Policy Implications for the Green Bank Development in the Context of Global Climate Change

Nga Phan Thi Hang [1]*

[1] University of Finance - Marketing (UFM), Ho Chi Minh,Vietnam.

Abstract

With the global financial crisis in 2008, climate change, and the COVID-19 pandemic, most countries worldwide have re-thought their organization and operating models in their financial systems, including the banking system. In Vietnam, sustainable economic development has become an essential need in the long term. However, sustainable development requires a balance between economic growth and environmental protection. Therefore, Vietnam has chosen to develop a green economy, in which "green banks" have an essential role. Green banking is a future banking model that balances all stakeholders' economic and environmental benefits and costs in banking activities. Green banking emerges as an ideal model for future banking, a foundation for a green economy and sustainable development. Therefore, the article analyzes the current situation and some challenges to promoting the development of green banking in Vietnam and proposes policy recommendations to promote green banking development in Vietnam in the coming time. The article used methods to test the reliability of Cronbach's alpha scale, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and SEM to test the research hypotheses based on surveying 700 commercial bank managers and collecting data by a convenient sampling method from June 2021 to December 2021. Research novelty explores five factors affecting green bank development with a significance level of 1.0%. Finally, the author had policy implications for developing the green bank in the future.

1- Introduction

Nowadays, climate change, depletion of natural resources, and a polluted environment have affected the stability of the human living environment. These issues make most countries their primary concern. In the face of severe consequences from climate change and to limit negative impacts on the environment, many countries worldwide, from developed to developing countries, have been moving towards a "green economy" for sustainable development. However, greening the economy requires a lot of resources because the application of green technologies, such as renewable energy, in many cases, has higher costs than conventional technologies [1, 2]. Therefore, green finance and green banking were born to meet the capital needs for green growth and sustainable development. Also, to contribute to the implementation of the national action plan on green growth.

Green banks will be an essential resource for implementing the Green Growth Strategy until 2020, because the banking system can limit environmental and social risks by not lending capital to customers, with projects that pollute or have adverse impacts on the environment and people's lives. On the other hand, strict control from the credit appraisal stage encourages businesses to move towards cleaner and safer production and business activities. The State Bank of Vietnam (SBV) has issued Directive No. 03/CT-NHNN to promote green credit growth. SBV manages environmental

---

risks and social activities, improves resource and energy efficiency, improves environmental quality, and protects human health to ensure sustainable development. Besides, Vietnam is one of the countries most strongly affected by global climate change. The National Green Growth Strategy and the National Climate Change Strategy were issued with a vision to 2045, and their implementation has demonstrated the political determination of the Party and State in green economic development associated with the country's sustainable development.

However, there are still no specific regulations on industries that need support and those that have restricted the green banking development strategy to serve as a basis for commercial banks in the appraisal process of credit granting. In addition, there is currently a lack of documents specifying responsibilities for banks that finance credit for projects with adverse environmental and social impacts [3, 4]. The highest legal document regulating activities to ensure environmental safety is the Law on Environmental Protection, which only focuses on clarifying the responsibilities of production, business, and service enterprises in essential industries. In addition, the SBV had the financial and banking industry's commitment was not mentioned. Sanctions on pollution treatment prescribed in the Law on Environmental Protection and the Penal Code - the part on environmental crimes-only apply to organizations and individuals that directly pollute.

Banks—the world's central financial institutions in developing green banking—act environmentally responsible. With the increasing trend and awareness of the international community on environmental issues and climate change, the global banking and financial system have witnessed many corporations' strong participation and commitment [5, 6]. Although there have been many international studies on green investment, green growth has been carried out to help governments find directions in sustainable development to contribute to environmental protection, including research on financing green goods [7, 8].

In Vietnam, the number of studies on green banking is still relatively modest. Most of the studies focus on green banking, green growth, or the experience of other countries and are mainly in the form of reports or presentations. Therefore, the necessity and innovation of the article on green banking in Vietnam is still an open field, with many theoretical and practical research gaps, especially research with quantitative factors. It is necessary to contribute to helping the government, policymakers, banks, financial institutions, businesses, and people understand the role and impact of green banking on the stable and sustainable development sustainability of companies in particular and the economy in general. They conduct theoretical and applied research on "*Green Banking*" and build a quantitative model to estimate the factors affecting the development of green banking in Vietnam.

2- Literature Review

2-1- The Concept of the Green Bank Development (GBD)

In recent years, the phrase green bank has emerged as a strategic development direction in the banking sector. However, there are still many different understandings of green banking. In a broad sense, a green bank is a sustainable bank whereby investment decisions need to look at the big picture and act to benefit consumers, the economy, society, and the environment [8, 9]. There is a close relationship between the bank and economic, social, and environmental factors. Banks can only develop sustainably if the bank's interests are associated with the benefits of society and the environment.

In a narrow sense, a green bank is a bank whose operations aim to encourage environmental activities and reduce carbon emissions within and outside the banking system. Research showed that a bank has considered green when providing services associated with ecological commitments or green and clean production [7, 10]. Besides, green banks provide financial assistance for loans and purchases of green cars, energy-efficient mortgages, eco savings, and green credit cards to help make the environment sustainable [11, 12].

Green banking provides and characterizes banking services towards supporting activities that positively impact the environment, reducing carbon emissions, saving natural resources, and promoting sustainable economic development [13, 14]. In a broad sense, green banking means that a bank has built a sustainable business strategy, reflected in providing banking services that satisfy the criteria for ensuring environmental responsibility and society [9, 15].

The green bank combats climate change, gradually greening banking operations, directing credit flows to sponsor environmentally friendly projects, promoting green production, service and consumption industries, clean energy, and renewable energy; actively promoting green growth and sustainable development striving to 2025. The use of the definition of the green bank in a broad sense is consistent with the development orientation of green banks in Vietnam in Decision 1604/QD-NHNN dated August 7, 2018, of the State Bank on approval of the development project green bank in Vietnam. Accordingly, the main objective is to increase the awareness and social responsibility of the banking system for environmental protection.

2-2- The State Support Policy on Green Banking Development (SP)

Policies and regulations had understood as financial, legal, institutional, and regulatory frameworks related to green banking. Supportive policies, financial constraints, and green finance by government and local governments can allow or limit financing. More specifically, these factors can become a burden or barrier to the development of green banking or encourage this activity to develop. Regulations and policies were suitable only when they attracted investors' participation and improved pay and financial capacity [2, 12]. Meanwhile, the lack of consistency in policies, the overlapping and unclear regulations on institutions, and the weak legal framework will affect green growth goals, including the implementation of the financial system government and green banking and the development of green banking.

Policies need to create a uniform environment for all financial institutions/banks in implementing green banking/banking. The State's policies and regulations must create a legal corridor for green financial development and green banking development [16, 17]. However, it is necessary to avoid the "copying" of policies by absorbing lessons learned from countries that have succeeded in this policy-making process to encourage banks to grant preferential credit to enterprises investing in energy-saving projects from the central bank [18, 19].

The legal framework for green banking is completed or supplemented following the international context and good practices. Currently, the primary green banking regulations are still oriented; there are specific regulations, a unified definition/concept of green banking, and banking standards/conditions for green goods [2, 15]. Many studies also show that the mandatory application of requirements on environmental risk management in providing credit and green finance also affects the development of green banks differently in different countries growing and developing. Therefore, the proposed research hypotheses are.

H1: The state support policy on green banking development (SP) positively affects green bank development (GBD).

2-3- The Market Demand (MD)

The group of market factors includes customers (which are businesses or banks as borrowers) or suppliers (which are banks or lenders), existing competitors, etc., present, potential competitors, and substitutes [16, 20]. Like the above groups of factors, this group of elements has a positive impact on the development of green banks but can also negatively impact the development of green banks. In recent years the green finance sector has become active, maintaining a rapid growth rate despite the negative impact of the Covid-19 epidemic.

Green credit is inevitable for the global financial industry and the Vietnamese financial sector, bringing significant environmental protection and national sustainable development benefits. Some studies have shown that the need to invest in green projects and environmental protection activities has a significant impact on the development of green banks [21, 22]. Awareness and implementation of production activities using clean materials encourage banks to consider green banking development. Customers' expectations for applying "green" standards in enterprises' business, production, and investment activities pressure banks in greening operations [18, 23]. Besides, the need to invest in low-pollution technology, use green equipment and fulfill social responsibility for the environment directly and indirectly, impacts green banking development in developing countries. Therefore, the proposed research hypotheses are.

H2: The market demand (MD) positively affects the green bank development (GBD).

H3: The state support policy on green banking development (SP) positively affects the market demand (MD).

2-4- The Financial Capacity of the Bank (FC)

Financial capacity is the financial ability to carry out its business activities effectively. It measures the bank's ability to mobilize and use funds resources in society. Bank size and bank ownership are the key factors that help banks have a vision and thereby develop a plan to implement green financial development [3, 24]. Most banks do not have the financial capacity to provide green financial products and services. Financial institutions are still weak in developing countries, where capital markets are not well developed.

Banks often encounter financial difficulties and challenges in developing green banks, including lack of capital/lack of essential long-term financial resources [11, 25]. The economic conditions are not suitable for green lending. Therefore, improving financial ability will help commercial banks implement sound measures to prevent risks, ensure capital adequacy in operations, and minimize possible damage to customers' retail banks [19, 26]. This study uses the bank's financial indicators, including equity, profitability, capital adequacy, liquidity, size and growth rate of total assets, quality of total assets. Asset's financial performance management quality shows the bank's financial capacity. Therefore, the proposed research hypotheses are below.

H4: The bank's financial capacity (FC) positively affects the green bank development (GBD).

H5: The state support policy on green banking development (SP) positively affects the bank's financial capacity (FC).

2-5- The Perceptions of Bank Leaders (PL)

Research shows that the perception of bank leaders plays an essential role in influencing the development of green banking at each bank. According to studies, each bank's green bank development strategy had influenced by leaders' perceptions [9, 27]. Pursuing a green bank development strategy requires commitment from senior management, allowing the application of green banking principles and standards in the regular operations of the bank. When the bank's leadership has not paid enough attention and priority to green banking development, the motivation to green the bank's operations will face many difficulties [1, 13]. The commitment of senior leaders at the bank is to green growth goals in branches and departments to apply an environmental risk management system.

Research has also shown that the reason for not implementing a green banking system is due to the limited awareness of bank leaders about the opportunities and benefits of developing green banking. Managers have often reflected the understanding of bank leaders' green banking development in green banking initiatives [21, 28]. They apply to the bank's professional and internal operations, such as building a green banking strategy, saving energy and materials in its internal processes (saving cost, increasing online meetings), developing online banking [4, 25]. Therefore, the authors proposed to raise awareness of green banking practices among bankers and customers through seminars, workshops, and training programs [29, 30]. Thus, the proposed research hypotheses are below.

H6: The perceptions of bank leaders (PL) positively affect the green bank development (GBD).

2-6- Capacity of Leaders and Employees (CL)

Studies show that in many banks, financial institutions, and investors in developing countries, the general understanding of the economic impact of environmental risks is still vague and inexperienced. Banks often lack officers and staff with sufficient capacity, professional knowledge, and expertise to identify and quantify credit risks from green projects and decide whether to lend. It is difficult to get credits for new energy because commercial banks often assess the risks of these projects as high [28, 31]. Therefore, reducing capital support compared to conventional projects often for an investment loan for a green technology activity and evaluating the loan's environmental impact.

Weak human resources create limitations in bank governance, affect business performance, and have many unforeseen risks [19, 32]. Determining to the bank is a particular, sensitive, money-related business and always faces many permanent risks, in which moral hazard is an increasing risk. At the same time, it is a field that requires high transparency and professionalism, so it is vital to improve the staff's quality [1, 33, 34]. Based on summarizing the results of previous studies, this study identifies the types of competencies used to identify bank staff competencies related to green banking development. In addition, other studies suggest that the perception of bankers and customers about green banking is one of the barriers to implementing green banking [6, 24]. Therefore, the proposed research hypothesis is.

H7: The capacity of leaders and employees (CL) positively affects the green bank development (GBD).

Research on the relationship between factors. The author proposed the research model following Figure 1.
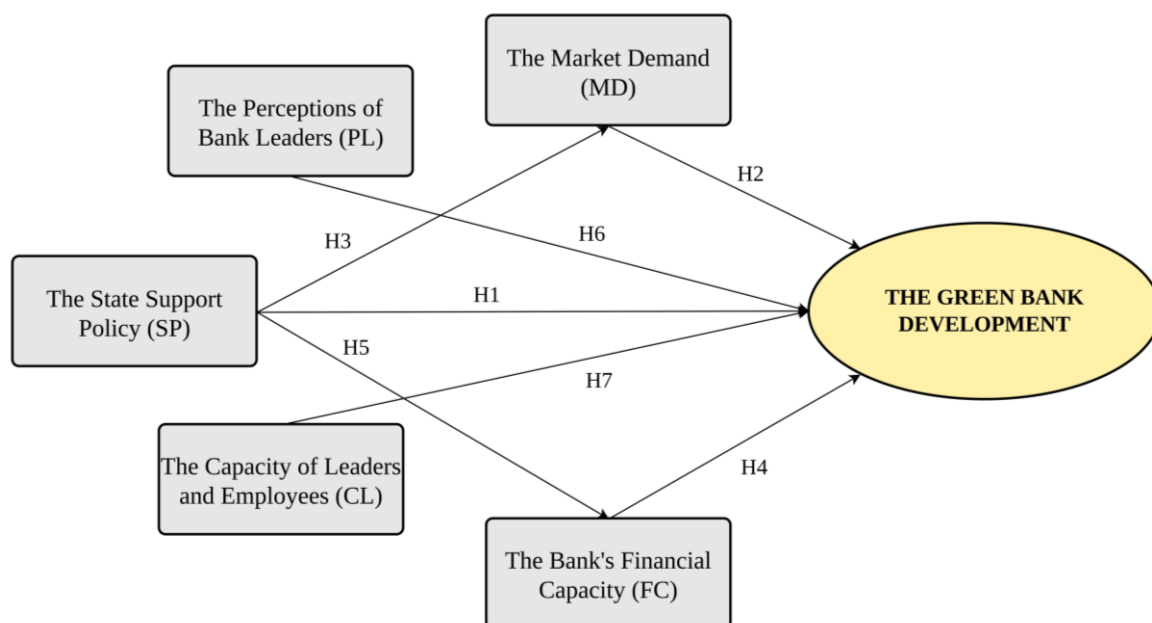

Figure 1. The research model for the factors affecting the green bank development (GBD)

Based on a review of documents, the thesis has identified 05 groups of factors that are likely to affect the development of green banks, including (i) State support policy on green bank development; (ii) Green investment needs of business organizations; (iii) Financial capacity of the bank; (iv) Perception of bank leaders on green banking development; (v) Capacity of officers and employees [5, 30]. Bank helps officials and employees study and improve their professional qualifications and business culture, discovering and honoring typical cadres, having a deep understanding of professional expertise, communication style, ability to synthesize and convey well. At the same time, encourage the movement of emulation, training, and improvement of qualifications to meet the requirements of work tasks better and better serve customers' needs [23, 33]. Besides, it is necessary to have the intervention and support of the Government and state management agencies to encourage the flow of credit into business activities, consume environmentally friendly products, and exploit natural resources effectively.

3- Research Methodology

To identify the research problem, the author conducts an overview and evaluation of studies related to green banking, the factors affecting the development of green banks, and the development measurement criteria of green banks and green goods. Based on a review of the literature, the author clarifies the research gap and the new contributions of the study. The literature review is also the basis to help the author form the theoretical basis, the theoretical framework, the research hypotheses, and the research methods used in the research paper. Figure 2 shows the above-detailed research process.
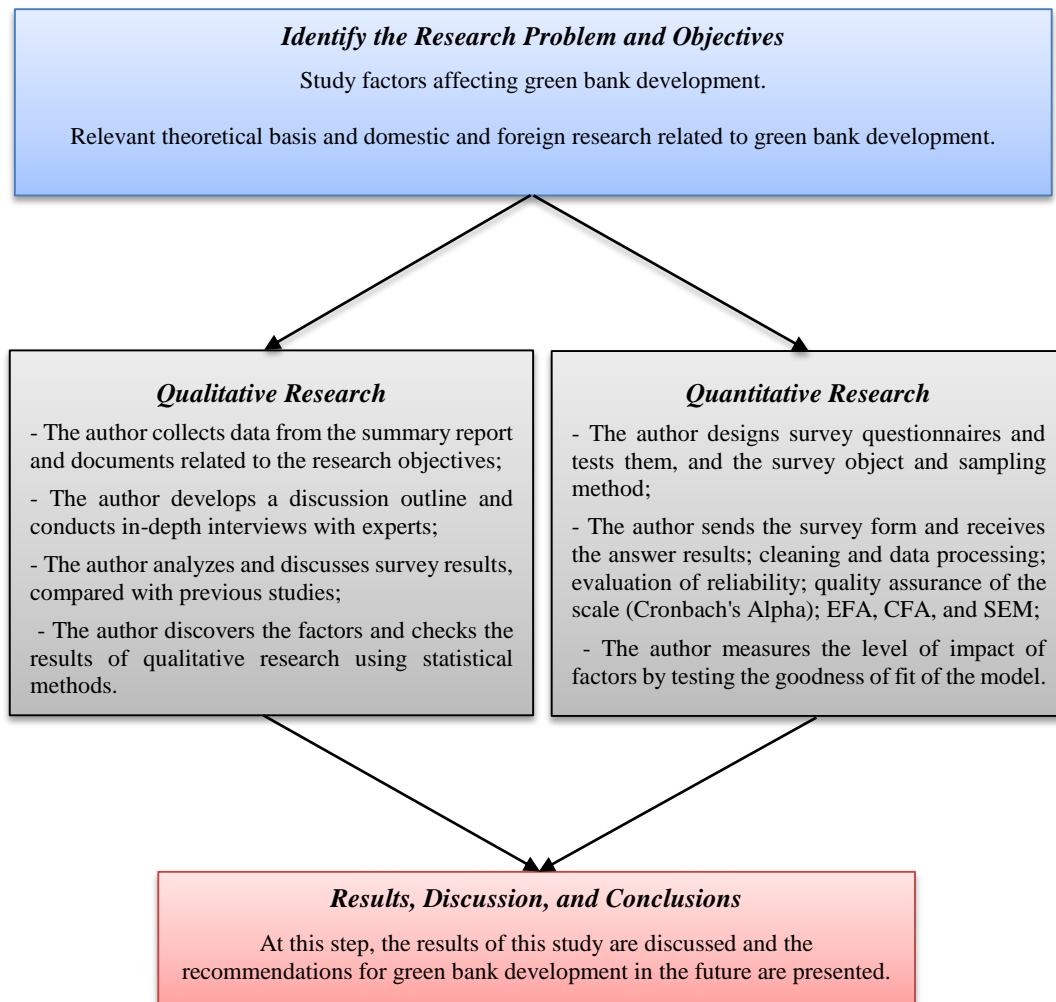

Identify the Research Problem and Objectives

Study factors affecting green bank development.

Relevant theoretical basis and domestic and foreign research related to green bank development.

Qualitative Research

- The author collects data from the summary report and documents related to the research objectives;

- The author develops a discussion outline and conducts in-depth interviews with experts;

- The author analyzes and discusses survey results, compared with previous studies;

- The author discovers the factors and checks the results of qualitative research using statistical methods.

Quantitative Research

- The author designs survey questionnaires and tests them, and the survey object and sampling method;

- The author sends the survey form and receives the answer results; cleaning and data processing; evaluation of reliability; quality assurance of the scale (Cronbach's Alpha); EFA, CFA, and SEM;

- The author measures the level of impact of factors by testing the goodness of fit of the model.

Results, Discussion, and Conclusions

At this step, the results of this study are discussed and the recommendations for green bank development in the future are presented.

Figure 2. A research process for factors affecting the green bank development (GBD)

The research had conducted through two main phases: preliminary study and formal analysis. Primary research had carried out through the qualitative research method. Based on the theoretical framework, the thesis develops a draft questionnaire to identify the factors affecting the development of green banking in Vietnam. Qualitative research had used to discover, adjust and determine the relationship between the scales (variables) in the proposed model. Through in-depth interviews with leaders and officials working at some banks in Vietnam, the author adjusted the scales and observed variables in the draft questionnaire to suit the reality in Vietnam. The number of experts interviewed in the preliminary study was 21 and selected by convenience sampling [13, 35].

Formal research had carried out using the quantitative research method. The author included the revised questionnaire in the official survey. The survey subjects in the study are leaders, officials working at commercial banks, experts, and policymakers in the banking sector. After the data had collected from the official survey, it will be aggregated, cleaned, coded, and conducted quantitatively. The analytical steps in the thesis include: (i) testing the reliability of the scale; (ii) exploratory factor analysis (EFA); (iii) analysis of the structural equation model (SEM). Besides, based on collected secondary documents, the study assesses the current status of green banking development and the factors affecting green banking development in Vietnam. The study proposes several recommendations to promote green banking development in Vietnam [13, 35]. The study uses the coefficient Cronbach's Alpha reliability, exploratory factor analysis, and linear structural model analysis. The author had to test the scale models, assess the model's suitability in practice, and analyze the impact of factors affecting the development of green banking in Vietnam. Specifically:

Sample design and sampling method: This study selected the sample by random sampling method. The survey subjects of this study are managers (directors, deputy directors of branches, heads, deputy's heads) and experienced staff working at commercial banks in Vietnam. Banks selected to participate in the survey include Vietcombank, Vietinbank, Techcombank, Seabank, BIDV, Agribank, Military Commercial Joint Stock Bank, Vietnam Prosperity Commercial Joint Stock Bank, LienVietPostBank, SeABank, Construction Bank... Data collection had done through survey questionnaires. Survey questionnaires are sent in person or by email. The total number of questionnaires distributed in the study was 700 votes, the number of valid ballots collected was 680 votes (i.e., the questions thoroughly answered the contents of the questionnaire). For multivariable regression analysis: the minimum sample size to be achieved had been calculated by the formula $50 + 8 \times$ (m) (m: number of independent variables). The study has five independent variables, so the minimum sample size is $50+8 \times 6 = 98$ observations. Thus, the total number of samples in the study is 700, which is entirely consistent with the requirements set forth and ensures the representativeness of the population [35].

Reliability analysis of data: The scale's reliability was tested using Cronbach's Alpha reliability coefficient. Theoretically, the Cronbach alpha coefficient is from 0.8 to close to 1. The scale is good, from 0.7 to nearly 0.8 is usable, from 0.6 or less is usable if the concept measured is new or new to respondents in the research context. The correlation coefficient of the total variable must be 0.3 or more [13, 35]. In addition, the element's Cronbach's Alpha if item deleted" value must be less than the Cronbach alpha value. After Cronbach's Alpha analysis in SPSS 20, the author kept only the relevant factors by removing the unsuitable variables from the data. The author further tested the relevant variables for EFA. Exploratory factor analysis: The study uses the experimental factor method to reduce the set of k observed variables into a set of F (F<k) of more significant factors for the dependent variable (level of development). Green bank development) and independent variable (factors affecting the level of green bank development). EFA analysis techniques belong to the group of interdependence techniques. There are no dependent and independent variables but rather the interrelationships between the variables. The essential factors selected in the study had designed to suit Vietnam's development conditions.

Testing theoretical models and research hypotheses: (Kaiser - Meyer - Olkin) KMO measure was used to consider the appropriateness of factor analysis; Bartlett's Test was used to test whether variables had correlated in the population. Suppose this test has statistical significance, Sig. < 0.05, the observed variables are associated with the population. The method of coefficient extraction used is the analysis of the main components (Principal Component Analysis) with varimax rotation to minimize the number of variables with significant coefficients at the same factor. The analysis results had presented according to the following requirements: (i) Factor loading shows the correlation between the observed variable and the factor. This factor is the indicator to ensure the practical significance of EFA. The higher the factor loading coefficient, the more significant the correlation between the observed variable and the factor and vice versa. Due to sample 155, the author uses a factor loading factor of 0.5. (ii) Kaiser Meyer Olkin (KMO) is the index used to consider the relevancy of factor analysis. A considerable KMO value is appropriate for factor analysis. The requirement for the KMO coefficient is to be greater than or equal to 0.5 and less than or equal to 1. (iii) Bartlett's test must be statistically significant (Sig. < 0.05). This factor is a statistic used to consider the hypothesis that the variables are not correlated in the population. If this test is statistically significant (Sig. < 0.05), the observed variables are connected to the population. (iv) Eigenvalue reflects the number of retained factors. Elements with an Eigenvalue more significant than one will be kept in the analytical model. Total Variance Explained greater than 50% indicates the EFA, CFA, and SEM fit [13, 35].

The essence of the SEM model is that it requires researchers first to declare initial values called the hypothetical model. From the hypothetical model, through a loop of transformation indices to finally provide the researcher with an established model capable of explaining the maximum fit between the model and the collected data set fact decade. The suitability of the entire model had assessed through the following criteria of relevance: (i) Chi-Square test ($\chi2$): Expresses the overall goodness of fit of the whole model at the p-value = 0.05 level of significance. This index is very unlikely because $\chi2$ is very sensitive to large sample size and test strength, so in practice, people use the index $\chi2/df$ to evaluate. (ii) Chi-Square ratio/degrees of freedom: $\chi2/df$. Also used to measure the goodness of fit of the whole model in more detail.

Some authors suggest $1 < \chi2/df < 3$; others suggest that $\chi2$ is as small as possible and argue that $\chi2/df < 3:1$. In addition, in some practical studies it is distinguished by 2 cases: $\chi2/df < 5$ (with sample $N > 200$); or < 3 (when sample size $N < 200$), then the model is considered a good fit. (iii) Other relevant indicators: GFI, AGFI, CFI, NFI with values > 0.9 were considered good fit models. If these values are equal to 1, we say the model is perfect. RMSEA: is an important criterion. It determines the fit of the model compared to the whole. In the IS research journal, the authors said that the model fits well with the required RMSEA, RMR index < 0.05 [13, 35]. In some cases, this value < 0.08 model is accepted. Finally, the author had discussion results and recommendations. The author has proposed viewpoints and orientations for green bank development in the future.

4- Results and Discussion

4-1- Current Situation of the Green Bank Development at Commercial Banks

There is hardly any concrete and practical solution to solve the problems of green finance in general and green banking in particular in implementing the green growth strategy. According to recent surveys and studies, the term "green bank" in Vietnam is still relatively new despite the orientation. Traditional commercial banks had considered not ready to provide investors with green financial products and services. This situation stems from two main reason:

In a world that is following the trend of sustainable development, projects that are not environmentally friendly will have to bear a lot of pressure. First of all, most commercial banks are not aware of the risks of a polluting project if they finance it. It will not be easy for the project's products to enter foreign markets, where there is a strict system of regulations and environmental standards for imported products. Public opinion will not be silent in the domestic market if the project affects their quality of life. The birth and robust development of consumer protection organizations, environmental action organizations, etc., will be the significant factors that cause the project to be boycotted or suspended. And then, under the synergistic force of so many pressures, bankruptcy, default is inevitable. This end is also equivalent to the arising of bad debts at banks, which have provided credit to investors.

Inadequate understanding of risk assessment has made many commercial banks uninterested in energy-saving and environmentally friendly projects. Because simply, these are projects using new technology, needing a large amount of investment capital long payback period. Of course, with the same amount of collateral, banks will feel safer if they provide credit to projects that require less capital investment faster payback time. But unfortunately, those are projects that can harm the environment.

Secondly, the reason mainly comes from the perspective of state management. Although the Law on Environmental Protection has a cross-cutting principle that "environmental protection must be harmoniously linked with economic development and ensuring social progress." Besides, "Environmental protection is the cause of the whole world." society, rights, and responsibilities of state agencies, organizations, households, and individuals" have clearly expressed the State's position on environmental issues. However, the content of this law only focuses on clarifying the responsibilities of production, business and service enterprises, completely forgetting the duties of the financial and banking industry. Sanctions on pollution treatment specified in the Law on Environmental Protection and the Penal Code (the section on environmental crimes) also apply to organizations and individuals who directly pollute.

In 2012, the State Bank conducted a survey and said: "Of the 75 commercial banks, 63% of the banks participating in the survey confirmed that they had considered environmental issues in credit appraisal. However, most banks admit that there is no formal regulation or environmental risk management system." Then, in 2014, the State Bank continued to coordinate with the International Finance Corporation (IFC) to conduct the following survey. The result is that "89% of the banks participating in the survey are not aware of any guidelines or criteria on environmental and social risk management in the financial industry, 93% of the banks also said that that guidance had needed in this regard." The information through 2 surveys shows that: Regardless of whether banks care about the environment, banks still cannot realize it by taking action because they are almost entirely blind to building an environmental risk management system. This factor leads to the inability to sufficiently and adequately evaluate investment projects. Even because they are not held responsible, they are indifferent to this work. The stage of environmental impact assessment, if for investors, is necessary to apply for an operating license. For the credit officers of banks, it is only a formality and simple loan appraisal process. In addition to some problems raised in developing green banking in Vietnam over the past time. In the coming period, promoting the development of green banks is also facing many challenges.

Thirdly, the capacity of banks in the assessment and appraisal of green investment projects is still limited. Although more and more banks are interested in and integrated with building the process of environmental and social risk assessment when granting credit, the implementation capacity is still limited. Green investment projects always have potential risks, and feasibility is not high. In contrast, the Government does not have concepts, regulations, standards/conditions on the list of green industries/fields, leading to difficulties challenges for commercial banks and credit institutions in implementing the process of selecting, appraising, evaluating, and monitoring green credit activities.

Fourthly, the particular characteristics of "green projects" may create barriers for market participants. According to investors' assessment of green growth projects, risks for implementing projects such as solar power projects, wind power projects, etc., also come from other factors such as State regulations specificity enemies of these industries. Since green projects had assessed as high risk, at the same time, it is challenging to evaluate loan performance both in terms of social and financial performance and require collateral. This result reduces the importance of green projects, the interest of banks, or forces banks to lend with stricter terms, including higher interest rates, commensurate with the risk of the project. On the contrary, lending interest rates must be low to attract businesses and people to invest in green projects.

Finally, the mobilization of green capital through the financial market is still limited. Banks need to add medium and long-term capital to create money for green projects. Meanwhile, the green bond market has not yet developed, financial institutions such as pension funds, trust funds, etc., have limited activities. Therefore, if the development of the financial market had not been promoted to create a medium and long-term capital mobilization channel for domestic growth, green projects will have to look for medium and long-term capital from outside with higher costs. Thus, implementing green banking is an essential task for the economy in promoting the green growth strategy. It contributes to limiting environmental and social risks such as limiting pollution, preventing the greenhouse effect, eradicating hunger, and reducing poverty. Vietnam's green banking system is currently in the early stages of construction. The Government and the State Bank need to coordinate the implementation of many solutions to form and take effect. The most important is issuing credit appraisal guidelines and environmental and social risk assessment standards. This management system will be the basis for commercial banks to participate in the green growth strategy as green banks.

4-2- Analysis of Survey Results of 700 Managers Working for Commercial Banks in Vietnam

The author officially sent the questionnaire in the study to managers who are currently leaders and staff working at banks in Vietnam, including big cities such as Hanoi and Ho Chi Minh City. Ho Chi Minh City, Can Tho, Hai Phong and Da Nang. The characteristics of the collected sample had described in Figure 3. Specifically, 700 managers participating in the survey have university degrees or higher (accounting for 100%), of which 45.0% are male, 55.0% are female.
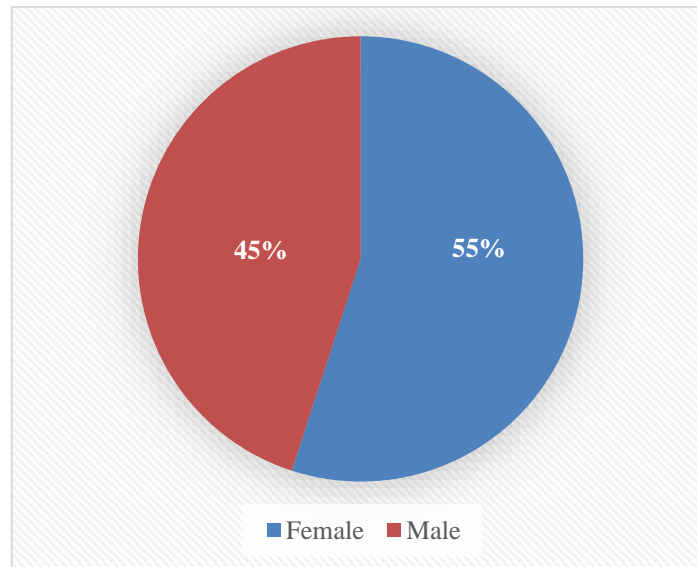

Figure 3. Statistical results for gender

Figure 3 shows that the total number of valid survey samples is 700 managers, with males accounting for 45.0%, 307 managers, and females accounting for 55.0%, 373 managers. They are working for all commercial banks in many big cities in Vietnam.

Figure 4 shows that the total number of valid survey samples is 700 managers but 680 processed samples, 20 samples lacked information, in which married account for 44.0%, respectively 298 managers and single account for 56.0%, 382 managers. They are working for all commercial banks in many big cities in Vietnam.
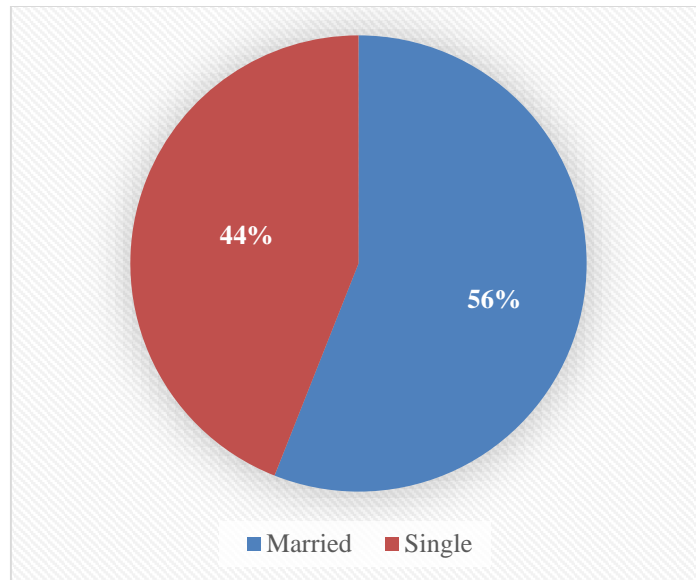
Figure 4. Statistical results for marital status

Table 1 shows that the total number of valid survey samples is 700 managers, but 680 processed samples, 20 samples lacked information, which a minimum value is one, and a maximum value is five. In addition, table 1 presents the mean and standard deviation of the green bank development scales. The mean is around 3.0, and the standard deviation is 1.0. The results show that the average value of the observed variables in the ranking is more significant than 3.0 (compared to the neutral level of 3), showing that the survey respondents agree with the survey question.

Table 1. Descriptive statistics for factors affecting the green bank development

Type	N	Minimum	Maximum	Mean	Std. Deviation
GBD1	680	1.00	5.00	3.3603	0.96685
GBD2	680	1.00	5.00	3.2838	0.99943
GBD3	680	1.00	5.00	3.2721	0.99828
MD1	680	1.00	5.00	3.0279	0.99518
MD2	680	1.00	5.00	3.0382	0.99261
MD3	680	1.00	5.00	3.0618	0.97192
MD4	680	1.00	5.00	3.0618	0.99143
FC1	680	1.00	5.00	3.3324	0.87418
FC2	680	1.00	5.00	3.4809	0.98123
FC3	680	1.00	5.00	3.2912	0.98168
FC4	680	1.00	5.00	3.3265	0.89962
SP1	680	1.00	5.00	3.0691	0.99465
SP2	680	1.00	5.00	3.0515	1.00602
SP3	680	1.00	5.00	3.0838	0.97254
SP4	680	1.00	5.00	3.0838	0.98757
CL1	680	1.00	5.00	3.0397	0.97836
CL2	680	1.00	5.00	3.0397	0.98735
CL3	680	1.00	5.00	3.0632	0.96193
CL4	680	1.00	5.00	3.0632	0.98013
PL1	680	1.00	5.00	2.3368	0.65789
PL2	680	1.00	5.00	2.3824	0.62424
PL3	680	1.00	4.00	2.3603	0.65209
PL4	680	1.00	5.00	2.4059	0.67566

After collecting data, the study analyzed the reliability of the scales in the model using Cronbach's alpha coefficients in Table 2. The author removed unsuitable variables from the rankings and variables with coefficients total correlation and Cronbach's Alpha value if the variable type is greater than the Cronbach's Alpha value of the scale. Thus, the importance of the remaining variables in the scales has high reliability, with the total variable correlation coefficient > 0.3 and Cronbach's Alpha coefficient = > 0.8.

Table 2. Testing of Cronbach's alpha for five factors affecting the green bank development

The components of the green bank development	Cronbach's alpha
The state support policy on green banking development (SP)	0.966
SP1	0.950
SP2	0.962
SP3	0.963
SP4	0.947
The market demand (MD)	0.964
MD1	0.953
MD2	0.955
MD3	0.961
MD4	0.943
The financial capacity of the bank (FC)	0.867
FC1	0.818
FC2	0.826
FC3	0.859
FC4	0.818
The perceptions of bank leaders (PL)	0.912
PL1	0.894
PL2	0.858
PL3	0.906
PL4	0.886
The capacity of leaders and employees (CL)	0.966
CL1	0.949
CL2	0.959
CL3	0.964
CL4	0.949
The green bank development (GBD)	0.955
GBD1	0.955
GBD2	0.922
GBD3	0.926

Table 2 showed that Cronbach's alpha is more than 0.6 for five factors affecting the green bank development. Cronbach's alpha is more than 0.6 for the green bank development. KMO and bartlett's test is 0.844 (>0.6) for all components. And extraction sums of squared loadings that are cumulative % is 86.200 (>60%). The pattern matrix had five factors affecting the green bank development. The assessment of the CFA for factors affecting the green bank development includes the following elements: CMIN/DF = 2.294 (<5.0), GFI = 0.946 (>0.8), TLI = 0.981 (>0.9), CFI = 0.985 (> 0.9), and RMSEA = 0.044 (<0.08).

Table 3 showed that the assessment of the scale of factors affecting the green bank development includes the following elements: CMIN/DF = 2.620 (<5.0), GFI = 0.938 (>0.8), TLI = 0.976 (>0.9) and CFI = 0.981 (> 0.9), and RMSEA = 0.049 (< 0.08). The SEM assessment had all five factors affecting the green bank development with 1% significance. Five factors affect the green bank development with 1% significance. The article's research novelty also showed the state support policy on green banking development (SP) affects the market demand (MD) and the financial capacity of the bank (FC).

Table 3. Testing coefficients for factors affecting the green bank development

Relationships			Unstandardized Estimate	Standardized Estimate	SE.	CR.	P	Hypothesis
FC	←	SP	0.130	0.132	0.039	3.296	***	Accepted
MD	←	SP	0.161	0.146	0.040	4.023	***	Accepted
TC	←	MD	0.137	0.146	0.030	4.563	***	Accepted
TC	←	PL	0.148	0.100	0.057	2.601	0.009	Accepted
TC	←	SP	0.574	0.552	0.035	16.577	***	Accepted
TC	←	FC	0.100	0.095	0.032	3.135	0.002	Accepted
TC	←	CL	0.201	0.187	0.039	5.178	***	Accepted

Five factors included the state support policy on green banking development (SP), the market demand (MD), the financial capacity of the bank (FC), the perceptions of bank leaders (PL), and the capacity of leaders and employees (CL). Figure 5 showed that The SEM model had all five factors affecting the green bank development with 1% significance. Besides, the state support policy on green banking development (SP) affects the market demand (MD) and the financial capacity of the bank (FC) by 1% significance.
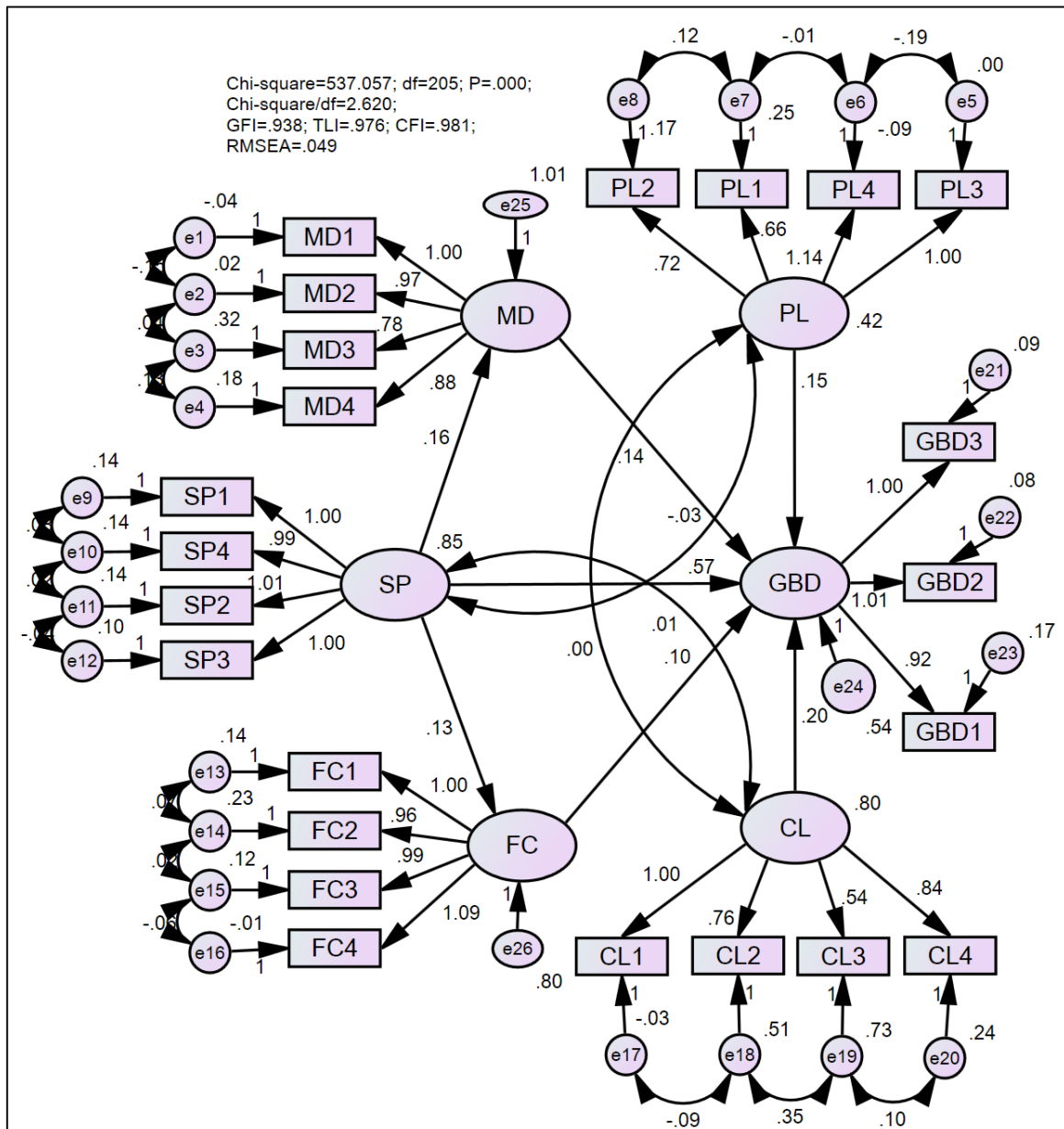

Figure 5. Testing factors affecting the green bank development

Table 4 shows that the bootstrap test results are very good with 50.000 samples. These results indicated that five factors affect the green bank development with 1% significance.

Table 4. Testing bootstrap with 50.000 samples for factors affecting the green bank development

Parameter			SE	SE-SE	Mean	Bias	SE-Bias
FC	←	SP	0.062	0.001	0.129	0.000	0.001
MD	←	SP	0.058	0.001	0.157	-0.004	0.001
TC	←	MD	0.030	0.000	0.131	-0.006	0.000
TC	←	PL	0.054	0.001	0.150	0.002	0.001
TC	←	SP	0.040	0.000	0.573	0.000	0.001
TC	←	FC	0.046	0.000	0.091	-0.009	0.001
TC	←	CL	0.040	0.000	0.201	0.001	0.001

The survey results of the green banks in green growth and green credit show that the understanding of credit institutions has improved significantly. (1) There are no specific regulations or definitions on categories of industries and sectors and a lack of regulations on the legal framework, assessment criteria, measuring tools affecting environmental risks, society, green product development regulations, and green credit development. This result leads to difficulties for commercial banks in building, developing, and deploying green credit products, services, and products. (2) The legal framework for management, supervision and facilitation of new types, means, electronic payment systems, and intermediary payment services has not been completed and synchronized. (3) The sanctions on pollution treatment specified in the Law on Environmental Protection and the Penal Code also apply only to organizations and individuals that directly cause pollution, without regulations or regulations. Financing for sponsors or lenders for projects that cause environmental pollution. Because they are not responsible, the appraisal officers of the banks also ignore environmental impact assessment in the loan appraisal process.

4-3- Discussion

(1) Strengthening the State's support policies for the development of social banks: In the coming period, the State's support policies for green banking development should focus on non-financial solutions and technical support, specifically: Policies to support the application of technology in the bank to evaluate green investments/projects; Guidance on green banking development by the State bank; Organize training courses to strengthen the capacity of commercial banks and financial institutions in financial activities - green credit. Developing criteria for selecting industries, production, and business fields that meet the standards of green economy development will create the basis for making assessments and comments when appraising projects and classifying projects blue.

In formulating and publishing a roadmap to implement a green economy in Vietnam from now to 2050, it is imperative to identify sectors and fields prioritized for development in the direction of a green economy. The national green growth strategy for 2011-2020 and a vision for 2050 require "Implementing a "clean industrialization" strategy by reviewing and adjusting existing sectoral plans. Using economically resource-saving and efficiency, encouraging the development of green industry and green agriculture with the structure of industries, technologies, and equipment ensuring the principles of environmental friendliness, investment, and development of natural capital; actively prevent and treat pollution". However, this strategy has not mentioned the criteria for green production. Therefore, the following criteria had considered inclusion in legal documents as a basis for choosing green manufacturing industries and a condition for precisely accessing financial resources. Fewer fossil fuels, more than 70% of energy sources had used from renewable energy sources; Discharge to the environment at the lowest level. Enterprises ensure a closed industrial waste treatment process without causing damage to the environment, reducing greenhouse gas emissions through sustainable organic agriculture development, improving the competitiveness of agricultural production.

It is necessary to have policies to attract investment in green fields: Prioritize investment and spending of the Government in stimulating the greening of economic sectors, attracting investment from the private sector into the economy. Banks thereby increase the demand for green finance, contributing to promoting the development of green banking. Specifically, these are investments to encourage the development and use of new energy, renewable energy, raw materials, fuels, and materials to replace traditional resources. At the same time, invest in the transformation of the economy's energy use structure to increase the proportion of using new and renewable energy in the total energy use requirements of the country. The results of this study are consistent with practice and the same research results [19, 26]. The State should issue green policies to encourage environmental initiatives and projects. Promote research and promulgation of green technical norms, standards, and guidelines. In particular, Vietnam continues to implement and perform well many pilot green investment projects such as wind power or solar energy.

(2) The Government needs to design a coherent legal framework on the environmental and social responsibility of the banking system in the allocation of credit. Continue to issue regulations to consistently guide banks interested in production with environmental policies, for example, rules forcing businesses to prepare sustainability reports or integrate them into regular pieces years; making ecological, social, and corporate governance reporting a mandatory listing standard for companies. These are all regulations currently being added by the State Securities Commission to the Second Amendment of the Law on Securities.

Quickly issue guidelines and tools for environmental and social risk assessment for commercial banks to apply. Completing the legal mechanism and environmental rules will create a driving force and a binding for the banking system for the country's "green growth" issue. The results of this study are consistent with practice and the same research results [1, 17]. In particular, the circular will stipulate that all banks and credit institutions in the system comply with the general principles of environmental and social risk management in credit granting and investment activities; general principles on organization of activities in this field at banks; report form for banks to periodically report on the state bank's status and level of environmental and social risks of credit portfolios. The set of social and ecological risk assessment indicators is detailed for 5-10 specific industries to support the implementation of the circular. Although it has expected to be issued in June 2014, the State Bank continues to collect comments on the draft. Since the environmental and social risk management system is crucial in building a green bank, the sooner the draft is completed, the faster this process will be.

Carry out restructuring to make the banking system healthy. In particular, banks focused on handling bad debts by many measures, promoting mergers and acquisitions to improve the banking system's financial autonomy. State banks need to have preferential and supportive policies to provide green financial services for investment projects. Thereby turning them into pioneers, creating motivation to stimulate the construction of green banks for other commercial banks. There is a social and environmental risk management system for these commercial banks, such as Vietinbank, Techcom bank (using the standard set of IFC International Financial Consulting and Auditing Company), Sacombank (developing its policy based on IFC's standards),...

(3) Commercial banks continuously improve understanding and awareness of the bank's responsibilities in implementing the economy's green growth strategy. They need to actively enhance their financial capacity in critical aspects such as equity, asset quality, liquidity, profitability. This solution is to help the bank improve its ability and availability, ready to provide green financial services for energy-saving projects - which are mainly projects using high technology, requiring a large amount of investment capital for a long time. Actively approach the drafts of the environmental and social risk management system of the State Bank. Appoint qualified and highly qualified staff to thoroughly and thoughtfully participate in seminars and training programs on social and ecological risk assessment implemented by the State Bank and other supporting organizations regarding green finance and green banking implementation.

To improve banks and credit institutions' ability to assess and appraise green investment projects, capacity building for credit officers, and research to establish a specialized department in the bank. The results of this study are consistent with practice and the same research results [12, 22]. They were building specialized financial products and tools to support green investment on green investment. Training on environmental and social risk management for the bank's officers and staff should be regularly focused on for this specialized department to operate effectively. A further step is to link up with universities, making these contents one of the compulsory contents of university training. Once established, the specialized department will conduct training and develop unified policies so that all member units of the bank jointly research and develop initiatives to increase the positive impact of the banking sector - the bank's activities on the environment and society.

The State needs to have regulations to improve the social responsibility of businesses and the community: Currently, corporate social responsibility is no longer a new concept for the Vietnamese business community. However, social responsibility activities at most companies had understood as charitable contributions, community sharing, or voluntary social work of enterprises. Many businesses do not fully understand the critical role and benefits of implementing social responsibility, so they have not thoughtfully implemented their social responsibility. That had reflected in business frauds, production of poor quality goods, intentional pollution of the environment to maximize profits.

Limitations of the study and directions for further research: The study has reviewed the current situation of influencing factors quantified the extent of their influence on the development of green banking in Vietnam from the interviewees' perspective, but due to limited data. The banking system's operation and the data of the research banks, so the model test with actual data on green banking activities has not been done with extensive data. Besides, the level of green banking development of Vietnamese commercial banks may also be different due to different strategic goals, so the review of green banking development of the whole system with some banks is different. Typical may not fully reflect the level of green banking development. The limitations that the study authors identify in future studies need further research and broader research scope.

5- Conclusion

Implementing green banking is an essential task in promoting the green growth strategy. It contributes to limiting environmental and social risks such as pollution, preventing the greenhouse effect, eradicating hunger, and reducing poverty. Vietnam's green banking system is currently in the early stages of construction. The Government and the State Bank need to coordinate the implementation of many solutions to form and take effect. The most important ones are issuing credit appraisal guidelines and environmental and social risk assessment standards. This management system will be the basis for commercial banks to participate in the green growth strategy as green banks. Besides, the main findings of the present study also tested the research model and identified five critical factors affecting the green bank's development with 1% significance. Five factors included the state support policy on green banking development (SP), the market demand (MD), the financial capacity of the bank (FC), the perceptions of bank leaders (PL), and the ability of leaders and employees (CL). Besides, the state support policy on green banking development (SP) affects the market demand (MD) and the financial capacity of the bank (FC) with a significance level of 1%. Besides, managing environmental and social risks in credit granting activities and related documents. Accordingly, implementing the government's policy, the State Bank of Vietnam has taken the first steps in developing an approach to deploying "green" banking and has developed a set of rules on environmental and social risk management in credit extension activities. All banks do environmental and social risk assessments when they give out loans, apply environmental standards to projects they fund, and include environmental risk assessments in their credit risk assessments.

6- Declarations

6-1- Data Availability Statement

The data presented in this study are available in article.

6-2- Funding

6-3- Acknowledgements

6-4- Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the author.

7- References

[1] Sharma, M., & Choubey, A. (2021). Green banking initiatives: a qualitative study on Indian banking sector. Environment, Development and Sustainability, 24(1), 293–319. doi:10.1007/s10668-021-01426-9.

[2] Gunawan, J., Permatasari, P., & Sharma, U. (2021). Exploring sustainability and green banking disclosures: a study of banking sector. Environment, Development and Sustainability. doi:10.1007/s10668-021-01901-3.

[3] Aleem, M., & Bowra, Z. A. (2020). Role of training & development on employee retention and organizational commitment in the banking sector of Pakistan. Review of Economics and Development Studies, 6(3), 639–650. doi:10.47067/reads.v6i3.252.

[4] Tara, K., Singh, S., & Kumar, R. (2015). Green Banking for Environmental Management: A Paradigm Shift. Current World Environment, 10(3), 1029–1038. doi:10.12944/cwe.10.3.36.

[5] Romano, A. A., Scandurra, G., Carfora, A., & Fodor, M. (2017). Renewable investments: The impact of green policies in developing and developed countries. Renewable and Sustainable Energy Reviews, 68(1), 738–747. doi:10.1016/j.rser.2016.10.024.

[6] Park, H., & Kim, J. D. (2020). Transition towards green banking: role of financial regulators and financial institutions. Asian Journal of Sustainability and Social Responsibility, 5(1), 1–25. doi:10.1186/s41180-020-00034-3.

[7] An, X., & Pivo, G. (2020). Green Buildings in Commercial Mortgage-Backed Securities: The Effects of LEED and Energy Star Certification on Default Risk and Loan Terms. Real Estate Economics, 48(1), 7–42. doi:10.1111/1540-6229.12228.

[8] Bukhari, S. A. A., Hashim, F., & Amran, A. (2020). Green Banking: a road map for adoption. International Journal of Ethics and Systems, 36(3), 371–385. doi:10.1108/ijoes-11-2019-0177.

[9] Laskowska, A. (2018). Green banking as the prospective dimension of banking in Poland. Ecological Questions, 29(1), 129. doi:10.12775/EQ.2018.011.

[10] Duan, J., & Niu, M. (2011). The paradox of green credit in China. Energy Procedia, 5(2011), 1979–1986. doi:10.1016/j.egypro.2011.03.340.

[11] Bailey, A. A. (2005). Consumer Awareness and Use of Product Review Websites. Journal of Interactive Advertising, 6(1), 68–81. doi:10.1080/15252019.2005.10722109.

[12] Parveen, S., Ali, H., Sahibzada, H. E., & Farooq, S. (2020). A Causal Nexus of Energy Consumption, Private Investment, Economic Growth and Environmental Degradation: Evidence from Pakistan. Review of Economics and Development Studies, 6(2), 367–376. doi:10.47067/reads.v6i2.204.

[13] Hair, J., Anderson, R., Tatham, R., & Black, W. (1995). Multivariate data analysis with readings (4th Ed.). Pearson College Div, New York City, United States.

[14] Ge, Y., & Zhi, Q. (2016). Literature review: The green economy, clean energy policy and employment. Energy Procedia, 88(2016), 257–264. doi:10.1016/j.egypro.2016.06.159.

[15] Hossain, D. M., Al Bir, A. T. S., Tarique, K. M., & Momen, A. (2016). Disclosure of Green Banking Issues in the Annual Reports : A Study on Bangladeshi Banks. Middle East Journal of Business, 11(1), 19–30. doi:10.5742/mejb.2015.92758.

[16] Chin, W. W., Marcelin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. Information Systems Research, 14(2), 127–219. doi:10.1287/isre.14.2.189.16018.

[17] Wang, Y., Lei, X., Long, R., & Zhao, J. (2020). Green Credit, Financial Constraint, and Capital Investment: Evidence from China's Energy-intensive Enterprises. Environmental Management, 66(6), 1059–1071. doi:10.1007/s00267-020-01346-w.

[18] Mozib Lalon, R. (2015). Green Banking: Going Green. International Journal of Economics, Finance and Management Sciences, 3(1), 34. doi:10.11648/j.ijefm.20150301.15.

[19] Sadiq, M., Singh, J., Raza, M., & Mohamad, S. (2020). The impact of environmental, social and governance index on firm value: Evidence from Malaysia. International Journal of Energy Economics and Policy, 10(5), 555–562. doi:10.32479/ijeep.10217.

[20] Grover, S., & Kaur, H. (2019). Green banking: A strategic response to environmental turbulence. Journal of Management Research and Analysis, 6(2), 120–123. doi:10.18231/j.jmra.2019.023.

[21] Linnerud, K., & Simonsen, M. (2017). Swedish-Norwegian tradable green certificates: Scheme design flaws and perceived investment barriers. Energy Policy, 106(2017), 560–578. doi:10.1016/j.enpol.2017.04.012.

[22] Wu, A., & Li, T. (2020). Gaining sustainable development by green supply chain innovation: Perspectives of specific investments and stakeholder engagement. Business Strategy and the Environment, 29(3), 962–975. doi:10.1002/bse.2410.

[23] Ren, X., Shao, Q., & Zhong, R. (2020). Nexus between green finance, non-fossil energy use, and carbon intensity: Empirical evidence from China based on a vector error correction model. Journal of Cleaner Production, 277, 122844–122811. doi:10.1016/j.jclepro.2020.122844.

[24] Parveen, S., Khan, A. Q., & Farooq, S. (2019). The causal nexus of urbanization, industrialization, economic growth and environmental degradation: Evidence from Pakistan. Review of Economics and Development Studies, 5(4), 721-730. doi:10.26710/reads.v5i4.883.

[25] Zhang, B., Yang, Y., & Bi, J. (2011). Tracking the implementation of green credit policy in China: Top-down perspective and bottom-up reform. Journal of Environmental Management, 92(4), 1321–1327. doi:10.1016/j.jenvman.2010.12.019.

[26] Rahman, M. M., Ahsan, M. A., Hossain, M. M., & Hoq, M. R. (2013). Green Banking Prospects in Bangladesh. Asian Business Review, 2(2), 117–121. doi:10.18034/abr.v2i2.112.

[27] Shafique, O., & Majeed, A. (2020). Factors Influencing Bankers' Intention to Adopt Green Finance in Pakistan. Review of Economics and Development Studies, 6(4), 773–785. doi:10.47067/reads.v6i4.277.

[28] Aizawa, M., & Yang, C. (2010). Green credit, green stimulus, green revolution? china's mobilization of banks for environmental cleanup. Journal of Environment and Development, 19(2), 119–144. doi:10.1177/1070496510371192.

[29] Masood, J., Farooq, F., & Saeed, M. (2015). CO2 and Environment Change Evidence from Pakistan. Review of Economics and Development Studies, 1(2), 57–72. doi:10.26710/reads.v1i2.116.

[30] Masukujjaman, M., & Aktar, S. (2014). Green Banking in Bangladesh: A Commitment towards the Global Initiatives. Journal of Business and Technology (Dhaka), 8(1–2), 17–40. doi:10.3329/jbt.v8i1-2.18284.

[31] Doval, E., & Negulescu, O. (2014). A Model of Green Investments Approach. Procedia Economics and Finance, 15, 847–852. doi:10.1016/s2212-5671(14)00545-0.

[32] Khairunnessa, F., Vazquez-Brust, D. A., & Yakovleva, N. (2021). A Review of the Recent Developments of Green Banking in Bangladesh. Sustainability, 13(4), 1904. doi:10.3390/su13041904.

[33] Bhardwaj, B. R., & Malhotra, A. (2013). Green Banking Strategies: Sustainability through Corporate Entrepreneurship. Greener Journal of Business and Management Studies, 3(4), 180–193. doi:10.15580/gjbms.2013.4.122412343.

[34] Chaudhry, I. S., Azali, M., Faheem, M., & Ali, S. (2020). Asymmetric Dynamics of Oil Price and Environmental Degradation: Evidence from Pakistan. Review of Economics and Development Studies, 6(1), 1–12. doi:10.47067/reads.v6i1.179.

[35] Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. Journal of Marketing Research, 18(1), 39. doi:10.2307/3151312.

Appendix I

Table 5. The questionnaire for the green bank development

Code	Items
The state support policy on green banking development (SP)	
SP1	Building a legal framework for banking development green goods and policies to support the development of banking services green goods
SP2	Policies to support the application of technology in banks to evaluate investments in green investment/project
SP3	A guide to the development of green banking by State bank
SP4	Green banking development had included in the national growth strategy blue
The market demand (MD)	
MD1	Invest in less polluting technology and use green equipment
MD2	Carrying out social responsibility for the environment and using green ingredients
MD3	Invest in technology to prevent pollution and reduce waste, manage pollution
MD4	Invest in environmental projects (reuse applications, agriculture, technology, scrap, etc.)
The financial capacity of the bank (FC)	
FC1	Significant equity, scale, and growth rate of total assets
FC2	Profitability, quality of total assets
FC3	Ensure capital adequacy
FC4	Ensure liquidity and quality of financial operations management
The perceptions of bank leaders (PL)	
PL1	Green banking development had associated with using online payment services
PL2	Green bank development is associated with supporting projects that ensure the environment or help the community
PL3	Green banking development is associated with the use of using the modern technology platform
PL4	Green bank development is associated with construction building green development strategies of the bank
The capacity of leaders and employees (CL)	
CL1	Trained bank staff and officers with green banking expertise
CL2	Bank officers and employees can use green technologies (equipment, system solutions, and energy-saving operation)
CL3	Bank officers and employees are aware of the importance of green banking development
CL4	Bank officers and employees have a sense of efficient use, saving natural energy resources and protecting the environment (limiting printing, using materials and documents) waste resources
The green bank development (GBD)	
GBD1	The quality of products and services is constantly increasing
GBD2	Customer satisfaction increases year by year
GBD3	The business performance of the enterprise grew strongly