

How Social Responsibility and Bank Governance Can Promote Green Credit Business Development

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Abstract: With the increasingly prominent global ecological and environmental problems, green finance has become an important concept of sustainable development in China. As the main force in the development of green finance, how to improve the scale of green credit in banks and promote the development of green credit in banks is crucial to the development of green finance in China. Taking 34 listed banks as samples, this paper uses the QCA method to integrate five conditions of social responsibility and bank governance, and explores multiple concurrent factors and complex causal mechanisms that affect banks' green credit. The results show that: 1) Equity responsibility, social contribution, asset quality, equity structure, and operating efficiency are not necessary conditions for generating high green credit. 2) The driving mechanism of high green credit is divided into two paths, namely contribution-state-owned holding-led and asset-quality-driven. 3) There are three paths to drive non-high green credit, namely, the restraint of operating benefits, the restraint of social contribution-asset quality, and the restraint of equity structure. This paper solves the problem that existing research focuses on the net effect of a single factor on green credit, but seldom pays attention to the synergistic effect of multiple factors on green credit business, which helps banks to increase the scale of green credit business and promote green credit business of banks developing.

1. Introduction

Achieving the goal of carbon peaking and carbon neutrality is one of my country's key tasks in recent years. In recent years, although banks have gradually increased their emphasis on green credit projects and their enthusiasm for promoting green credit business has gradually increased, there is still a shortage of bank credit scale. According to the data on the green credit balance of 21 banks recently released by the China Banking and Insurance Regulatory Commission, as of the end of the first quarter of 2021, the scale of green credit in the entire banking industry exceeded 13 trillion yuan, a year-on-year increase of 24.6%. The proportion is 7.22%, the overall level is still at a low level, and there is still much room for improvement in the future. So, how to improve the scale of banks' green credit business, and what are the driving factors for banks' high green credit business scale?

Most of the existing literature focuses on the influence of a single factor on the scale of green credit business, and the influencing factor of green credit business cannot be expressed simply by a single factor, it is affected by multiple factors, and the combination of factors can be produce the same result, i.e. there may be multiple paths leading to the same result. Therefore, it is particularly important to analyze the synergy effect of multiple factors on green credit business from a holistic perspective [1]. (Douglas et al, 2020; Du Yunzhou, 2020). This paper applies the QCA method to integrate multiple conditions in social responsibility and bank governance, and explores multiple concurrent factors and causal complex mechanisms that affect banks' green credit. It is of great significance to the improvement of China's green credit development level. In recent years, scholars at home and abroad have carried out a lot of research on the factors that affect the development scale of banking business, and have interpreted these factors from multiple perspectives, and the research results have been remarkable. The research focuses on the research on the net effect of a single factor on green credit.

Through the integration of existing research, it can be summarized into a theoretical framework based on social responsibility factors and corporate financial statements, based on social responsibility and corporate governance factors affecting banking business. analytical framework. Among them, social responsibility not only includes the bank's return to shareholders, but also the responsibility to employees includes the total contribution to society. In terms of corporate governance, it is mainly manifested in the heterogeneity of different banks, including the operating efficiency, asset quality, and equity structure of different banks. (Li Miao et al., 2009, Chen Bingqing et al., 2015, Wang Enze et al., 2019, Dong Zhu et al., 2016, Yan Jing et al., 2020) An analysis framework for influencing factors of banking business based on social responsibility and corporate governance can effectively analyze bank business factors of size. Since the traditional method mainly focuses on the net effect of a single factor, it is not effective in exploring the synergistic effect of multiple factors[2] (Charles C Larkin, 2019), and the qualitative comparative analysis method based on the configuration perspective can effectively overcome the traditional method. Defects, mining the configuration effects of multiple factors to reveal different paths to achieve the same output (Du Yunzhou, 2020). Therefore, the configuration perspective is more suitable to study the synergistic influencing factors of green credit business.

In view of this, this paper is the first to introduce the QCA method into the research on the scale of green credit business of banks, integrates five key variables at the level of corporate governance and social responsibility to examine the factors affecting the scale of green credit, and finds a group of factors that affect the scale of green credit. Substitutability and complementarity among various elements within the state.

2. Literature review and model construction

2.1 Asset Quality

Bank asset quality refers to the size of the asset's ability to provide income and the level of risk. Numerous studies believe that the scale of bank credit is closely related to the bank's asset quality. The scale of bank credit will affect the bank's asset quality. Shao Jing (2016) regards credit supply as a driving force for economic fluctuations and changes in credit asset quality. Expanding credit supply can promote economic development and curb the decline in credit asset quality. And asset quality also has a huge impact on the bank's credit scale[3]. Liu Xiaorui and Yang Fan (2018) proved that the deterioration of credit asset quality restricts the enthusiasm of commercial banks to provide credit. Therefore, banks will increase credit business when asset quality is good scale[4]. At the same time, the decline of the bank's non-performing loan ratio and the improvement of the bank's asset quality will also increase the investment in environmental governance, thereby further expanding the scale of banks' green credit.

2.2 Shareholding structure

For the shareholding structure, the shareholding structure has a great influence on the green credit scale of banks. Pan Min, Miao Haibin and Chen Xiaoming (2011) through empirical research, it is found that under different economic cycles, commercial banks with different ownership structures have different credit behaviors. Subsequently, Pan Min and Zhang Yiru (2013) showed through research that state-owned commercial banks are more cooperative with the implementation of government macro policies than other types of commercial banks. This may be because actively responding to and complying with the guidance of national policies is a specific, mandatory, and statutory corporate goal and responsibility for state-owned enterprises[5](Xu Chuanchen et al., 2010). Sun Ou, Liu Zhixin and Pang Xin (2015) that the government influences the credit behavior of commercial banks through controlling[6]. The implementation of green credit business has costs, and the profit from business is also smaller than that of ordinary non-green credit business. Therefore, for banks dominated by state-owned shares, the higher the proportion of state-owned shares, the more meaningful the society's performance to social development. Business expectations are also higher. Even if the cost of performance exceeds the benefits, banks with a high proportion

of state-owned shares will increase their investment in green credit business and increase the scale of green credit business. Moreover, under the existing policies, the control of industrial pollution is not only a manifestation of social responsibility, but also related to the vital interests of banks. Increasing credit in the green economy has become an inevitable choice for banks with many state-owned holdings.

2.3 Business Benefits

The bank's operational performance has an impact on the development of green credit. In contrast, only a few literatures focus on the impact of bank's operational performance on green credit, and the results are mixed. Yan Jing (2020) believes that the operation of commercial banks is closely related to the development effectiveness of green credit, which determines the implementation effect of green credit policies; and the differences in the internal micro-characteristics of commercial banks make bank business performance heterogeneous to green credit. Finally, it is concluded that bank operating efficiency has a positive impact on green credit [7]. Bin Xi1&Yaran Wang1&Mingqian Yang (2021) analyzed the relevant data of 19 listed banks in China from 2008 to 2017, and found that the green credit ratio has a positive impact on the financial performance of listed banks[8]. In general, due to differences in research methods, research objects, sample sizes and other factors, different scholars have drawn different conclusions on the relationship between green credit and bank operating performance. At present, most domestic literatures only study the impact of green credit on bank performance in one direction, and pay little attention to the correlation between the two. Therefore, this paper will further study the impact of business benefits on green credit on the basis of existing research.

2.4 Rights and Responsibilities

Responsibility for rights and interests is an integral part of a bank's social responsibility. According to the stakeholder theory, while pursuing the maximization of interests, the bank must consider the interests of the stakeholders to satisfy the interests of various stakeholders, and give corresponding remuneration or compensation. Therefore, the bank's equity responsibility includes not only the social responsibility of the enterprise to its employees, but also the equity responsibility of the enterprise to its shareholders' returns. As a legal person, the bank is the agent of the shareholders. In the relationship with all aspects, the social responsibility that the enterprise should undertake is the responsibility to the shareholders first. Wang Duanxu (2011) found that there is a positive correlation between social responsibility and financial performance, and its relationship is related to stakeholders[9]. The higher the satisfaction of stakeholders, the greater the promotion of corporate value. The fulfillment of the social responsibility of stakeholders has a favorable impact on the bank, and the fulfillment of the social responsibility of shareholders is conducive to stabilizing the stock price; the fulfillment of the social responsibility of employees can increase the enthusiasm of employees and reduce the turnover rate. These factors can improve the stability of the bank and promote the development of the bank's banking business. As one of the many businesses of banks, green credit business will naturally be favorably affected by the high equity responsibility of enterprises.

2.5 Social Contributions

The social contribution of the bank mainly includes the tax burden paid and the contribution to the public welfare. Social contribution can promote the reputation of the bank. Navarro (1988) found that corporate donations can play a role in advertising and quickly gain social reputation for the company [10]; Brammer and Millington (2005) research shows that public welfare donations may play an extremely important role among stakeholders, In particular, it may lead to a more positive perception of the charitable company by stakeholders, giving the company a better reputation [11]. Reputational capital can increase the bank's stock price, and at the same time, the bank will gain recognition from the government and win people's praise, which invisibly promotes the bank, improves its reputation, wins the trust of more partners, and improves the company's long-term business prospects[12](Godfrey, 2005). Banks practice green credit business,

and through their own green behaviors and the green behaviors of stakeholders, will form a comprehensive evaluation of the bank's identity and image by the society, that is, promote the establishment of a good image of the bank. In addition, green credit is also a form of bank's contribution to the social and ecological environment. Since the payback period of green credit project investment is relatively long, it is more difficult to make a profit. Although banks will give priority to green enterprises and projects with repayment ability in the selection of projects, they are still not as short as other ordinary projects in terms of short payback period and high returns. In a sense, the bank's contribution to the society indicates the bank's willingness to develop green credit business, which is a relatively social contribution business. If a bank has high social contribution, its willingness to develop social contribution business is relatively high, which means that its green credit scale is high. Therefore, the long-term prospects of the banking business with large social contribution are good. As one of the important businesses of the bank, green credit will indirectly improve its business scale. Banks with large social contribution are more willing to develop green credit business, which in turn promotes green credit scale.

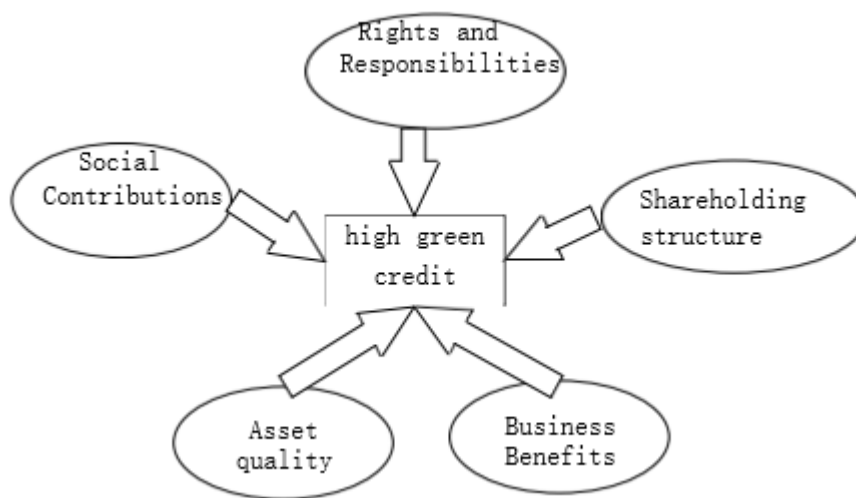


Figure 1 Model of driving factors of green credit business scale

3. Research method

3.1 QCA method

Qualitative comparative analysis is a case-oriented approach (Rihoux et al, 2009), which focuses on the "multiple concurrent causality" of the case, where "multiple" refers to the number of paths, and "concurrency" refers to the fact that each path is caused by a different composed of a combination of cases. It means that different combinations of elements may produce the same result, and when a specific result occurs, a certain condition may or may not appear (Du Yunzhou et al., 2020).

3.2 Selection of variables

1) Rights and Responsibilities. Existing literature usually uses Hexun.com CSR data to judge CSR. According to the definition of equity responsibility above, this paper selects the sum of the bank's employee score data and the bank's return to shareholders in the corporate social responsibility data of Hexun.com as the evaluation index of equity responsibility.

2) Social Contributions. Existing literature usually uses Hexun.com CSR data to judge CSR. According to the above definition of social contribution, social contribution adopts the social responsibility data of Hexun.com's corporate social responsibility.

3) Business Benefits. Based on the variable selection of domestic and foreign scholars, the return on total assets, return on share, return on equity, etc. are generally used to evaluate the operating efficiency of commercial banks (Liu Jiangbin, Zhao Yujuan, etc., 2021), considering the return on

total assets The level of , directly reflects the competitiveness and development capability of the bank, so this paper uses the return on total assets (ROA) as the operating benefit.

4) Asset quality. In the representation of bank asset quality, scholars mostly use the non-performing loan ratio to represent (Xu Lingchao, Wu Guangwei, etc.,2021), referring to the existing practice, this paper uses the non-performing loan ratio for analysis.

5) Shareholding structure. Since the shareholding structure that determines the scale of green credit is mainly the proportion of state-owned holdings, referring to the selection methods of existing literature (Sui Lijun, Dong Zhu, Zhu Yinye, etc.), this paper uses the proportion of state-owned holdings to the total number of shares of the company to represent the shareholding structure.

Table 1 Data sources and interpretation

Variable	Two grade index evaluation	Data sources	Variable definition and description
Rights and Responsibilities (ER)	Score to shareholders	Hexun corporate Social responsibility	The financial responsibility of a bank to its shareholders
	Score for employees	Hexun corporate Social responsibility	The bank's legal liability to its employees
Social Contributions (SC)	Comprehensive score of social contribution	Hexun corporate Social responsibility	The moral and charitable responsibility of banks to society
Business Benefits (MA)	Operating performance index	Annual Reports of listed banks	ROA
Asset quality (QA)	Non-performing loan ratio	Annual Reports of listed banks	Ratio of non-performing loans in banks
Shareholding structure (ES)	Proportion of state holding	SCMAR	The proportion of state-owned holding in the total number of shares of the company

4. Results of the empirical analysis

This paper uses fsQCA3.0 software to analyze 34 data driving the scale of green credit business of banks, identifies the configuration that determines the scale of green credit of high banks and analyzes the reasons for the scale of green credit of non-high banks.

After fuzzy set analysis, it is found that there are two configuration paths that generate high green credit business scale, and the consistency indicators of these two configurations are 0.84 and 0.83, respectively, which indicates that these two configurations are high green credit business. Sufficient conditions, and the consistency index of the solution is 0.83, indicating that the two configurations covering most of the cases are also sufficient conditions for high green credit business. The coverage of the model solution is 0.53, indicating that the configuration explains about 50% of the high green credit business. At the same time, assuming that the absence of each condition variable may lead to non-high green credit business (Du Yunzhou et al., 2017), there are 6 configurations of non-high green credit business obtained, the overall coverage is 0.78, and the consistency is 0.82.

4.1 Analysis of the driving mechanism of high green credit business

Through the horizontal analysis of configuration, it is found that configuration H1 and H2 have the same core conditions, rights and responsibilities and operating benefits, as well as different core conditions and marginal conditions, social contribution, asset quality and equity structure. In configuration H1, the core conditions of operating efficiency and state-owned holdings play a major role, and it does not matter whether high asset quality exists or not. In configuration H2, the existence of core condition asset quality and the absence of operating efficiency and state-owned holdings play a major role.

According to the core conditions of the two configurations and the explanation logic behind them, this paper finds two driving paths for high green credit business scale. Contribution - State-owned holding-led and asset-quality-driven.

1) Asset Quality Driven ER*SC*~MA*QA

The asset quality-driven type found in configuration H1 means that the scale of high green credit business is mainly affected by asset quality. Regardless of the lack of high social contribution and equity structure, as long as the bank has good asset quality, the bank has the strength of high green lending business scale. This path reflects that higher asset quality promotes the issuance of credit by banks. As the main source of bank income, credit business is also one of the businesses that banks most need to control and control risks. The loan term, amount and project profitability have a relatively significant impact on the scale of bank lending. Higher asset quality means that banks have lower non-performing loan ratios, and the proportion of relatively unrecoverable loans is relatively small. The customers they serve have a higher reputation, which is conducive to the expansion of banking business. Because the green credit business of banks itself is an investment that looks to the future, projects that promote sustainable human development. Therefore, compared with other credit businesses, green credit business has a long investment project cycle and low profitability, and it is difficult to recover funds, which will aggravate the increase in the amount of banks' non-performing assets and increase the bank's non-performing loan ratio. Typical cases under this driving mechanism are Shanghai Pudong Development Bank, China Everbright Bank, China CITIC Bank, and Suzhou Bank. The non-performing loan ratios were 2.05, 1.56, 1.53 and 1.65. This non-performing loan ratio is relatively low among all banks, indicating better asset quality.

2) Operational Benefit - State-holding-led ER*SC*MA*ES

The contribution-income-driven path discovered by configuration H2 means that the scale of urban high green credit is mainly affected by operating efficiency and equity structure, even though other conditions may be incomplete, such as low asset quality. The results show that high bank operating efficiency can increase the bank's green credit scale. The operating efficiency of a bank refers to the net income obtained in the operation process after deducting various business expenses, expenses, taxes and losses, and its importance lies in the fact that it is the premise for the survival of the bank. Only when the bank obtains an income equivalent to the same industry in the operation can it have sufficient competition ability and survive in the industry. The lack of high operating efficiency makes it impossible for banks to obtain sufficient funds for their survival and development in their daily business, and there is also insufficient capital to invest in green credit business with relatively weak profitability, thus inhibiting the scale of banks developing green credit business.

At the same time, the holding level of state-owned enterprises plays an important role in the scale of green credit business of banks. The level of state-owned holdings refers to the proportion of state capital share capital. Enterprises with a higher proportion of state capital will have an advantage in implementing state policies than companies with a small proportion of state capital, and will be able to fully implement their work in accordance with the will of the state. Green lending is one of the realization projects of the national green finance strategy work. As early as 2016, the People's Bank of China took the lead in issuing the "Guiding Opinions on Building a Green Financial System", and green finance was included in the agenda of the G20 summit. Under the strategic background of carbon peaking and carbon neutrality promoted by the state, green finance has become an important direction for the reform, development, transformation and upgrading of the financial industry, and financial resources are further inclined to green development and low-carbon development. Under this driving mechanism, the linkage between high operating efficiency and state-owned holdings has resulted in a high scale of green credit business. Typical cases under this promotion mechanism include Industrial and Commercial Bank of China, China Merchants Bank, Bank of Changsha, Bank of China, and China Construction Bank. In 2019, ICBC achieved a net profit of 313.4 billion yuan, a year-on-year increase of 4.9%, and a pre-provision profit of 570.7 billion yuan, a year-on-year increase of 6.9%. Its operating performance is good, and it has handed over an annual report card of steady progress and high-quality development. In 2019, China Merchants Bank achieved a net profit attributable to shareholders of the Bank of 92.867 billion yuan, a year-on-year increase of 15.28%, and the growth rate reached a new high since 2013. As the "King of Retail", China Merchants Bank's retail finance business profit in 2019 remained relatively high. fast growth. The operating income of Bank of China was 549.2 billion yuan, a year-on-year increase of 8.94%, and the operating performance was good. China Construction Bank's profit growth trend is good, and its

core indicators are well balanced. Net profit was 269.222 billion yuan, an increase of 5.32% over the previous year and an increase of 0.39 percentage points over the same period last year. Net interest income increased by 5.02% and net interest margin was 2.26%.

By comparing the two configurations, it is found that high asset quality, high state-owned holding and high operating efficiency have complementary effects. At the same time, the operating efficiency, asset quality and equity structure involved in the two paths have an alternative role in explaining the green credit business, that is, If the equity responsibility and social contribution are high, as long as the two conditions of high operating efficiency and high state holding structure are satisfied at the same time, or high asset quality is satisfied, the scale of green credit business can be promoted.

Table 2 Generate high and non-high green credit configurations

conditional variable	Configurations that generate high green credit		Configurations that generate non-high green credit					
	H1	H2	NH1a	NH1b	NH1c	NH2a	NH2b	NH3
Rights and Responsibilities (ER)	●	●	⊗	⊗		⊗	●	●
Social Contributions (SC)	●	●	⊗	⊗	⊗	●	●	⊗
Business Benefits (MA)	⊗	●	⊗		⊗	⊗	●	●
Asset quality (QA)	●			●	●	⊗	⊗	⊗
Shareholding structure (ES)		●	●	●	●	⊗	⊗	●
consistency	0.80	0.85	0.92	0.98	0.99	0.95	0.94	0.95
original coverage	0.37	0.32	0.20	0.23	0.23	0.21	0.19	0.17
unique coverage	0.19	0.14	0.020	0.038	0.017	0.066	0.057	0.046
overall consistency	0.80		0.93					
overall coverage	0.51		0.54					

●Core condition exists, ● Existence of edge conditions, ⊗Absence of core conditions, ⊗Absence of edge condition, The space indicates that the condition is optional.

5. Conclusion and Outlook

5.1 Research conclusions

This paper discusses the factors that affect the scale of green credit. Based on the thinking framework of bank governance and social responsibility, using the QCA method and taking 34 listed banks in China as research samples, it discusses the issues of equity responsibility, social contribution, operating efficiency, asset quality, and equity structure. The synergistic effect mechanism of five factors on the scale of green credit. The main conclusions are as follows:

1) The five factors of equity responsibility, social contribution, operating efficiency, asset quality, and equity structure cannot constitute high green credit alone, and are not necessary conditions for high green credit, indicating that a single condition is weak in explaining green credit.

2) The driving mechanism of high green credit scale is divided into two types: high social contribution and high state-owned holding contribution—state-owned holding-led type and asset quality-led type formed by high asset quality.

3) There are also three driving paths for non-high green credit business: the operating benefit-inhibiting type composed of lower operating benefits, the social contribution-asset quality-inhibiting type composed of lower social contribution and lower asset quality, and the State-holding inhibition type composed of poor state-controlled shareholding structure

It is worth noting that higher operating efficiency and rights and responsibilities for employees and

shareholders appear in the two paths of high green credit business, and the inhibitory effect of poor operating efficiency on the scale of non-high green credit has also been clarified. Therefore, it is best for banks to ensure a high operating efficiency before developing green credit business.

5.2 Theoretical contributions

1) This study integrates five key variables at the corporate governance level and social responsibility level to examine the influencing factors of the scale of green credit. Previous research was limited to unilateral causal logic analysis. This paper incorporates multiple conditions into the same analytical framework, and deeply analyzes the synergistic linkage mechanism between corporate governance and social responsibility, that is, integrating the elements of corporate governance and social responsibility with the scale of green credit business. Multiple concurrent causality. We found not only two promoting and driving paths for green credit scale, but also three inhibiting paths for green credit scale, which depend on different antecedent configurations of elements at the two levels of corporate governance and social responsibility, such as explaining the impact of business benefits on green credit. When the conclusion of the impact of credit business is inconsistent, it is also necessary to consider the impact caused by the different matching methods of social responsibility elements or other elements of corporate governance.

2) When using the QCA method, this study finds the substitutability and complementarity of various elements within the configuration of factors affecting the scale of green credit. For example, social contribution, equity structure and asset quality have alternative roles in explaining the scale of green credit, that is, a good equity structure, the existence of high social contribution factors and the existence of high asset quality factors have almost the same impact on high green credit scale. And a similar feature appears in the scale of non-high green credit.

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