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Policy Recommendations for Green Credit Development at Commercial Banks in Vietnam

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Abstract

This study was conducted to determine the components of green credit development based on a survey of officers and employees working at Vietnamese commercial banks. Most commercial banks currently only revolve around financing green projects proposed by the Government but have not actively supported businesses. Therefore, the study has synthesized, systematized, developed, and supplemented theoretical issues on green credit. The formal research was conducted quantitatively through interviews with a sample size of 1050 bank officers and employees. The article has completed the study objectives set out and evaluated the structural model results showing that all eight factors positively influence the development of green credit. Eight factors include (1) Support policy, (2) Financial capacity, (3) Marketing strategy, (4) Banking technology, (5) Quality of human resources, (6) Management of risk, (7) Legal framework, and (8) Environmental policy at the 5% significance level. Finally, based on the research results, the authors propose eight policy implications to contribute to developing green credit for Vietnamese commercial banks in the future.
Keywords: Credit, green, policy, developing, commercial, bank.

Introduction

In the period of international economic integration, the Government of Vietnam is trying to develop and implement different strategies to find the best solution for economic growth and environmental protection. On August 7, 2018, the State Bank of Vietnam (SBV) officially approved the Green Bank development project in Vietnam, which includes objectives and solutions in state management activities of the State Bank and activities of the State Bank of Vietnam. Credit institutions' business activities to increase the banking system's awareness and responsibility for environmental protection and climate change; contribute to gradually greening banking activities, actively promoting green growth and sustainable development.

However, banks have not paid attention to environmental and social issues in credit activities, not simply because they don't know how. Although most bank credit officers have not been trained in assessing environmental and social risks, their working experience helps them more or less to imagine the impact of the projects they lend capital to the natural environment and social security. However, these effects are not, in fact, too significant risks for banks, forcing them to proactively take preventive and protective measures (Ben, 2018; Ongore & Kusa, 2013).

In the current context of Vietnam's banking industry with the requirements of reform, restructuring, and starting to think about a more sustainable future instead of just snatching investment, the State Bank of Vietnam Naming an industry-wide regulation on environmental

and social responsibility could be a stepping stone for big banks in Vietnam who want to pioneer in this area. According to research by the Center for People and Nature, one barrier to environmental and social responsibility in credit activities is that some large banks are still hesitant to take the lead alone. Stemming from the above fact, the authors have selected policy recommendations for developing green credit commercial banks in Vietnam, thereby proposing future orientations for green credit development in Vietnamese banks.

Literature Review

Green credit development (PTTDX)

Green credit development also means refusing to grant credit to projects that harm the environment. More simply, green credit is credit that a bank contributes to production and business projects without risk or for environmental and social protection. Therefore, green credit banks lend to projects that do not pose risks to the environment or projects with environmental protection goals. Thus, green credit development is considered a part of the green economy (Su & Lian, 2018; Xie & Liu, 2019). Green credit can be understood as a bank's credit for environmentally friendly projects and rejecting projects that cause environmental pollution. Through green credit, banks can indirectly protect the environment. The assessment of environmental protection projects or not is based on some standards set by banks or authorities (Tawfik et al., 2021; Chen et al., 2021; Biswas, 2011).

Quality of human resources (CLNNL)

Human resources are motivation, the goal for developing green credit in commercial banks. The critical role of human resources in developing green credit in commercial banks is shown. Human resource is a factor directly involved in the strategic planning process, setting up plans, programs, projects, building business processes, and codes of conduct is the foundation orientation for all activities in commercial banks, including green credit activities (Mustafizur et al., 2013; Qin et al., 2018). Besides, human resources are the subjects who operate the system, control the technological infrastructure, execute the plans according to the set process, and work with government agencies, partners, and customers. Interact with colleagues, and control cash flows and other resources under the responsibility of green credit management of commercial banks (Sumei et al., 2021). In summary, it can be seen that the quality of human resources in green credit development plays a vital and indispensable role, just like in most other fields and professions. Thus, the authors gave hypothesis H1 below:

Hypothesis H1: The quality of human resources affects green credit development at commercial banks in Vietnam.

Marketing strategy (CLMK)

A bank marketing strategy is the organization and coordination of banking departments to identify and meet customers' wishes for green credit services quickly and effectively based on customer satisfaction goals. In fact, banking marketing activities bring a lot of benefits to commercial banks. In particular, the role of bank marketing is shown through the following content (Raberto et al., 2019). The marketing strategy in green credit development contributes to promoting the brand, improving awareness, promoting the image, enhancing the reputation, and increasing the bank's competitive position in the green credit field. Besides, the marketing strategy in developing green credit is one of the most critical roles of bank marketing. The characteristic of the banking business is that the products and services provided are relatively similar between commercial banks, so creating a difference to increase competitive position is very important (Razak et al., 2020). Making a competitive part of banking products and services

depends mainly on each bank's marketing capabilities and qualifications. Thus, the authors gave hypothesis H2 below.

Hypothesis H2: Marketing strategy affects the green credit development at commercial banks in Vietnam.

Financial capacity (NLTC)

Financial solid capacity is essential to ensure the bank's competitiveness. Significant equity capital, a safe deposit and lending structure, and competitive costs will create conditions for commercial banks to expand their market share, finance large projects, and enforce competitive interest rates. Competition for green projects (Xiaowei et al., 2021). In addition, the context of deep integration into the world economy is posing many difficulties and challenges to the banking system, primarily commercial banks. Because according to international practices, the capital adequacy ratio of commercial banks must be 9% or more; if this ratio is not guaranteed, commercial banks will not be able to expand operations, even standing still in danger of bankruptcy (Xu et al., 2018). Therefore, improving financial capacity will help commercial banks implement risk prevention measures, ensure capital safety in operations, and minimize possible customer damage to green credit in the commercial bank. Thus, the authors gave hypothesis H3 the following:

Hypothesis H3: Financial capacity affects the green credit development at commercial banks in Vietnam.

Banking technology (CNNH)

Digital technology has been transforming the banking and green credit sectors. Modern technology helps banks boost business operations, reduce transaction costs, and increase security, transparent and safer transactions with new technologies such as Blockchain and biometrics in the banking system, payments, use of fingerprints, replacement payment cards, and contribute to the development of green credit (Zhang et al., 2021; Christaria & Kurnia, 2016). Besides, digital technology, innovation in production, and the connection and sharing of information have created a big revolution in all industries and fields of green credit. Data has become the most critical resource in products/services that are also gradually provided mainly in digital form to consumers, not limited by space and time (Wang et al., 2019). Thus, the authors propose the final hypothesis H4 as follows:

Hypothesis H4: Banking technology affects the green credit development at commercial banks in Vietnam.

Management of risk (QTRR)

Green credit risk management is essential in ensuring the bank's credit activities' safety and contributes to minimizing banking activities' risks. For commercial banks, green credit risk management is critical because of the following factors: Firstly, preventing and limiting green credit risks is a complicated issue for all commercial banks because green credit risk is an objective necessity, always associated with credit activities, projects, and projects. Green projects are simultaneously very diverse and complex (Zhou et al., 2021; Dietrich & Wanzenried, 2011). Green credit risks are often difficult to control and lead to losses and loss of bank capital and income. Second, if the activities of preventing and limiting green credit risks are well implemented, it will bring benefits to commercial banks such as: Reducing costs, improving income, preserving capital for commercial banks; creating trust for depositors and investors; creating a premise to expand the market and increase the bank's prestige, position, image and market share (Cui, 2018). Thus, the authors gave hypotheses H5 following:

Hypothesis H5: Management of risk affecting the green credit development at commercial banks in Vietnam.

Support policy (CSHT)

Policy to support green credit is one of the top priority actions in the context of global climate change. In Vietnam, green credit development is considered relatively modest due to many obstacles and limitations related to capital, an incomplete legal framework, and an incomplete environmental-social risk assessment framework. Benevolent (Nath et al., 2014; Allet & Hudon, 2015; Batrancea et al., 2020). Therefore, the support policy should prioritize green credit for funded projects that meet specific criteria for fields such as Green agriculture, sustainable forestry, green industry, and energy. Renewable, clean energy, recycling, use of resources, waste treatment, pollution prevention, protection of the natural environment, green construction, sustainable transportation. Thus, the authors gave hypothesis H6 below:

Hypothesis H6: Support policy affects the green credit development at commercial banks in Vietnam.

Legal framework (KPL)

The green credit market legal framework in environmental protection legislation is a strong emerging trend globally, with the participation of more developed countries and financial institutions as large as the World Bank. This is one of the new points, creating an opportunity to remove barriers, unlock capital from this potential market, contribute to the successful implementation of the policy of developing green economic models, low carbon, encourage the performance of the circular economy and harmonize the relationship between the economy and the environment (Mamun & Rana, 2020). In summary, the formation of a green credit market legal framework for green credit development is being promoted by banks and is considered a solution to promote sustainable development and realize a green growth strategy. Thus, the authors gave hypotheses H7 following:

Hypothesis H7: Legal framework policy affecting the green credit development at commercial banks in Vietnam.

Environmental policy (CSMT)

Environmental pollution continues to be complicated with many hot spots, especially in areas with concentrated socio-economic activities. In addition, the policies and laws on environmental protection systems are still overlapping and inadequate; environmental management tools have not been effective and efficient. New management approaches and tools have not been institutionalized promptly and cannot keep up with the rapid developments of environmental issues and the country's requirements for socio-economic development and international integration (Migliorelli, 2021; Campiglio et al., 2018). The organizational model of ecological management agencies from central to local levels is still inadequate and weak in capacity, failing to meet management requirements for several large, complex, and sensitive fields that are increasing rapidly. get a raise (Lalon, 2015; Kangshi et al., 2021). In addition, green credit and environmental protection are two categories containing different connotations but tend to get close to each other in a common type that has been used in all fields, namely credit development green in sustainable development. Thus, the authors gave hypotheses H8 following:

Hypothesis H8: Environmental policy affecting the green credit development at commercial banks in Vietnam.

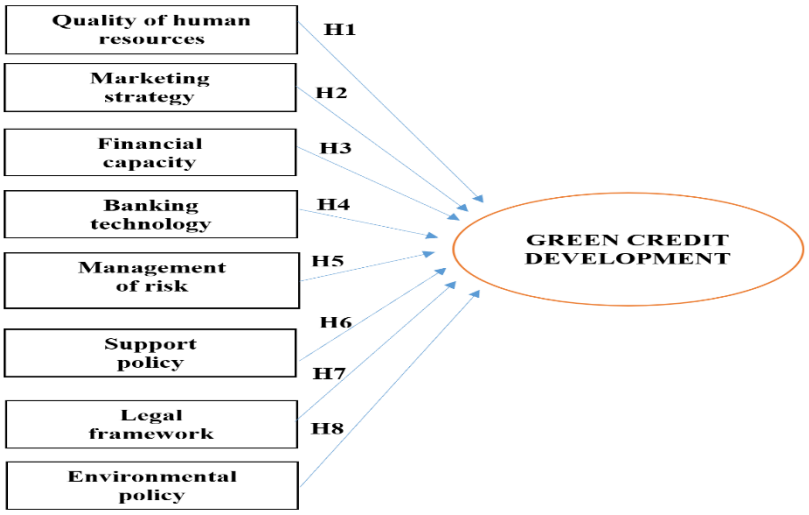

Figure 1. A research model for factors affecting green credit development at commercial banks
Source: Authors proposed

From the problems analyzed above, the authors proposed the expected research model, as shown in figure 1. Accordingly, the model indicates 08 factors affecting the development of green credit.

Research methodology

The study applied mixed methods, including qualitative and quantitative in preliminary research and quantitative in a formal investigation, with the data source used as primary data source obtained through a questionnaire survey. Sequential research method through two main approaches and many steps as follows.

Qualitative research: the target groups of 30 managers of the 15 largest commercial banks in Vietnam were invited to participate in a face-to-face group discussion to explore the elements of the green credit development scale. Identify the research problem related to the development of green credit in Vietnamese commercial banks (Hair et al., 2010). This research process aims to systematize and combine the results of previous studies, clarifying the fundamental theoretical issues about the factors related to the development of green credit. The authors identify factors affecting the development of green credit in Vietnamese commercial banks. Besides, measure the impact of elements. The authors designed all questions in part of the questionnaire arranged on a scale of 1 to 5 (5-point Likert scale), showing the increasing level of agreement of the respondents to the issue of the authors' interview. The specific meanings are as follows: (1) disagree entirely. (2) Disagree. (3) Normal. (4) Agree. (5) agree entirely (Hair et al., 2010).

Quantitative research: The study uses a convenient and simple sampling method. The author used the data collected from the survey using SPSS 20.0 software, Amos. And the reliability of the scales was tested using Cronbach's Alpha reliability coefficient, exploratory factor analysis (EFA), analysis confirmatory factor analysis, and test multivariable linear regression model with 1,050 respondents to test the research model and hypothesis from which to process the questionnaire, using SPSS 20.0 software. The author's team performed bootstrap testing to verify the model. The Boostrap method performs with the number of repeated samples N times. Estimates from N samples are averaged, and this value tends to be close to the population estimate. The smaller the difference between the mean estimated by Bootstrap

and the model estimate with the original sample, allowing the conclusion that the model estimates can be trusted. The author proposed policy recommendations to develop green credit at commercial banks (Hair et al., 2010).

Results

Analysis of descriptive statistics and Cronbach's alpha for factors affecting green credit development

Table 1. Testing descriptive statistics and Cronbach's alpha for the green credit development

Code	Items	Cronbach's alpha
Quality of human resources (CLNNL)		**0.889**
CLNNL 1	Banks need to plan human resources to meet the needs of green credit development	0.862
CLNNL 2	Banks need to have policies to attract and select human resources to meet the implementation of green credit goals	0.833
CLNNL 3	The Bank arranges and uses human resources to ensure flexibility and meet green credit growth goals	0.874
CLNNL 4	The Bank regularly trains and develops green credit human resources, contributing to improving professional knowledge, skills, and ethics.	0.856
Marketing strategy (CLMK)		**0.958**
CLMK 1	Banks need to make and develop a strategic marketing plan for green credit development	0.941
CLMK 2	Banks need to understand the needs and desires of customers about green credit	0.950
CLMK 3	Banks need to invest both financial and human resources for green credit marketing activities	0.949
CLMK 4	Banks need to regularly check the quality and effectiveness of green credit marketing activities through communication	0.941
Financial capacity (NLTC)		**0.962**
NLTC1	Banks need to increase equity to meet capital needs for green credit	0.943
NLTC2	Banks need to improve credit quality to meet green credit development goals	0.962
NLTC3	Banks need to diversify banking products and services to meet the needs of integration and environmental protection	0.950
NLTC4	Banks need to ensure good liquidity on assets, shares, and business performance	0.942
Banking technology (CNNH)		**0.952**
CNNH1	Banks need to develop and implement a digital transformation strategy to improve business performance	0.929
CNNH2	Banks need to invest in information technology infrastructure and apply new technologies to increase customer experience	0.946
CNNH3	Banks need to expand international cooperation in digital banking and with Fintech/BigTech	0.939
CNNH4	Banks need to continue to invest, build and perfect interbank modern electronic payment infrastructures	0.931
Management of risk (QTRR)		**0.854**

QTRR1	Banks need to improve their organizational structure and green credit risk management apparatus	0.808
QTRR2	Banks need to perfect the credit information database system and green credit risk management	0.807
QTRR3	Banks need to apply digital technology to enhance risk management capacity more conveniently and professionally for green credit	0.841
QTRR4	Banks need to build and perfect a risk management culture in the 4.0 era	0.801
Support policy (CSHT)		**0.924**
CSHT1	The Government should have policies to encourage banks to provide green credit for green economic development	0.923
CSHT2	The Government should establish a national green credit fund to mobilize capital for the development of green credit.	0.903
CSHT3	The State Bank should develop an appropriate interest rate policy to prioritize interest rate support when granting green credit.	0.922
CSHT4	The State Bank needs to develop processes and regulations on risk prevention in green credit projects	0.889
CSHT5	The State Bank should develop mechanisms and policies to coordinate among banks in granting green credit to ensure adequate funding	0.893
Legal framework (KPL)		**0.950**
KPL1	The Government needs detailed and clear regulations on green credit projects	0.941
KPL2	The Government needs to clearly and detail regulations on mechanisms and policies to encourage the granting of green credit	0.900
KPL3	The Government needs to develop mechanisms and policies to support banks in accessing long-term capital sources and incentives for green credit	0.941
Environmental policy (CSMT)		**0.957**
CSMT1	The State Bank should have preferential policies on loan interest rates for environmental protection projects	0.931
CSMT2	The State Bank needs to reduce the required reserve ratio for the portion of capital mobilized by banks for lending to environmental protection projects.	0.957
CSMT3	The State Bank needs to give incentives, refinance, and rediscount for green credit purposes in line with environmental protection projects.	0.947
CSMT4	The State Bank should prioritize terms and sources of loans for environmental protection projects	0.939
The green credit development (PTTDX)		**0.957**
PTTDX 1	The report should reflect the organization's significant economic, environmental and social impact	0.949
PTTDX 2	The report must identify stakeholders and keep a record of the business meeting reasonable expectations and needs of stakeholders	0.911
PTTDX 3	The report should describe the performance of the business in the broader context of sustainable development	0.950

Source: Author collected and processed from SPSS 20.0

Table 1 shows that Cronbach's alpha for factors affecting green credit development is higher than 0.7.

Testing critical factors affecting green credit development at commercial banks in Vietnam

Table 2. Testing factors affecting green credit development in Vietnam

Relationships			Standardized Estimate	S.E	C.R	P	Result
PTTDX	<---	CSHT	0.160	0.046	3.496	***	Accepted
PTTDX	<---	NLTC	0.526	0.027	19.336	***	Accepted
PTTDX	<---	CLMK	0.079	0.027	2.986	0.003	Accepted
PTTDX	<---	CNNH	0.069	0.024	2.829	0.005	Accepted
PTTDX	<---	CLNNL	0.208	0.045	4.617	***	Accepted
PTTDX	<---	QTRR	0.153	0.030	5.107	***	Accepted
PTTDX	<---	KPL	0.081	0.029	2.748	0.006	Accepted
PTTDX	<---	CSMT	0.068	0.022	3.111	0.002	Accepted

Source: Author collected and processed from SPSS 20.0, Amos

Table 2 shows 08 factors affecting green credit development at commercial banks in Vietnam, with a significance level of 0.01. The article's novelty is finding out the financial capacity factor that has the most substantial impact on green credit development, with a standardized estimate of 0.526.

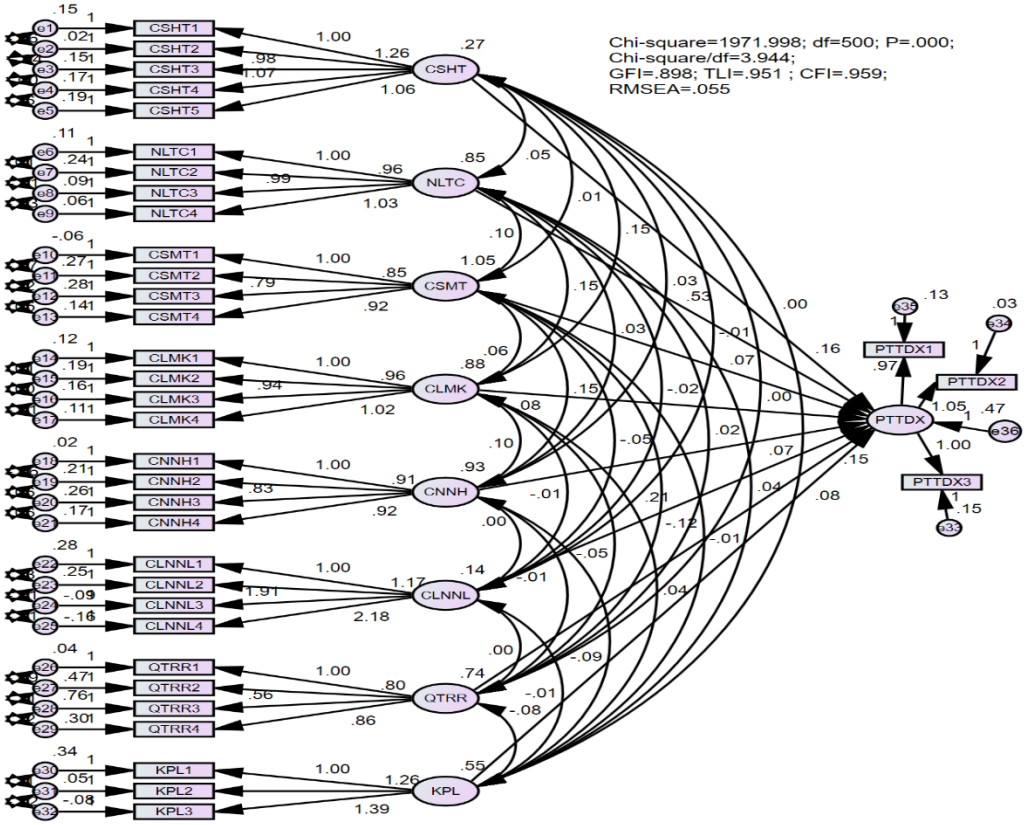

Figure 2. Testing research model for factors affecting the green credit development at commercial banks

Source: Authors collected and processed from SPSS 20.0, Amos

Figure 2 showed that the assessment of factors affecting the green credit development at commercial banks: CMIN/DF = 3.944 (<5.0), GFI = 0.898 (>0.800), TLI = 0.951 (>0.900), CFI = 0.959 (> 0.900) and RMSEA = 0.055 (<0.08). The article aims to determine the eight factors affecting the green credit development at commercial banks in Vietnam, especially to find out the new credit support policy factor that is an unknown factor that has the most substantial impact on green credit development with a standardized estimate is 0.526.

Table 3. Testing Bootstrap 10.000 samples for factors affecting the green credit development

Parameter			SE	SE-SE	Mean	Bias	SE-Bias
PTTDX	<---	CSHT	0.044	0.001	0.158	-0.002	0.001
PTTDX	<---	NLTC	0.033	0.001	0.524	-0.005	0.003
PTTDX	<---	CLMK	0.030	0.000	0.081	0.002	0.005
PTTDX	<---	CNNH	0.025	0.000	0.066	-0.001	0.002
PTTDX	<---	CLNNL	0.043	0.001	0.202	-0.002	0.001
PTTDX	<---	QTRR	0.035	0.001	0.147	-0.001	0.004
PTTDX	<---	KPL	0.036	0.001	0.074	-0.001	0.001
PTTDX	<---	CSMT	0.023	0.000	0.068	0.004	0.005

Source: Authors collected and processed from SPSS 20.0, Amos

Table 3 shows that testing Bootstrap with 10.000 samples for factors affecting the green credit development at commercial banks in Vietnam, with a significance level of 0.01.

Discussion

Estimation results of the theoretical model and Bootstrap in SEM analysis show that the 8 hypothesized relationships in the theoretical model have p-values ranging from 0.000 to 0.006, reaching the necessary significance level (at the confidence level of the model). 95%). In other words, 8 hypotheses are accepted with the existing data. Of the eight factors affecting the development of green credit, the most influential factor is financial capacity, which is also true with the reality that the author surveyed. Financial capacity is significant in the development of green credit and is the ability to ensure financial resources for the bank's operations to achieve the goals set by the bank. Financial capacity mobilizes capital to meet the bank's activities and ensure financial safety for green credit development. Therefore, improving financial ability will help commercial banks implement risk prevention measures, ensure capital safety in operations, and minimize possible customer damage to commercial banks, including green credit.

Firstly, The research results show that the supportive policy has an unnormalized estimation coefficient with a positive sign and a significance level of 0.000. This indicates that supportive policies positively impact green credit development in Vietnamese commercial banks. The above results show that the hypothesis is accepted by the research data and is consistent with the results. This is the scientific basis and experimental evidence for policymakers. Therefore, the State Bank should continue to research and develop mechanisms and policies to support the development of green credit, creating a capital mobilization channel for investors to have more resources to implement green projects. At the same time, the SBV must support increasing equity and determining the financial capacity to expand the green credit business. Growing domestic commercial banks' equity is crucial to improve competitiveness and reduce risks, significantly helping commercial banks have conditions to attract more green credit capital.

The above results show that the hypothesis is accepted by the research data and is consistent with the results. Secondly, The research results show that financial capacity has a positive sign and the significance level is 0.000. This indicates that financial ability positively impacts green credit development in Vietnamese commercial banks. This result is entirely consistent with the current situation. Accordingly, commercial banks will have to actively implement the scale of the capital increase in the coming time, such as Increase equity to cope with risks, meeting capital requirements according to the safety framework, and improving competitiveness with joint venture banks and foreign banks operating in Vietnam. Ensure compliance with credit principles, and recover loan capital on time; Strict inspection of investment projects, ensuring the regulation of profitable investment.

Thirdly, The research results show that the Marketing strategy has a positive sign and the significance level is 0.003. This indicates that Marketing strategy positively impacts green credit development in Vietnamese commercial banks. The above results show that the hypothesis is accepted by the research data and is consistent with the results. This result is entirely consistent with the current practical situation. Therefore, commercial banks need to promote the implementation of marketing strategies, including marketing, to develop green credit. Because the business goal of commercial banks is towards stability, positivity, and improvement of business performance; improving competitiveness, maintaining the critical role in the money market; providing high-quality products and services; and growing business activities safely, effectively, and sustainably.

Fourthly, research results show that banking technology has a positive sign and the significance level is 0.005. This indicates that banking technology positively impacts green credit development in Vietnamese commercial banks. Besides, the above results show that the research data accepts the hypothesis and is consistent with the results. This result is consistent with research data and the actual situation in commercial banks. Therefore, commercial banks quickly apply modern technology to create a new breakthrough in exploiting products and services in quantity and quality, bringing convenience to customers simultaneously. Increasing profits and competitiveness with other banks affirming the bank's class, name, and image. From a management perspective, thanks to information technology, the internal management in the bank is tighter, and the management and operation of the board of directors will be better.

Finally, Research results show that the quality of human resources has a positive sign and the significance level is 0.000. This indicates that the quality of human resources has a positive impact on green credit development in Vietnamese commercial banks. The above results show that the hypothesis is accepted by the research data and is consistent with the results. Therefore, banks need to train professional skills for the team of tellers and customer relations specialists at commercial banks. Commercial banks need to attach importance to diversifying training methods, paying due attention to online training and distance learning to meet the diverse needs of learners in terms of knowledge, space and time.

Sixthly, Research results show that risk management has a positive sign and the significance level is 0.000. This indicates that risk management positively impacts green credit development in Vietnamese commercial banks. This is an essential scientific basis for State banks and the commercial banking system to develop and disseminate a set of indicators on environmental and social risk assessment for several specific economic sectors high risk. The above results show that the hypothesis is accepted by the research data and is consistent with the results.

Seventhly, Research results show that the legal framework has a positive sign and the significance level is 0.006. This indicates that the legal framework factor positively impacts green credit development in Vietnamese commercial banks. The above results show that the hypothesis is accepted by the research data and is consistent with the results. Therefore, the State Bank needs to continue to improve the legal framework for green credit activities within the framework of legal regulations. However, legal documents often only provide framework provisions and few specific and detailed provisions on issues related to the green credit activities of banks. In the context of integration, the application of digital banking is a mandatory step shortly for commercial banks.

Finally, Research results show that environmental policy has a positive sign and the significance level is 0.002. This indicates that environmental policy factors positively impact green credit development in Vietnamese commercial banks. The above results show that the hypothesis is accepted by the research data and is consistent with the results. Therefore, the SBV needs to continue to improve environmental policies, which can be: when a customer requires a loan, the credit officer will contact the customer, analyze the production and business plan, and appraise the facility. Production and business, appraisal of collateral, assessment of industries and facilities causing environmental pollution, collection of information about customers from many sources, especially data from the risk prevention center credit, local environmental management agency, report to the leader for consideration, and decision.

Conclusions

The structural equation model results show that all eight factors positively influence the development of green credit. Eight factors include (1) Support policy, (2) Financial capacity, (3) Marketing strategy, (4) Banking technology, (5) Quality of human resources, (6) Management of risk, (7) Legal framework, and (8) Environmental policy. In addition, the thesis examined the respondents' personal information and showed no difference in the respondent's status, gender, marriage, age, income, and working time. No differences are noted, and no policy implications are needed for the respondents' information. This study contributes to the green credit development measurement scale specification based on officials and employees in the banking industry in a fast digital transformation economy like Vietnam. This helps academic researchers have a scale system to research the Vietnamese commercial banking system. Moreover, this scale system can form a unified approach in future studies. And this is also critical scientific evidence for researchers, managers, and policymakers for commercial banks to apply research results to the development of green credit.

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