Accounting, Auditing and Finance (2024)
Clausius Scientific Press, Canada

DOI: 10.23977/accaf.2024.050102
ISSN 2616-3136 Vol. 5 Num. 1

Impact of Green Credits from Commercial Banks on Audit Fees

Shuxin Zheng[1,a,*]

[1]*School of Business, International Studies University, Xi'an, Shaanxi, 710128, China*
[a]*13404813656@163.com*
[*]*Corresponding author*

Keywords: Commercial Banks, Green Credit, Audit Fees, Internal Control Quality, Banker Confidence

Abstract: In the current context of increasingly severe environmental pollution, considering that banks are the main source of funds raised by enterprises, the state has introduced green credit policies for the banking sector to promote the green development of enterprises. There is a lack of existing literature discussing how auditors view the implementation of green credit by commercial banks from the perspective of external supervisors. Based on the specific practice of commercial banks, this paper empirically investigates the impact of commercial banks' green credit on audit fees by manually collecting data related to green credit of China's A-share listed banks from 2008 to 2021. The results show that the implementation of green credit in commercial banks can significantly reduce audit fees. Further analysis shows that green credit mainly reduces audit fees by improving the quality of internal control; increased bankers' confidence attenuates the inhibitory effect of commercial banks' green credit on audit fees, and the inhibitory effect is more effective for state-owned banks.

1. Introduction

In recent years, the state vigorously advocate the establishment and practice of the green mountains is the concept of the silver mountain, the twentieth report of General Secretary again emphasized the need to promote the development of green and accelerate the development of the green transformation. Banks as an important institution to guide the allocation of market resources, the implementation of green credit policy will be effective in curbing the "two high and one leftover" enterprise environmental pollution behavior, to promote the necessary way of green development. But the essence of green credit is still a credit, as the pursuit of profit maximization of individual commercial banks will inevitably weigh the implementation of green credit risk and return [1]. Even after the implementation of green credit, whether it can strictly audit the target lending enterprises in accordance with the requirements stipulated by the state, play a positive role in green credit by improving the quality of internal control, and ultimately reduce the operational risks is a question that deserves to be investigated in depth.

As an important regulator of the capital market, external auditors need to perform assurance services in accordance with the requirements of modern risk-oriented auditing, and devote more

audit resources to the high-risk points, which coincides with the framework of audit fees explored by DeFond et al., i.e., the level of risk of the auditor's practice is the determining factor of the level of audit fees. In view of this, this paper empirically examines the impact of green credit on audit fees by taking A-share listed commercial banks that implemented green credit policy from 2008 to 2021 as a sample. And finally concludes that (1) the implementation of green credit by commercial banks has a dampening effect on audit fees. (2) Commercial banks reduce operational risks by improving the quality of their own internal control and perfecting the internal control system, which in turn has a dampening effect on audit fees. (3) Further introducing the variable of bankers' confidence, it is found that bankers' confidence plays a negative moderating role in the relationship between green credit and audit fees.

2. Theoretical Analysis and Research Hypothesis

Compared with general loans, the implementation of green credit puts forward higher requirements for the banks' own loan review process. From the level of strategic decision-making, banks that implement green credit tend to have more robust and forward-looking strategic development concepts and risk control culture. From the level of specific behavior, the long-term stable culture will prompt banks to avoid risky investment as much as possible, and strictly control the credit assessment of enterprises before borrowing and lending to ensure the accuracy of the decision-making; and the recovery cycle of green credit projects is usually longer, in order to minimize credit failure. In order to minimize the possibility of credit failure, banks will also do a good job of post-credit control activities, through regular dynamic monitoring of the enterprise's use of funds to ensure that the funds are used to invest in green projects in accordance with pre-credit requirements [2], and in the process, fully mobilize the close communication between various departments in order to comprehensively understand and assess the behavior of the enterprise; at the same time, as an internal oversight department, the internal audit will give full play to its awareness of risk, to learn more about the changes in green credit-related policies and practices, and to make a better understanding of the risks. At the same time, as the internal audit department, internal audit will also give full play to its risk awareness, study in-depth the policy changes related to green credit, and supervise the implementation of the whole process of credit control. In summary, a sound internal control environment, adequate risk assessment and control activities, comprehensive information communication and internal audit supervision after the implementation of green credit will significantly reduce the bank's control risk, which in turn will reduce the auditor's practice risk.

At the same time, the implementation of green credit by banks will also affect various stakeholders. From the perspective of the external market, the voluntary implementation of green credit is a way for banks to alleviate market externalities, because in the current context of the country's strong advocacy of green and low-carbon, the implementation of green credit will fully reflect the bank in accordance with the national policy, to promote environmental protection, to play their own social responsibility, and thus have the opportunity to obtain the government's policy preferences, such as giving the corresponding resource subsidies and price advantages, to a certain extent, to alleviate the cost of bank policy implementation [3]. To a certain extent, the bank's policy implementation costs are alleviated. From the customer's perspective, the implementation of green credit by the bank will send a signal to the outside world that it attaches importance to green investment, and as a result, it will attract more enterprises that are carrying out and intend to invest in green projects in the future, and further stimulate their enthusiasm for research and development by easing their financing constraints, and enhance their operational performance so as to repay their loans to the bank on time, which will, to a certain extent, enhance the quality of the bank's assets [4]. From the public's point of view, in order to alleviate the financial problems caused by long-term

green investment, banks implementing green credit will fully expand their financial product categories and other business income channels. Yao Qiong (2022) also confirmed in her study that more and more consumers are joining the ranks of green consumption and are willing to pay a certain premium for green products due to the impact of the Xinguancun epidemic, so banks implementing green credit will capitalize on their accumulated positive income. Therefore, banks that implement green credit will utilize their accumulated positive image and competitive advantages to enhance public trust and increase investment, and income from other businesses can, to a certain extent, alleviate the liquidity problem that banks may face and improve profitability [5]. Ultimately, by absorbing the positive feedback from all stakeholders, the bank's business risk will be reduced, which in turn will reduce the auditor's practice risk. Based on the above theoretical analysis this paper puts forward the following hypotheses:

H1: Other things being equal, the implementation of green credit by commercial banks has a dampening effect on audit fees.

H2: Implementation of green credit in commercial banks reduces audit risk by improving the quality of internal control, which reduces audit fees.

Compared with other credits, on the one hand, the green credit cycle is longer, and it is not possible to obtain obvious benefits in the short term, so in the face of green credit projects and other high-risk credits, bankers tend to invest their funds in other high-risk credit projects with higher short-term visible benefits, thus producing a "crowding out" effect on green credit, which will not only cause the loss of potential green credit customers, losing the opportunity for long-term benefits and even damaging the public image created by past investments in green projects. This will not only lead to the loss of potential green credit customers, lose the opportunity to benefit from long-term and even damage the public image shaped by the past investment in green projects, but also expected high-risk and high-yield projects will increase the bank's operational risk, thus weakening the stability effect of the bank. In addition, once the wrong investment decision caused by excessive optimism is discovered, the previous reasonable professional judgment will be reduced to nothing, and the due optimism will quickly turn into excessive pessimism, causing the bank's efficiency to decline in the future period and the operation risk to rise significantly [6]; on the other hand, the optimistic expectations of credit approvers are significantly positively correlated with the leniency of the credit approval degree is significantly positively correlated. Under the influence of over-optimism of bankers, credit approvers will also relax the supervision of the approval process, which may result in the issuance of green credits to "greenwashed" enterprises, further increasing the bank's future risk-taking [7]. Therefore, based on the "Audit Demand Insurance Hypothesis", it is believed that as a risk transfer and avoidance mechanism, audit firms will compensate for the risk uncertainty caused by bankers' confidence by raising audit fees. In response to the above analysis, this paper formulates the hypothesis:

H3: Banker confidence negatively moderates the relationship between green credit and audit fees.

3. Research Design

3.1 Sample Selection and Data Sources

Based on the principle of data availability, the paper finally takes the annual unbalanced panel data of A-share listed commercial banks from 2008 to 2021 as the research sample.

3.2 Variable Definitions and Descriptions

(a) Explained variable: Audit Fees (LnFee). This paper measures the natural logarithm of the

combined domestic and foreign audit fees paid annually by listed banks.

(b) Explanatory variable: Green Credit (LnGL). In this paper, green credit balance is selected as a proxy variable for green credit input.

(c) Intermediary variable: Internal Control Quality (IC). In this paper, the Shenzhen Dibble Internal Control Index is used to measure the quality of internal control in commercial banks.

(d) Moderator variable: Bankers' Confidence (BPI). In this paper, the bank profitability index published by the central bank is selected as a proxy for bankers' confidence. The BPI is a diffusion index calculated based on bankers' judgment of banks' quarterly profitability, and the bankers' confidence of the year is obtained by weighting the average of the bank profitability indexes of the four quarters of the year.

(e) Control variables. This paper controls for the influences of non-performing loan ratio (NPL), capital adequacy ratio (CAR), firm size (Size), whether or not the international Big 4 audits (Big), and whether or not there is a change in auditor (Change).The main variables are defined in Table 1.

Table 1: Definition of main variables

Variable type	variable name	variable symbol	Description of variables
explanatory variable	Audit fees	LnFee	Natural logarithm of combined domestic and foreign audit fees paid annually by listed banks
explanatory variable	green credit	LnGL	Natural logarithm of green credit balances
intermediary variable	Quality of internal controls	IC	Shenzhen Dibao Internal Control Index
moderator variable	Bankers' confidence	BPI	Bank Profitability Index published by the Central Bank
control variable	non-performing loan ratio	NPL	Non-performing loans/total loans
	capital adequacy ratio	CAR	Total Assets/Risk-Weighted Assets
	Company size	Size	Logarithm of total bank assets
	the big four	big	Takes the value of 1 if the listed bank's auditor is an international Big 4, and 0 otherwise.
	Change of auditors	Change	Listed banks take a value of 1 if they change auditing firms, and 0 otherwise.

3.3 Econometric Modeling

(a) Panel regression benchmark model. In order to test hypotheses H1 and H3, i.e., the impact of the degree of green credit investment of commercial banks on audit fees, this paper establishes the following regression model (1):

$$LnFee=\alpha^{0}+\alpha_1 LnGL+\alpha_2 NPL+\alpha_3 CAR+\alpha_4 Size+\alpha_5 Big+\alpha_6 Change+Year+\varepsilon \quad (1)$$

Among them, the explanatory variable LnFee is the audit fee, and the core explanatory variable LnGL is the green credit. The coefficient α_1 indicates that for every unit change in green credit, the audit fee will change α_1 units, and the focus needs to be on the positive and negative sign and significance of α_1.α_0 is the intercept term, and ε is the random disturbance term.

(b) Mediating role test model. In order to test hypothesis H2, i.e., whether internal control quality assumes a mediating role in the relationship between the degree of commercial banks' green credit commitment and audit fees, this paper constructs the following mediating role test model (2) (4):

$$LnFee=\eta_0+\eta_1 LnGL+\eta_2 NPL+\eta_3 CAR+\eta_4 Size+\eta_5 Big+\eta_6 Change+Year+\varepsilon \quad (2)$$

$$IC=\beta_0+\beta_1 LnGL+\beta_2 NPL+\beta_3 CAR+\beta_4 Size+\beta_5 Big+\beta_6 Change+Year+\varepsilon \quad (3)$$

$$LnFee=\delta_0+\delta_1 IC+\delta_2 LnGL+\delta_3 NPL+\delta_4 CAR+\delta_5 Size+\delta_6 Big+\delta_7 Change+Year+\varepsilon \quad (4)$$

Where IC is the mediating variable internal control quality. The focus needs to be on the positive and negative sign of the coefficients $\beta_1,\delta_1,\delta_2$ and the significance to determine whether the mediating role of internal control quality exists.

(c) Moderating effect test model. In order to test hypothesis H4, i.e., whether bankers' confidence has a moderating role in the relationship between the degree of commercial banks' green credit investment and audit fees, this paper introduces the interaction term to construct the moderating effect test model (5) on the basis of the baseline model (5):

$$LnFee=\theta_0+\theta_1 LnGL+\theta_2 LnGL*BPI+\theta_3 BPI+\theta_4 NPL+\theta_5 CAR+\theta_6 Size+\theta_7 Big+\theta_8 Change+Year+\varepsilon \quad (5)$$

Among them, BPI is bankers' confidence (moderating variable), and the focus needs to be on the positive and negative sign and significance of θ_2. If the coefficient of the interaction term LnGL*BPI, θ_2 is significant, the moderating effect of bankers' confidence exists; if the coefficient of the interaction term, θ_2 is not significant, the moderating effect does not exist.

4. Empirical Analysis

4.1 Descriptive Statistics

Table 2: Results of descriptive statistics of variables

variable	Number	average	upper quartile	standard deviation	minimum	maximum
LnFee	314	16.114	15.769	1.532	13.653	19.454
LnGL	314	24.078	24.100	2.276	14.346	28.539
IC	314	656.997	648.940	107.130	279.580	1006.600
BPI	314	0.705	0.664	0.095	0.584	0.887
NPL	314	1.285	1.315	0.413	0.380	2.650
CAR	314	13.325	13.220	1.883	8.580	24.120
Size	314	28.321	28.434	1.558	25.122	31.191
big	314	0.875	1.000	0.331	0.000	1.000
Change	314	0.134	0.000	0.342	0.000	1.000

Table 2 presents the results of descriptive statistics for each core variable. The results show that the standard deviation of audit fees (LnFee) is 1.532, which indicates that there is a large difference in audit fees among the sample banks, considering that the indicator is the result after taking the natural logarithm. Green Credit (LnGL) has a mean of 24.078 and a standard deviation of 2.276, indicating that there are also large differences in the balance of green credit among the sample banks. The mean value of Internal Control Quality (IC) is 656.997 with a standard deviation of 107.130, indicating that the quality of internal control varies among the sample banks. The standard deviation of Bank Size (Size) is 1.558, which, considering that the proxy variable for this indicator is the natural logarithmic form of bank assets, indicates that there is a large variation in asset size among the sample banks, as the sample banks include large state-owned banks and joint-stock

banks, as well as urban commercial banks serving the urban economy and rural commercial banks serving the county economy. The standard deviation of bankers' confidence (BPI) is 0.095 respectively, indicating that the BPI indicator is relatively stable for most of the sample banks.

4.2 Regression Analysis

This paper applies a benchmark model to test the impact of green credit on audit fees. Table 3 reports the regression results of model (1). In particular, the results of column (1) show that the coefficient of green credit (LnGL) is 0.050, which is significantly negative at the 5% level, which indicates that there is a negative correlation between green credit and audit fees of commercial banks, and that for every 1-percentage-point increase in green credit, the audit fees will be reduced by 0.05 percentage points. It can be seen that, both in statistical and economic sense, the implementation of green credit business by commercial banks will significantly reduce the fees charged by auditors to them, which better validates the theoretical hypothesis H1.

Table 3: Main test regression results

	(1)
	LnFee
LnGL	-0.050** (-2.29)
CAR	-0.009 (-0.79)
NPL	0.09* (1.89)
Size	0.310*** (4.51)
big	0.123 (1.44)
Change	-0.126*** (-2.83)
Cons	8.431*** (4.67)
Year	Yes
N	314

Note: t-values in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (below).

(a) A test of the mediating effect of internal control quality

In order to verify the mediating role of internal control quality in the relationship between green credit and audit fees, this paper constructs the mediating role test model (2) (3) (4) and the test results are shown in Table 4. Column (2) in Table 4 demonstrates the role of internal control quality (IC) on green credit (LnGL), the coefficient of green credit (LnGL) is -12.887, which is significant at 10% significance level, indicating that the implementation of green credit by the bank enhances the internal control quality. The coefficient of internal control quality (IC) in column (3) is -0.0003 and is significant at 5% level of significance and the coefficient of green credit (LnGL) is -0.046, whose absolute value is less than the absolute value of the coefficient of green credit (LnGL) in column (1). This shows that internal control quality is the mediating path of green credit affecting audit fees of commercial banks with a mediating share of 7.73%, which validates the theoretical hypothesis H2.

(b) A test of the moderating effect of bankers' confidence

In order to verify the moderating role of bankers' confidence in the relationship between green credit and audit fees, this paper constructs a moderating role test model (5), and the test results are shown in Table 5. Column (1) of Table 5 shows that for every 1 percentage point increase in bankers' confidence (BPI), the negative impact of green credit (LnGL) on audit fees (LnFee) is significantly reduced by 0.07 percentage points, thus indicating that bankers' confidence negatively moderates the relationship between green credit and audit fees in commercial banks, verifying theoretical hypothesis H4.

Table 4: Results of the mediation effect test for internal control quality

	(1)	(2)	(3)
	LnFee	IC	LnFee
IC			-0.0003** (1.98)
LnGL	-0.050** (-2.29)	-12.887* (-1.79)	-0.046** (-2.08)
Cons	8.431*** (4.67)	280.229 (0.47)	8.369*** (4.62)
Year	Yes	Yes	Yes
N	314	314	314

Table1: Tests for Moderating Effects of Bankers' Confidence

	(1)
	LnFee
LnGL	-0.070*** (-3.01)
LnGL*BPI	0.040** (2.28)
Cons	6.039*** (2.91)
Year	Yes
N	314

4.3 Robustness Check

(a) Changing the sample interval

Table 6: Robustness test results

	(1)
	LnFee
LnGL	-0.039** (-2.11)
Cons	8.612*** (5.58)
Year	Yes
N	279

Due to the outbreak of the new coronavirus (COVID-19) in 2019 had an extremely negative impact on the economy in that year, which in turn may affect the efforts of banks to invest in green credit, the implementation of the work of auditors and fees. Comprehensive consideration of this

paper deleted the relevant data in 2019, the results are shown in column (1) of Table 6, the coefficient of audit fees (LnFee) and green credit (LnGL) is significant at the 5% level and the coefficient is negative, the regression results are consistent with the results of the main test.

5. Conclusions and Related Recommendations

In this paper, by selecting the annual data of A-share listed commercial banks from 2008 to 2021, we constructed a panel regression model to empirically analyze the impact of green credit and audit fees and their heterogeneity, and step by step, we examined the mediating role of the quality of internal control in the relationship between the two by using the intermediary role test model and the moderating role of the moderating role of the moderating test model of the confidence of the bankers. Finally found that commercial banks through the implementation of green credit to improve the quality of internal control and thus reduce control risk, and at the same time, through the good reputation and image generated by green credit, to obtain the trust of stakeholders from all sides and favor, which improves the quality of the assets and reduces the risk of operation, and then reduce the risk of the auditor's practice, and ultimately the reduction of audit fees. This in turn reduces auditor's practice risk, which ultimately translates into lower audit fees. In addition, increased bankers' confidence will weaken the dampening effect of green credit on audit fees.

Based on the above conclusions, the following insights can be drawn: For banks, first, they need to continuously strengthen the quality of internal credit control to reduce the failure rate of credit allocation. Secondly, banks should strengthen the implementation of green credit and increase the disclosure of green credit-related information to send a good signal to the outside world, reduce information asymmetry and thus reduce the risk expectations of auditors. For audit firms, firstly, they should strictly implement risk-oriented auditing, systematically and comprehensively assess the potential risk points of their clients, and set reasonable audit fees. Second, audit firms should follow the policy direction, strengthen their familiarity with complex businesses such as green credit, adhere to professional ethics, and devote themselves to improving service quality instead of blindly charging risk premiums.

References

[1] Li Cheng, Bai Wei, Wang Ye, Li Yushan. How to effectively implement green credit policy by commercial banks?—Research based on evolutionary game theory and DID model. Southern Finance, 2016 (01):47-54.

[2] Anas Ali Al-Qudah, Allam Hamdan, Manaf Al-Okaily, Lara Alhaddad. The impact of green lending on credit risk: evidence from UAE's banks. Environmental Science and Pollution Research, 2023, Vol. 30 (22): 61381-61393.

[3] Ma Y. Bank CEO Optimism and the Financial Crisis. SSRN Working Paper, 2015, No. 2392683.

[4] Wen Chen. Bank connections, corporate social responsibility and low-carbon innovation. Energy Policy, 2023, Vol. 183: 113840.

[5] Maya F, Ilanit G, Ronny M. Environmental Risk Management and Financial Performance in the Banking Industry: A Cross-country Comparison. Journal of International Financial Markets, Institutions & Money, 2018, 52(1):240-261.

[6] Zhou Xiaoyan, Caldecott B, Hoepner Andreas G, Wang Yao. Bank green lending and credit risk: an empirical analysis of China's Green Credit Policy. Business Strategy & the Environment (John Wiley & Sons, Inc), 2022, Vol. 31(4): 1623-1640.

[7] Khoa D. The trilogy between CEO overpower, green credit, and core competence: Evidence from commercial banks in Vietnam. Heliyon, 2023, Vol. 9(10): e20445.