment projects with rapid capital turnover and assured capital recovery. The current rules do not fully regulate credit products that enable green growth. The only way for green credit to continue to grow is for institutions to implement policies and programs that promote it. This allows them to boost the percentage of green credit in their portfolios over time. For example, they can: i) create and implement solutions to boost green credit growth, which will encourage businesses to be more environmentally and socially responsible; ii) launch credit programs with incentive policies for green growth projects and business plans; and iii) prioritize green credit for sectors that conserve, develop, and effectively use natural resources, use advanced scientific and technological achievements, use energy economically and efficiently, develop clean energy and renewable energy, use environmentally friendly technology and equipment, and produce environmentally friendly products (Han, Wang, Yu, & Xia, 2023; Li, 2022). Those in need of funding for environmentally responsible green growth face obstacles in the form of unregulated green credit products. Therefore, green growth objectives cannot be attained without green credit policies. Growth, economic progress, human prosperity, environmental preservation, and sustainable green banks are all positively affected by green credit initiatives.

## 2. LITERATURE REVIEW AND RESEARCH HYPOTHESES

### 2.1. Literature Review

Green banking development: The concept of green banking first appeared in many studies with the purpose of protecting the environment and was then used by many economists in their research (Aslam & Jawaid, 2023). Green banking includes online banking activities and conducting transactions online instead of expanding the bank's branch chain. Green banks can be approached in two directions: (1) focusing on greening the bank's internal operations and (2) sponsoring environmentally friendly projects, focusing on social and environmental factors in the loan appraisal process. The study suggests that green banking leans toward socioeconomic activities and focuses on environmental factors by reducing carbon both inside and outside the bank (Bose, Khan, Rashid, & Islam, 2018; Chen et al., 2022). Specifically, banks reduce the amount of carbon in banking by conducting activities online and using automated teller machines (ATMs), mobile banking, cards, and exchanges via email to minimize activities that increase their carbon footprint, such as the energy used in buildings and the use of paper and stationery (Gunawan, Permatasari, & Sharma, 2022). To reduce non-bank emissions, banks implement green credit or sponsor environmentally friendly projects, reduce pollution emissions, and prioritize

green industries. Thus, green banks are similar to other banks but take into account environmental and social factors by reducing carbon in the direction of encouraging green credit activities and greening organizational operating activities in banking tasks (Ibe-enwo, Igbudu, Garanti, & Popoola, 2019).

## 2.2. Research Hypotheses

One of the main objectives of green development in the banking industry is to improve and reorganize commercial banks' green credit departments to better support investment in high-value green energy projects (Wang, Tsai, Du, & Bi, 2019; Zhou, Liu, & Luo, 2021). The aims of green development are to: (1) Find, assess, and fund environmentally friendly projects that make better use of our natural resources, cut down on emissions of greenhouse gases, and help combat climate change; (2) raise living standards and promote a greener way of life through the creation of numerous jobs funded by green credit capital; (3) help end world hunger and poverty without charging exorbitant prices for our precious minerals, water, forests, and air; and (4) assist developing nations in achieving economic and social benefits (Akomea-Frimpong, Adeabah, Ofori, & Tenakwah, 2022; Wang et al., 2022). Vietnam participates in the United Nations Framework Convention on Climate Change (COP26) and is committed to bringing net emissions to "zero" by 2050, requiring a strong change in thinking and human and material resources. In particular, bank credit is a vital link that creates the success and failure of the green bank transformation process and is an essential factor in green banks.

X1: Policy for human resources: Developing self-mobilizing human resources in tandem with an organization's human resource development policy that is dynamic to accommodate changing technological landscapes and environmental conditions is the primary strategy for attracting and retaining top talent, particularly those with extensive experience in green credit and who can assess potential commercial bank projects in a way that contributes to their long-term viability (Campiglio et al., 2018; Jameel, Chishti, Bhandari, & Zaidi, 2020). Human resources are one of the most critical issues for banks, especially green credit, helping organizations maintain a competitive position in the market (Luo, Yu, & Zhou, 2021; Miroshnichenko & Mostovaya, 2019). The globalization process is strong, and improving human resources is necessary. Organizations need a specific strategy to manage and develop human resources to serve the development of green credit (Bukhari, Hashim, & Amran, 2019; Hong, Li, & Drakeford, 2021). Therefore, H1 proposes the following:

*H1: Policy for human resources positively influences green banking development.*

X2: Policy for capital sources: Commercial banks are in danger of insolvency or are severely limited in their ability to grow if this ratio is not assured (Hong et al., 2021; Nilashi et al., 2019; Qin, Zhao, & Xia, 2018). Consequently, commercial banks can mitigate risk, safeguard capital during operations, and limit losses of green credit by increasing their financial capacity, which includes green credit capacity (Ben, 2018; Ellahi, Jilani, & Zahid, 2023). Vietnam is a developing country with rapid urbanization, increasing demand for energy, and significant pressure from natural disasters and environmental pollution, such as air and water resources, and climate change. Vietnam needs a lot of capital to invest in green fields, such as renewable energy, energy conversion, waste treatment, and green banking. Therefore, H2 proposes the following:

*H2: Policy for capital sources positively influences green banking development.*

X3: Policy for risk management: Green credit comes from many sources of capital from all sectors of society but is still mainly implemented by the banking system (Banga, 2019; Christophers, 2017; Cui, Geobey, Weber, & Lin, 2018; Yong et al., 2020). The need for capital for green credit is enormous, but not all banks are excited to participate, because these projects often have many short-term difficulties, disadvantages, and unrealistic profit margins (Batrancea et al., 2020; Tawfik, Kamar, & Bilal, 2021). In addition, banks effectively deploy credit capital allocation to contribute to socioeconomic development and promote the development of green credit and banking to help drive the economy toward green growth (Hossain, Rahman, Hossain, & Karim, 2020). The government

can increase the amount of bank credit invested in renewable energy and clean energy, and green banking can be achieved through a combination of strategic initiatives, regulatory support and market incentives. Thus, H3 proposes the following:

*H3: Policy for risk management positively influences green banking development.*

X4: Policy for raising awareness: Green credit capital plays a pivotal role in the development of green banking, forming a significant proportion of the total green credit portfolio of commercial banks. Over the years, the value of green credit has been on an upward trajectory, reflecting the growing emphasis on sustainable finance. Lending under green credit schemes often comes with various incentives designed to promote environmentally friendly projects (Ellahi et al., 2023). However, investing in sustainable banking requires significant long-term investment funds. This means that the current source of preferential green credit capital is not being fully and promptly met (Xing, Zhang, & Tripe, 2021; Zhao, Zeng, Ke, & Jiang, 2023). Moreover, green banking still has many shortcomings, such as product output is not guaranteed, many farmers have technical limitations, and products do not meet standards, leading to some clean agriculture and sustainable banks having to stop unfinished, making it difficult for commercial banks to recover their loan capital (Zhang et al., 2023). Therefore, raising the awareness among people regarding the use of green credit capital for proper purposes and ensuring environmental, economic, and social effectiveness is necessary. Thus, H4 proposes the following:

*H4: Policy for raising awareness positively influences green banking development.*

X5: Policy for completing the legal framework: Policies must be developed at each bank in relation to its goals and business strategy (Wang et al., 2022). In other words, developing green credit activities must be based on the bank's general development strategic framework depending on the bank's overall development strategy on business orientation, advantageous products, target customers, market segments, and capabilities and strengths (Shahzad et al., 2021; Wang et al., 2022). Green credit plays an essential role in the successful implementation of green banks. However, although there have been positive signs through actual implementation, this field still has some difficulties (Wang et al., 2022). It has not fully exploited its potential because detailed regulations on green credit and the legal framework have not yet been completed, affecting the process of developing green credit in the banking sector (Hossain et al., 2020; Putri, Rahayu, Rahmayani, & Siregar, 2022). Therefore, H5 proposes the following:

*H5: Policy for completing legal framework positively influences green banking development.*

Green banking is considered a priority area for loans. However, the lending interest rates for green projects do not differ from those for other bank loans. Short-term interest rates fluctuate between 5% and 8% per year, while medium- and long-term loans range from 8%–10% per year. The green sector still has difficulties, such as unclear incentive mechanisms, significant investment costs, long payback periods, high market risks, and additional expenses. To develop green banking toward achieving this dual goal, it is necessary to have policies that prioritize this development in this area.

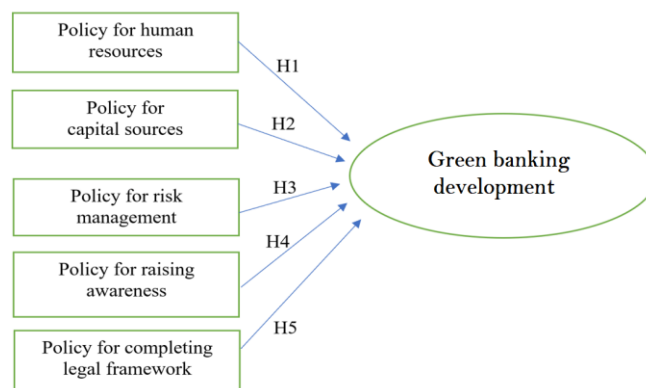


Figure 1. Five factors affecting green banking development in Vietnam.

Figure 1 shows the five factors affecting green banking development in Vietnam: (1) Policy for human resources, (2) Policy for capital sources, (3) Policy for risk management, (4) Policy for raising awareness, and (5) Policy for completing the legal framework.

### 3. RESEARCH METHODS

This research uses mixed methods, which combines qualitative and quantitative methods to solve the same research problem. Qualitative research was performed first, followed by quantitative research. The concepts in the model were applied based on previous research, and relationships were established based on background theory and evidence from related research. Therefore, the qualitative research in this study does not aim to discover new factors, build new scales, or form new theories, but is only a preliminary exploration of the theoretical model's feasibility and appropriateness of the scale as a basis for the quantitative research step (Hair, Black, Babin, & Anderson, 2018). That is, quantitative research dominates in terms of the influence weight.

(1) Qualitative research is used to find background theory and evidence from related research as well as to check the appropriateness of the scales when applied to the development of green banking. The next step is to measure the influence of these factors on the development of green credit and sustainable banks. Currently, it is necessary to use quantitative methods. Thus, the use of mixed methods is appropriate for this study (Hair et al., 2018). The detailed step-by-step implementation is as follows: Qualitative research includes two steps, reviewing relevant documents and acquiring expert opinions. Reviewing and identifying relevant documents is an essential step in any research project because it collects additional data to support theory building.

(2) Quantitative research is used to measure model levels. Specifically, the quantitative analysis was separated into two steps. Step 1: For preliminary quantitative research, data was collected with an expected sample size of 100 and was analyzed to check the validity and reliability of the scales. Step 2: For formal quantitative research, a survey was conducted with an expected sample size of 450 staff members at 15 commercial banks from January 2023 to April 2023.

The vital northern economic region, which encompasses Hanoi, Hai Phong, Quang Ninh, Hung Yen, and Hai Duong, was approved and formed in 1997 by the prime minister. Vinh Phuc and Bac Ninh provinces were added in 2004. The political, cultural, economic, scientific, and technological centers of the nation are located in the northern key economic region, including central agencies, operational centers of many significant economic organizations, national science and technology training, research and development (R&D) enterprises. As an integral part of the Red River Delta's economic growth, this area also has a nuclear power plant. In particular, the critical northern economic region's development triangle consisting of Hanoi, Hai Phong, and Quang Ninh, spreading and attracting other localities to develop together, closely linking them and promoting the socio-economic development of the Red River Delta and the entire country.

Originally formed in 1997 to encompass Da Nang, Thua Thien Hue, Quang Nam, and Quang Ngai, the central key economic area was expanded to include Binh Dinh Province in 2004. An essential point of entry to the sea, the central key economic zone, is at the crossroads of the nation's northern and southern regions. Economic and commercial exchange corridors between the Central Highlands, Myanmar, Cambodia, and Laos, and the international sea route across the East and West Pacific Seas are possible in this strategically vital and geographically advantageous area. Economic growth in coastal areas, such as the North Central and South Central regions, will help with reorganization, fair exploitation of labor and natural resources, new employment opportunities, and green banking development.

The central business districts in the south (Ba Ria-Vung Tau, Dong Nai, Binh Duong, and Ho Chi Minh City) are all part of this 1998-established region. Long An, Binh Phuoc, and Tay Ninh provinces were added in 2003, and Tien Giang province was incorporated in 2009. Situated on key national, regional, and international transportation axes, the vital southern economic zone offers several convenient entrance and departure gates for

rivers, trains, seas, and air. Gathering all the circumstances and advantages of developing major industries, this area has a crucial strategic position and role in socio-economic development, driving the country as a whole to industrialize and modernize. With the help of other key economic regions, the southern region has been able to promote its advantages throughout its formation and development. This has led to the creation of economic strengths heading in the right direction, a boost to structural transformation in the economy, and overall macroeconomic stability.

Economic hub of the Mekong Delta: The province of An Giang, together with the cities of Kien Giang, Can Tho, and Ca Mau, was formed in 2009. The Mekong Delta is a major player in the export of green and aquatic products. It is the country's rice capital, fishing hub, and seafood-processing hub. The entire Mekong Delta relies on this economic region for a variety of green products, including seeds, technical services and technological transfer.

Convenience sampling was employed to obtain samples for this investigation. The formula for the sample size is:  $n \geq 8m + 50$ , where  $m$  represents the independent variables. The model comprises five independent variables. The researchers questioned 450 bank workers who grant green project credit. Our country has four vital economic regions: northern, central, southern, and Mekong Delta, with 24 provinces and central cities. The author surveyed 100 people from each region (northern, central, southern) and 150 people from Mekong Delta. The data collection period was from January 2023 to April 2023, and unsuitable or incomplete questionnaires were eliminated. The official data comprised 425 complete answer sheets (25 answer sheets lacking information) entered into SPSS 20.0 and processed through Amos.

To identify the factors affecting green banking development in the four regions, we tested the relationship between the dependent and independent variables. In addition, a check was done to ensure that the model does not have multicollinearity, with the variance inflation factor (VIF) of the independent variables  $< 3$  (Hair et al., 2018). The survey questionnaire was designed based on the results of the research overview. Any necessary adjustments were made to clarify the meaning of the questions and to ensure that they were suitable in the Vietnamese context through interviews and discussions with 25 experts. The general opinion of scientists confirms that the five factors used are wholly appropriate, and the green banking development most relevant today are chosen below. The independent variables are X1: Policy for human resources, X2: Policy for capital sources, X3: Policy for risk management, X4: Policy for raising awareness, and X5: Policy for completing the legal framework. The dependent variable (Y) is green banking development.

## 4. RESEARCH RESULTS AND DISCUSSION

### 4.1. Current Status of Green Banking Development in Vietnam

The term 'green credit' refers to loans made available by financial institutions to companies and manufacturing projects with the explicit goal of reducing negative impacts on the environment. The financial sector employs green credit as one of several methods to address global environmental and social issues through financial means. Green credit also appears in sustainable development-focused financing. One of the most important aspects of global climate change is the establishment of green credit. As a result of several capital-related constraints, incomplete legislative barriers, and an inadequate socio-environmental risk assessment system, Vietnam's green banking development has been somewhat small. Nevertheless, the increase in outstanding loans for green projects, wind power, and renewable energy is actively encouraged by many banks.

Energy efficiency, renewable power, and clean technology initiatives that seek to increase the economy while protecting the environment have long been part of the global green credit expansion trend. Recognizing the significance of green credit, the State Bank of Vietnam issued Directive No. 03/CT-NHNN in March 2015 to promote the expansion of green credit and handle the associated risks. Extending loans, particularly in the context of green banking and green credit, carries both benefits and risks to society and the environment. While

the goal is to support sustainable development, there are several potential risks that need to be carefully managed. To put the National Strategy on Green Growth into action until 2025, the State Bank of Vietnam (SBV) also released the Banking Industry Action Plan. This plan includes solutions such as bolstering the capacity of the banking system to deliver green banking and credit, encouraging the adoption of green banking and credit products, providing support to businesses in their green growth initiatives, and enhancing the dissemination and propaganda of green banking and credit initiatives.

State Bank regulations allow green credit funding for green banks, forestry, industry, renewable energy, recycling, resource utilization, waste treatment, pollution prevention, environmental protection, green construction, and sustainable transportation projects. The State Bank found that Vietnam's green credit growth rate was strong for over six years after Directive 03 was issued. Vietnam's green credit debt was 71 trillion VND in 2015 and is expected to reach 340 trillion by 2025. Credit growth in the banking business rose by 13.53% from 2020 to December 31, 2021, thus increasing the green credit balance. Although green credit debt in Vietnam grows significantly each year, it is still minor compared to the whole credit system. In particular, extraordinary green credit debt rose from 1.55% in 2015 to 3.69% in 2022.

Credit debt mainly focuses on green banks (accounting for nearly 40%) and renewable and clean energy (accounting for more than 30%). In the medium and long terms, a particular debt structure accounts for 76% of the outstanding green credit debt. Short-term lending interest rates for green fields range from 5%–8% per year, and medium- and long-term from to 9%–12% per year.

According to the evaluation, green credit debt is still a small percentage of total credit debt, but it is growing quickly, contributing to sustainable growth and a protected environment. Many banks now provide preferential lending programs to businesses and individual customers to borrow funds for green projects. In 2021, the Covid-19 epidemic had many adverse effects on all aspects of the economy. The growth rate of foreign investment tends to be slow, but capital flows from this source into Vietnam's green growth projects are still quite positive. Simultaneously, banks and businesses are confident in promoting lending and investing in green growth projects.

The World Bank stated that it is possible to provide budget support for the government's priority investment programs to implement green growth strategies and to reduce greenhouse gas emissions for each period. In addition, the World Bank can support the government in mobilizing more resources from the private sector. Domestic commercial banks said they would promote financing activities for businesses and projects for sustainable growth and accompany the government in implementing its goals of bringing net emissions to "zero" by 2050. With orientations and directions from the State Bank and efforts made by credit institutions, green credit has had positive results. The study conducted by the State Bank on financial institutions' involvement in green growth and lending revealed a notable enhancement in their comprehension. Several financial institutions have formulated strategies for managing environmental and social risks. They incorporate environmental and social risk management considerations into the evaluation process for green credit. Additionally, they designed credit products and banking services specifically for environmentally friendly projects. These institutions have also prioritized the allocation of capital from banks to provide credit for these projects, offering preferential interest rates for medium- to long-term green initiatives. Although Vietnam shows positive signs of green credit growth, its green credit market is relatively young, and its development is not as fast as expected. Meanwhile, each nation establishes a legal corridor for credit operations to support green credit growth and execute green credit policy. Thus, the State Bank must continue to develop and implement regulatory frameworks for green credit and business investment projects that impact the environment and green industries/fields for universal and unified applications. This allows commercial banks to issue green credit through appraisal, evaluation, and oversight. The State Bank must also investigate and analyze social and environmental risks and complete a manual on the loan-granting activities of credit institutions.

In addition, recent growth in green credit has mainly come from the policy orientation of the State Bank of Vietnam and the Ministry of Finance, not from the market. In countries with developed financial markets, such as the US and the EU, the driving force for green financial growth, including green credit and green bonds, mainly comes from the investment demand of the market. Investment decision makers are aware of sustainable development and corporate social responsibility. On this basis, investment capital flowing into green fields is increasing and requires businesses to prove their green and environmentally friendly production and business capabilities to meet investment needs. In contrast, in Vietnam, green credit growth in the recent period mainly came from policy impacts and requirements from the State Bank of Vietnam for credit institutions. The rapid growth of green financial debt in Vietnam is mainly due to the attractiveness of incentives for green credit and the policy requirements for banks to provide more green credit.

In short, although the State Bank of Vietnam has organized many seminars on green banking and credit, Vietnamese commercial banks have not paid particular attention to green banking development. This lack of interest is because commercial banks do not understand the importance of green credit in the sustainable development of the banking industry and lack strict legal regulations related to this issue.

4.2. Descriptive Statistical Results for Green Banking Development

Research on the status of green credit in Vietnam from 2017 to the present shows that in addition to some initial successes, the State has issued documents guiding the rapid development of green credit in the region, and credit growth is increasing. However, some limitations still exist, such as incomplete legal documents, the lack of environmental criteria for specific industries, and many small and medium enterprises (SMEs) and individuals not being able to access them with this capital. To develop green credit in Vietnam in the future, some solutions need to be implemented, such as the State Bank of Vietnam, relevant ministries and branches completing the legal aspect and commercial banks diversifying their products. The expansion of credit to SMEs and individuals is necessary. Data related to providing credit for green projects was collected from 450 people, and 425 valid responses were presented and processed using SPSS 20.0 (25 of the questionnaires were eliminated after the data screening process).

Table 1. Descriptive statistical results for green banking development.

Green banking development	Cronbach's alpha	Mean	Std. deviation
X1: Policy for human resources	0.945	3.410	0.863
X2: Policy for capital sources	0.836	3.080	0.938
X3: Policy for risk management	0.949	3.533	0.873
X4: Policy for raising awareness	0.948	3.141	0.949
X5: Policy for completing the legal framework	0.874	2.568	0.716
Y: Green banking development	0.881	2.485	0.615

Table 1 presents the mean values of all components, which is approximately 3.0. Moreover, the standard deviation approached 1.0, and all Cronbach's alpha values were greater than 0.6. The data provided exhibits significant potential for green credit and banking. The results of this study show that these factors influence green credit and banks. To develop green credit in Vietnam in the future, the state, commercial banks, and customers need to have some of the following discussions. First, the State Bank should complete the necessary legal procedures on green credit so that banks have a basis for implementation, including detailed regulations on green credit. Lending conditions for industries, especially SMEs and individuals, require open lending regulations. Second, relevant ministries and branches need to accelerate the progress of developing environmental criteria for projects or project items that have been granted green credit. Building a green classification list associated with the screening criteria, thresholds, and specific environmental targets is



necessary for credit institutions to approve loans. Third, commercial banks must continue developing policies for green credit activities. In addition, it is essential to promote the development of green credit products more diversely, appropriately using capital sources from banks or state project programs that provide incentives for green projects to promote effective capital mobilization and lending for projects. Fourth, it is necessary to expand the forms of green credit lending to SMEs and individuals because these are the subjects lending the most money with a quick impact, especially on the environment. Finally, strengthening propaganda on the policy of green economic development and green credit to local management agencies, businesses, and people will help them shift production and companies to green economic fields, contributing to green banks in Vietnam.

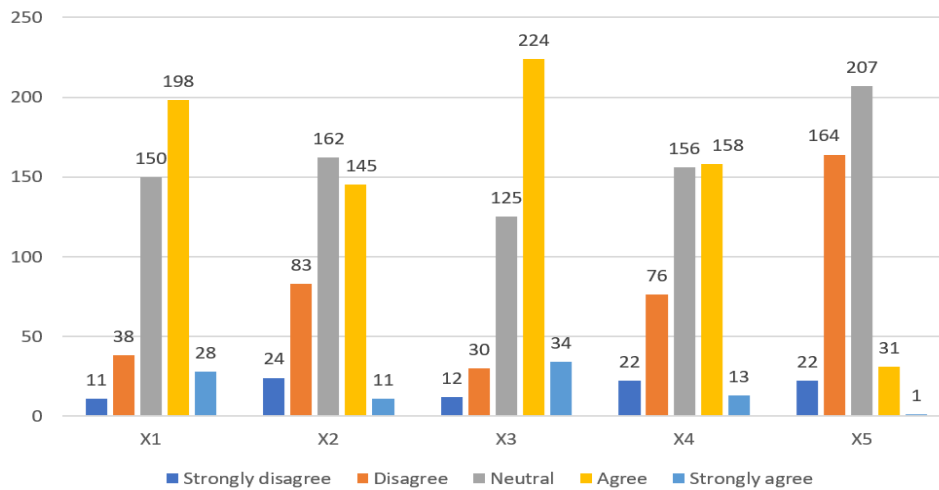


Figure 2. Frequency of statistical results for green banking development.

Source: Authors' calculations using SPSS 20.0 and Excel.

Figure 2 shows that the research results were over 45% from level 3 to level 5. In addition, green credit provides preferential capital with low interest rates for projects related to environmental protection, reducing greenhouse gas emissions and unusual climate fluctuations and working toward a green and growing economy and sustainable development. Therefore, green credit is a solution that the financial industry can apply to deal with the world's environmental and social challenges through financial tools.

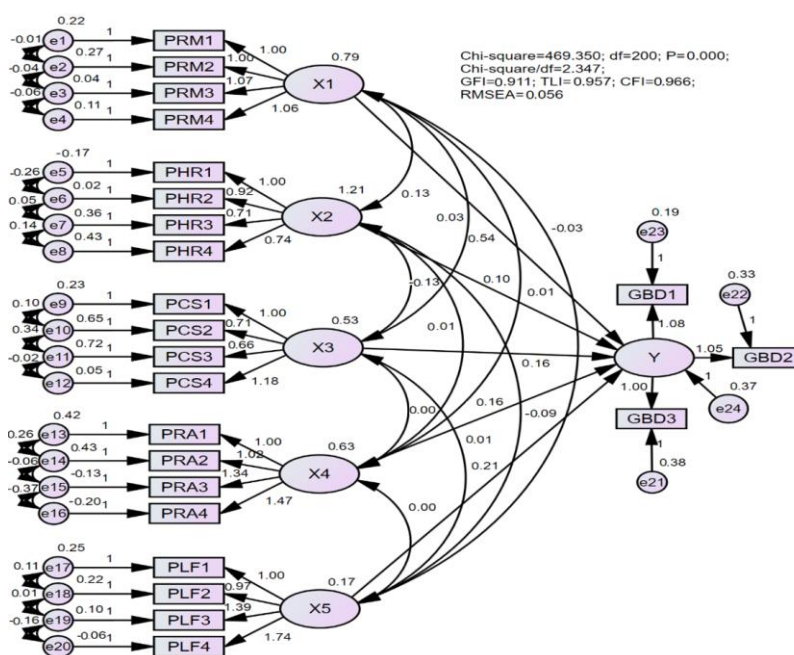


Figure 3. Testing five factors affecting green banking development in Vietnam.

Figure 3 shows the testing of five factors influencing the green banking development with a sig. value of 0.01. In general, green banking development can also be understood in many aspects, including (1) through credit policies and tools such as loan conditions, terms, interest rates and loan amounts to support environmentally friendly investment projects, thus reducing carbon emissions; (2) limit, stop granting, or even revoke credits granted to projects that violate regulations on ecological environment protection; and (3) the bank monitors the use of loans for projects with environmental risks and minimizes these risks through credit policies.

Table 2. Testing five critical factors affecting green banking development.

Relationship			Unstandardized estimate	Standardized estimate	S.E.	CR	P	Note
Y	<---	X1	0.212	0.298	0.036	5.843	***	H1 accepted
Y	<---	X2	0.119	0.180	0.029	4.174	***	H2 accepted
Y	<---	X3	0.092	0.130	0.030	3.095	0.002	H3 accepted
Y	<---	X4	0.179	0.274	0.033	5.368	***	H4 accepted
Y	<---	X5	0.139	0.162	0.036	3.835	***	H5 accepted

Note: \*\*\* 1%

#### 4.3. Testing Results for Factors Affecting the Green Banking Development

Figure 2 displays the testing outcomes for the five factors that impact green credit and banks at a significance level of 0.01. The five components considered are X1: Policy for human resources, X2: Policy for capital sources, X3: Policy for risk management, X4: Policy for raising awareness, and X5: Policy for completing the legal framework. The results highlight the importance of promoting access to appropriate green credit for green agricultural development. This is also an essential part of the overall strategy for sustainable development of many joint-stock commercial banks. Vietnam is currently attracting international investors to the green finance market. In particular, agriculture has impressive figures for exporting rice, coffee, green products, food, etc. This shows that Vietnam can meet the needs of the production market and the organic production model according to the circular economy model of demanding markets. The green sector targets the proportion of organic fertilizer products of the total fertilizer products produced and consumed to reach over 30%. Increasing the number of biological pesticides in the list of permitted pesticides to over 30% can significantly contribute to sustainable agriculture and environmental protection. At least 30% of the irrigated dry crop areas use advanced water-saving irrigation methods. It emphasizes the need to make Vietnamese green banking a model for developing low-carbon agriculture, ensuring food safety, and improving the competitiveness in the global green product chain with the aim of reducing greenhouse gas emissions and methane production in farming and animal husbandry, and ensuring that the green product chain doesn't cause deforestation.

To develop green banks toward achieving this dual goal, it is necessary to have policies that prioritize development in this field. In particular, credit solutions play an essential role in creating and connecting entities in green production from inputs and outputs, thereby increasing the value of green production. By financing green projects, commercial banks support people and businesses with capital to develop green and clean projects and products. This will help Vietnamese people enjoy clean and green products, and it will increase the competitiveness of Vietnamese companies to develop and expand into international markets. To improve the availability of environmentally friendly financial resources in the green agricultural industry, the Ministry of Agriculture and Rural Development intends to collaborate with the State Bank of Vietnam to finalize favorable credit policies for green financing. These policies will include low interest rates and interest rate subsidies for customers who are implementing green projects along the value chain, utilizing advanced technology and engaging in green banking.

Table 2 shows the test results for five key factors affecting green banking development with sig. 0.01.

Therefore, commercial banks need to improve the quality of human resources and capital sources for green credit and risk management, promote propaganda, raise awareness of green credit, and improve the complete legal framework on green credit. Commercial banks need to diversify their banking products and services to meet the needs of integration and environmental protection. Developing modern banking services means using high technology and environmentally friendly technology, contributing to green growth through the development of new and contemporary forms and means of payment, using environmentally friendly technology to create synchronization and favorable conditions, encouraging the development of non-cash payments, and limiting cash payments. In addition, commercial banks need to diversify green credit products. Any business activity or product needs to meet market needs and satisfy customers. The uniform structure of green credit products speaks to the diversification of green credit products, which shows a bank's level of attention and development focus on this field, thus helping the bank earn revenue and attract more customers, and the number of customers in this segment increased significantly. However, product diversification must be concerned with the bank's existing resources.

**Table 3.** Bootstrap testing with 4,000 samples for factors affecting green banking development.

Relationship		SE	SE-SE	Mean	Bias	SE-Bias	CR	Note
Y	<--- X1	0.040	0.001	0.213	0.001	0.001	1.00	H1 accepted
Y	<--- X2	0.029	0.001	0.119	0.000	0.001	0.00	H2 accepted
Y	<--- X3	0.032	0.001	0.092	0.000	0.001	0.00	H3 accepted
Y	<--- X4	0.035	0.001	0.178	0.001	0.001	1.00	H4 accepted
Y	<--- X5	0.038	0.001	0.141	0.002	0.002	1.00	H5 accepted

Table 3 shows the bootstrap test results with 4,000 samples for factors affecting green banking development with sig. 0.01 and composite reliability (CR) < 1.96. These results are consistent with research data and accurately reflect the recommendations proposed by experts. Commercial banks need to increase equity capital to meet capital needs for green credit. These units need to coordinate closely with functional units of the State Bank of Vietnam to regularly monitor, evaluate and report on businesses' use of loan capital. This will help find timely solutions to prevent or handle the misuse of loans that cause negative consequences to the system. For commercial banks, green credit capital is often investments with large capital scale and slow recovery time. However, businesses often have low equity capital, limited collateral, and are not large enough to access projects. To solve this problem, banks need to increase mobilized capital. In addition to raising equity capital, banks can coordinate with domestic and foreign funds or cooperate with other banks to grant green credit to projects for sustainable development.

Commercial banks should also upgrade their green credit risk management systems and organizational frameworks. To better assist with credit work and risk management in a professional, easy and efficient manner, banks need to immediately construct a credit information database. In addition, commercial banks increase their credit risk management equipment and organizational structure by creating dedicated departments and consulting units. Commercial banks require a variety of credit risk management strategies, including portfolio diversification, regulation of credit-granting limitations, risk distribution, and the prioritization of credit development in sustainable industries with low-risk elements. Restricting access to credit in regions identified as having high-risk elements will minimize bad debt, provide early warning, and help avoid credit problems early on; therefore, it is necessary to thoroughly examine and monitor the entire credit provision process, take the initiative to assess potential threats to a company's credit, and develop strategies to mitigate them.

Moreover, the State Bank needs to develop appropriate interest rate policies when granting green credit to prioritize interest rate support. The State Bank needs to build a coordination mechanism between credit institutions in relation to giving green credit to ensure a sufficient supply of capital for large-scale green

economic development projects while minimizing risks of granting green credit. In addition, competent state agencies must mention building policies for green banking development as an important solution for establishing a policy basis. Developing legal documents to concretize green banking development is the next step toward realizing the goals of green growth and green banking.

In short, to develop credit policies toward green growth, management agencies need to complete the legal framework and guidelines for green credit implementation, strengthen policy coordination between relevant ministries and branches, and, most importantly, mobilize resources for green credit from the state and mobilize capital through bond issuance to increase the proportion of green credit in lending activities for environmentally friendly projects in green banks.

#### 4.4. Research Discussions

Green banks play an essential role in motivating and supporting the banking sector to develop sustainably without harming the environment.

X1: Policy for human resources: This factor affects green banking development at a significance level of 0.01. Green banking development is positively affected by human resources, and the same results were found by other studies (Migliorelli, 2021; Wang et al., 2019; Zhou et al., 2021). Organizations need a specific strategy to manage and develop high-quality human resources with green credit knowledge. The issue of human resource development in the banking industry is always urgent, ensuring the sustainable development of the industry as well as meeting the needs of socioeconomic innovation. In the era of the digital economy and society, digital competency is one of the required skills for human resources in the banking industry. Therefore, it is necessary to connect officials and employees with digital transformation trends, digital economic transformation, and digital organizational transformation. To do this, financial and banking institutions must continue organizing annual digital transformation seminars. Visiting, interning, exchanging, and working at domestic and foreign digital organizations and businesses helps employees see the role, advantages, and trends of digital transformation, creating confidence in future hybrid digital transformation and helping them see their role in promoting their organization's digital transformation process.

X2: Policy for capital sources: This factor affects green banking development at a significance level of 0.01, which is consistent with the results of previous studies (Chen, Zhang, Bai, & Li, 2021; Xu, 2020). Therefore, to adapt to the new situation, production and business enterprises must shift their operations from relying mainly on resources and labor to innovating based on technology and using new technologies to save products, minimize resource use, and reduce harmful emissions to maintain production costs. Additionally, to meet the needs of socioeconomic development, commercial banks should allocate credit capital more efficiently. They should also encourage the growth of green credit banking, so that commercial banks can contribute to green growth, have lower carbon emissions, and adapt to climate change. Green banks, low-carbon production and consumption sectors, renewable energy, and clean energy should receive a larger share of bank lending capital. Credit lending programs and projects should include information on sustainable development, climate change, and green growth.

X3: Policy for risk management: This factor affects green banking development with a significance level of 0.01, and the same results have been reported by other researchers (Batrancea et al., 2020; Tawfik et al., 2021). By analyzing the available options, banks can quickly choose the best option. Constructing an environmental, social, and governance (ESG) framework for use inside the Vietnamese banking system's internal credit-granting and ESG-related operations, focusing on fostering the growth of environmentally friendly loan products. Credit institutions must evaluate customers and loan needs, control the purpose of capital use, and strictly manage credit risks in lending. Building green credit programs for the Vietnamese banking system requires specific guidance to evaluate and monitor the environmental impact of projects and businesses borrowing green credit.

This study focuses on developing a green banking model in Vietnam to keep up with global trends, applying measures and processes for environmental and social risk management derived from objective requirements from the community and customer goods and responsibility for environmental protection. Training human resources, propagating green banking development through training classes, fostering knowledge to raise awareness and capacity of leadership, implementing management/policy planning teams in credit institutions should be included in green banking development policies.

X4: Policy for raising awareness: This factor affects the development of green banking with a significance level of 0.01, and the same results have been reported by [Zhou et al. \(2021\)](#) and [Zuo \(2023\)](#). At the same time, business support activities, information, and consulting for enterprises create conditions for businesses to use capital for proper purposes effectively and limit risks arising. One of the most important things that commercial banks in Vietnam can do to promote green credit is engage in green credit communication. Banks will back initiatives that do not harm the environment or work to preserve it in general with "green credits," which are credits for risk-free production and commercial endeavors. Seminars and conferences are part of green credit communication operations that introduce clients to green credit and its benefits. Simultaneously, commercial banks also need to increase the training of green credit staff to improve the awareness and capacity of leadership, management/policy planning teams of credit institutions, and staff working directly related to green banking development policies. However, the implementation of green credit policies in Vietnam is difficult. To promote commercial banks' green credit activities, close coordination between ministries, departments and relevant organizations is needed to develop policies and incentive mechanisms and increase capital and ability.

X5: Policy for completing the legal framework: This factor affects green banking development at a significance level of 0.01, and the same results have been reported by [Shahzad et al. \(2021\)](#) and [Wang et al. \(2022\)](#). Therefore, technically, when considering loan appraisal for a green project, green production and business plans are not very different, but they are still based on the State Bank's lending regulations. The primary concerns are information sources; input data; green economic development policies; environmental criteria, standards, information and risk assessments; project effectiveness evaluation; and the green plans of state management agencies. These serve as sources of information and data to aid credit institutions in analyzing, evaluating and appraising loans for green projects. They also assist in constructing suitable credit processes and implementing effective risk management and management measures.

The goal of green banking development is to achieve economic and ecological equilibrium. Environmental protection, the advancement of clean energy and manufacturing technologies, and the acceleration of sustainable development, including sustainable banking, are central to the green economy expansion plan. Consequently, green credit is a vital component of green growth strategies used by nations worldwide. However, since this is still a new problem, it is critical that we focus on green financing for sustainable green growth and highlight the advantages and disadvantages of applying for this type of loan in Vietnam. Many nations are interested in greening their financial systems, so they may improve banks while reducing the environmental costs of economic expansion. Despite the novelty of this area, Vietnam is taking the lead in creating a green finance system with a focus on green banks, since the country understands the critical importance of this initiative. For an economy's green growth goals to be realized, the government must take the lead. For the market to function efficiently, the government must establish a fair and effective legal framework. In particular, the government is responsible for constructing and refining the legal system, establishing a legal framework for socio-economic relations, and granting permission to relevant government agencies, businesses, associations, and training organizations to foster an atmosphere that promotes or can supply the financial goods and services needed to ease the shift from conventional brown banks to environmentally friendly green banks.

## 5. CONCLUSION AND POLICY RECOMMENDATIONS

### 5.1. Conclusion

Green banking development is an inevitable trend in the global financial industry, and the banking industry in Vietnam is no exception, with the aim of promoting the process of reproduction, applying advanced technology, improving productivity, meeting the needs of developing green banks in the country, and increasing the market share of exporting green products globally. Moreover, the results of this study clearly indicated five factors that affect green banking developments with sig. 0.01. Descriptive statistical tools were used to measure the mean value, standard deviation, and structural equation modeling. In addition, green banking development also plays an essential role in promoting harmonious development and a balance between the economy and the environment, minimizing negative impacts on production and business activities. Green credit policies also contribute positively to sustainable development while creating conditions for production enterprises associated with environmental protection to supplement temporary capital shortages or expand capital sources to ensure sustainable green production. Therefore, research on the contents of green banking development that contribute to green banks is urgently needed. Specifically, studying the factors affecting green banking development in the four key economic regions of Vietnam from a theoretical perspective and applying them to the specific conditions and circumstances of Vietnam in the current period is crucial. Finally, this also offers important scientific evidence for commercial bank researchers, managers, and policymakers regarding green banking developments.

### 5.2. Policy Recommendations

Although there are positive signs of green credit growth in Vietnam, the green credit market still has many shortcomings. Therefore, in the future, to promote green credit activities, the government, state banks, and businesses need specific policy recommendations.

First, the policy for human resources had an average value of 3.4107; the standardized estimate was 0.298 with sig. 0.01 (Tables 1 & 2). Therefore, commercial banks should implement regulations on environmental and social risk management in credit-granting activities. They also need to employ high-quality human resources trained in environmental risk management and who know how to apply knowledge on green credit and growth to serve credit appraisal work in agency training centers for the banking industry. Effective environmental and social risk management in project credit approval is crucial for banks to build trust, enhance reputation, and establish a strong brand with customers. Finance and banking sector organizations need to create a favorable working environment to develop digital skills for officials and employees. Accordingly, it accelerates the comprehensive digital transformation process, creating the opportunity for employees to access digital products, applications, or working environments. On this basis, the necessary motivation to change is to cultivate digital knowledge and skills to continue participating in the organization's activities.

Second, the policy for capital sources had an average value of 3.0800, and the standardized estimate was 0.180 with sig. 0.01 (Tables 1 & 2). Therefore, commercial banks should cooperate to facilitate the fulfillment of financial, human, technological, and experiential requirements, while also aiding in risk-sharing to sustainably mobilize resources for the implementation of green credit policy. It is necessary to improve the availability of environmentally friendly international funding by engaging with government bodies such as ministries, departments, and agencies, or by directly approaching financial institutions, non-governmental organizations, and the Green Credit Trust Fund. This can be achieved by issuing green bonds to raise funds for large-scale renewable energy projects that promote energy efficiency. Commercial banks in Vietnam are required to actively encourage resource mobilization to effectively execute green credit regulations. The mobilization of long-term preferential capital from international financial institutions, including international climate finance funds, should be enhanced to support the financing of extensive renewable energy projects, industrial energy conservation, and environmentally friendly and sustainable green production models in Vietnam through the credit institution system. Issuing green

bonds to meet significant, long-term capital needs, dispersing and minimizing risks, and following credit limit regulations of credit institutions in the context of resources from the state budget are still limited.

Third, the policy for risk management had an average value of 3.5333 and a standardized estimate of 0.130 with sig. 0.01 (Tables 1 & 2). Therefore, commercial banks should invest in developing their information technology system to have a comprehensive foundation for future evaluation and quantification of green credit risks. Modern risk analysis and management methods are utilized by commercial banks because they construct data banks pertaining to green credit concerns. Banking and risk management, in particular, are greatly impacted by this element. When extending green loans to consumers, banks are required to closely monitor their environmental and social risk management practices. To prevent projects from having detrimental effects on society and the environment from receiving credit, stringent control measures must be implemented during the assessment process. Additionally, social and environmental hazards can be mitigated by consistent monitoring of granted credit. Regular inspections motivate people and companies to create and conduct businesses in a responsible, safe, and efficient manner. Incorporating environmental and social risk management into the risk management process is an essential prerequisite for commercial banks to support a green economy and promote sustainable development in their loan activities. Banks should establish dedicated departments for the construction of and consultation with environmental and social management systems. Additionally, they should create and implement a system for managing ecological and social risks in activities related to issuing green credit in accordance with international standards and practices.

Fourth, the policy for raising awareness has an average value of 3.1413 and a standardized estimate of 0.274 with sig. 0.01 (Tables 1 & 2). Therefore, commercial banks should raise awareness of the green credit growth targets set by the banking industry and credit institutions. It is necessary to conduct information and communication work on social and environmental risk management as well as the green credit policies of financial institutions. This will help build consensus among the general public and businesses. Furthermore, all levels of government, from federal to state and municipal, must work together to achieve a national plan for green and sustainable growth. Governments can enact policies and regulations that mandate environmental and social risk management practices across all financial institutions and sectors. We need the cooperation of agencies and sectors, such as promulgating institutions and financial resources, to support groups and individuals participating in this process, because it is an inevitable global development trend. The banking system needs to strengthen training and capacity building for bank employees on green banking and green credit activities and raise awareness of the efficient use and saving of energy, natural resources, and environmental protection and, at the same time, improve the professional appraisal of the environmental and social risks of green projects by organizing training, fostering, propagandizing, and disseminating knowledge. Commercial banks should build a systematic and scientific green communication strategy to promote the brand, improve awareness, promote image, enhance reputation, and increase banks' competitive position in the green credit sector. Creating a competitive position for banking products and services depends mainly on each bank's ability and its level of green credit promotion. In addition, banks must promote the application of green marketing technology in the field of green credit. Currently, the world and Vietnam are moving toward Industrial Revolution 4.0 with the application of achievements that significantly impact business activities in general and the green marketing activities of banks in particular.

Fifth, the policy for completing a legal framework had an average value of 2.5680, and the standardized estimate was 0.162 with sig. 0.01 (Tables 1 & 2). Therefore, the government should work directly with local authorities to develop a set of specialized rules for each locality as a basis for practical implementation. In addition to macro policies, the government should commit to micro measures for green banking development. Specifically, timely solutions should be established to handle problems and issue policies to support taxes, fees, specialized guarantee mechanisms, and financial interest rate subsidies to support credit financing for green projects. The government must enforce more regulations to ensure market transparency. The promulgation of laws on disclosing

clear information about enterprises' business environments creates favorable conditions for banks to make environmental assessments for the credit-granting process. Information disclosure also improves statistics and strengthens investor confidence, encouraging investors to participate more in green projects. A capital support policy must exist for credit institutions to access long-term preferential capital sources and expand green credit. The State Bank needs to coordinate with authorities to consider offering preferential policies for commercial banks implementing green credit, such as reducing the required reserve ratio, increasing credit room, and accessing preferential loan sources not including capital sources for green investment projects in the ratio of using short-term capital for medium- and long-term loans, refinancing and rediscounting with preferential terms and interest rates, and reducing corporate income tax for banks with green credit activities. However, the use of these tools needs to be carefully and flexibly considered by state banks to ensure capital sources for green credit and the stability of goals in operating monetary policy. There is also a need to synchronously develop green financial markets and research to have more drastic support policies and create incentives to encourage credit institutions to develop green credit, such as preferential capital and tax incentives.

**Limitations and Future Research:** This research used a combination of qualitative and quantitative methods, but during the investigation process, random and convenient surveys were conducted with a relatively small number of samples taken from four key economic regions of Vietnam. This may also partly affect the research results, and data accuracy may not be high. Although the research results confirmed the significance of the scale concepts participating in the model, they are statistically significant at the 1% level. However, there may be other statistically significant concepts that need to be further explored, and more factors need to be included in the model. This could be the next research direction to expand the concept of the factors affecting green banking development.

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**Institutional Review Board Statement:** The Ethical Committee of the Ho Chi Minh University of Banking, Vietnam has granted approval for this study on 15 January 2023 (Ref. No. 2879 /QĐ-ĐHNH).

**Transparency:** The author states that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

**Data Availability Statement:** Phan Thi Linh can provide the supporting data of this study upon a reasonable request.

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**APPENDIX**

The appendix illustrates the questionnaire that the staff were asked to complete.

**Questionnaire**

**Dear Sir/Madam**

To further the cause of sustainable green banking development, the author has just begun studying green banking progress in Vietnam. Your help in addressing these issues is requested by the author. With each of your comments, the author really seeks value. Your responses to this survey will be kept completely private and will only be used for my research. Your enthusiastic participation is greatly appreciated. For each of the following claims, please rate how much you agree or disagree. To show your choice, please mark the appropriate box with an X.

Code	Item	5-point Likert scale				
<b>Policy for human resources (PHR-X1)</b>						
PHR1	Banks have policies for planning human resource development	(1)	(2)	(3)	(4)	(5)
PHR2	Banks have policies to attract quality human resources	(1)	(2)	(3)	(4)	(5)
PHR3	Banks have policies to arrange and use human resources effectively	(1)	(2)	(3)	(4)	(5)
PHR4	Banks have policies that regularly train and develop green credit human resources	(1)	(2)	(3)	(4)	(5)
<b>Policy for capital sources (PCS-X2)</b>						
PCS1	Banks have policies to increase the quantity of equity capital	(1)	(2)	(3)	(4)	(5)
PCS2	Banks have policies to improve credit quality	(1)	(2)	(3)	(4)	(5)
PCS3	Banks have policies to diversify banking products and service quality	(1)	(2)	(3)	(4)	(5)
PCS4	Banks have policies to ensure good liquidity	(1)	(2)	(3)	(4)	(5)
<b>Policy for risk management (PRM-X3)</b>						
PRM1	Banks have policies for planning a green credit risk management	(1)	(2)	(3)	(4)	(5)
PRM2	Banks have policies for completing the credit information database system	(1)	(2)	(3)	(4)	(5)
PRM3	Banks have policies to apply digital technology to enhance credit risk management capacity	(1)	(2)	(3)	(4)	(5)
PRM4	Banks have policies for building and perfecting risk management culture	(1)	(2)	(3)	(4)	(5)
<b>Policy for raising awareness (PRA-X4)</b>						
PRA1	Banks have policies for dissemination activities regarding green credit	(1)	(2)	(3)	(4)	(5)
PRA2	Banks have policies for customers, businesses, and people through communication channels	(1)	(2)	(3)	(4)	(5)
PRA3	Banks have policies for organizing seminars and training classes on green credit	(1)	(2)	(3)	(4)	(5)
PRA4	Banks have policies for improving the capacity of staff and managers of green credit appraising	(1)	(2)	(3)	(4)	(5)
<b>Policy for completing the legal framework (PLF-X5)</b>						
PLF1	Banks have policies for clear regulations on green credit	(1)	(2)	(3)	(4)	(5)
PLF2	Banks have policies to encourage green credit activities	(1)	(2)	(3)	(4)	(5)
PLF3	Banks have policies for long-term capital sources and green credit incentives	(1)	(2)	(3)	(4)	(5)
PLF4	Banks have policies for the establishment of green credit funds to meet customer demands	(1)	(2)	(3)	(4)	(5)
<b>Green banking development (GBD-Y)</b>						
GBD1	Banks gradually increase the proportion of green credit each year	(1)	(2)	(3)	(4)	(5)
GBD2	The government needs to develop the green lending policy framework	(1)	(2)	(3)	(4)	(5)
GBD3	The government needs to complete the legal framework for green banking development	(1)	(2)	(3)	(4)	(5)

**Note:** A 5-point Likert scale states the level of agreement; (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree.

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