

# Research on the Relationship between ESG Performance and Financial Performance of Commercial Banks in China

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**Abstract.** With the proposal of China's dual carbon goals, environmental and sustainable development issues have received continuous attention from society. Environmental, social, and governance (ESG) performance is currently the mainstream framework for evaluating corporate sustainable development. This study aims to explore the relationship between ESG performance and financial performance of commercial banks. Based on the data from 42 listed commercial banks in China from 2017 to 2022, this study employs the OLS method to conduct correlation analysis and regression analysis. The study shows that there is a negative relationship between the current period's ESG performance and financial performance of listed commercial banks. In the long run, ESG performance has a positive impact on financial performance of listed commercial banks. This study can help Chinese listed commercial banks increase their investment in ESG and improve corporate governance.

**Keywords:** ESG; Financial performance; Commercial Bank.

## 1. Introduction

With the integrated development of the global economy and the increasing emphasis on the concept of sustainable development, environmental, social and governance (ESG) factors have become increasingly prominent in corporate operations [1]. ESG performance not only reflects a company's commitment and practice towards environmental protection, social responsibility, and corporate governance, but also stands as one of the key factors influencing a firm's long-term value [2]. Therefore, studying the relationship between ESG performance and firm financial performance is of great significance for achieving corporate sustainable development and guiding investors' decision-making.

Commercial banks, as a core component of the financial system, are directly linked to the macroeconomic stability and the financing environment of micro-enterprises. They not only bear the crucial responsibility of fund financing but also play an irreplaceable role in guiding the flow of funds and promoting optimal allocation of resources [3]. With the increasing attention of investors and the public to corporate social responsibility, ESG performance of commercial banks has become an important factor affecting their market image and reputation [4]. Investors are more inclined to invest in commercial banks with good ESG performance, which helps these commercial banks attract more capital, reduce financing costs, and enhance financial performance. Studying the relationship between ESG performance and financial performance of commercial banks will not only help investors understand how commercial banks take into account social responsibility and environmental responsibility while pursuing economic benefits, so as to achieve a win-win situation between economic benefits and social benefits. It can also provide theoretical support and practical guidance for commercial banks to formulate scientific ESG development strategy and enhance comprehensive competitiveness.

## 2. Literature Review and Hypotheses Development

### 2.1. Instrumental theory

Instrumental theory suggests that ESG activities are merely a strategy employed by companies to gain a competitive advantage, with the ultimate goal of maximizing shareholder value. According to

instrumental theory, ESG activities are not inherent or obligatory duties for companies, but rather a strategic tool.

Varadajaran and Menon (1988) indicated that ESG activities represent a highly effective form of cause-related marketing for corporations. Even philanthropic ESG initiatives function as potent marketing instruments, as they contribute to cultivating a "responsible" corporate brand image in the public consciousness, thereby facilitating the expansion of company sales [5].

## **2.2. ESG performance and firm financial performance**

Ahmad et al. (2021) found that ESG has a significant and positive impact on corporate financial performance, and firm size plays a moderating role in this relationship [6]. By studying China's A-share listed companies from 2015 to 2021, Fu and Li (2023) pointed out that ESG has a positive influence on financial performance of enterprises, and digital transformation drives this promotion [7]. The positive relationship between ESG performance and corporate financial performance was uncovered by Chen et al. (2023), particularly noting that this connection is more evident in larger companies [8]. Xu and Zhu (2024) claimed that ESG has a positive impact on financial performance of enterprises by promoting enterprise innovation, and this positive correlation will be weakened when enterprises are faced with financing constraints [9]. A study conducted by Guo (2024) on China's high-tech and Internet industries reveals a positive relationship between ESG performance and corporate financial performance, highlighting that the governance and social dimensions exert the greatest influence on corporate financial outcomes [10]. The positive impact of ESG changes on enterprise financial performance was observed by Che et al. (2024), with factors such as financing cost and enterprise innovation serving as intermediaries [11]. A study conducted by Lin (2024) revealed that the improvements in ESG performance have a notable positive impact on financial performance of listed companies [12]. However, through empirical research, Makridou et al. (2024) concluded that financial performance of energy enterprises is affected by the marginal and negative effects of their ESG performance [13]. Based on the above arguments, this study proposes the first hypothesis:

Hypothesis 1 (H1). Current ESG performance is positively correlated with current financial performance of commercial banks.

However, due to the potential existence of a time-lag effect, the current ESG performance may not immediately manifest in the current financial performance. For instance, active tax compliance in the current period may only result in tax policy support in the subsequent period. Thus, the positive impact of ESG performance on financial performance may become evident in the following period. Accordingly, this study proposes the second hypothesis:

Hypothesis 2 (H2). ESG performance in the prior year is positively correlated with current financial performance of commercial banks.

## **3. Methodology**

### **3.1. Sample**

The study's purpose is to examine the impact of ESG performance on financial performance of commercial banks using 42 listed Chinese banks over the period from 2017 to 2022. Listed banks with missing information and special treatment (ST) banks are excluded from our sample. Our final sample comprises 172 observations for 42 listed Chinese banks. ESG data are sourced from the Wind database, and the financial data of commercial banks are obtained from the CSMAR database.

### **3.2. Variables**

(1) Dependent variable: Commercial banks' financial performance. Guided by Chen (2016) and Xu and Wang (2018), this study uses return on assets (ROA) to measure financial performance of commercial banks from the perspective of managers [14,15]. Tobin's Q (TBQ), the ratio of market

value to net assets, is used to measure financial performance of commercial banks from the market perspective.

(2) Independent variable: ESG performance. This study uses the ESG rating of commercial banks obtained from the Huazheng ESG rating system to measure ESG performance (ESGPER). The ESG engagement of each company is categorized into nine grades, C, CC, CCC, B, BB, BBB, A, AA, AAA. In this study, we assign 1 to 9 to each grade.

(3) Control variables. Guided by Feng (2017) and Adesina (2019), this study selects the following micro-characteristic variables affecting bank financial performance as control variables. They include bank size (SIZE), measured by the natural logarithm of total assets at year-end; loan-to-deposit ratio (DR), calculated as the ratio of total loans to total deposits, reflecting the liquidity position of banks; non-performing loan ratio (NPL), represented by the proportion of sub-prime, suspicious and loss loans to total loans, indicating bank asset quality; and debt-to-asset ratio (LEV), defined as the ratio of total liabilities to total assets [16,17]. Table 1 shows the definition of all variables.

**Table 1.** Variable definition

Variable	Symbol	Measurement
Return on assets	ROA	Net profit after tax/total assets
Tobin's Q	TBQ	Market value/net assets
ESG performance	ESGPER	Huazheng rating system
Bank size	SIZE	Natural logarithm of total assets at year-end
Loan-to-deposit ratio	DR	Total loans/total deposits
Non-performing loan ratio	NPL	The proportion of sub-prime, suspicious and loss loans/total loans
Debt-to-asset ratio	LEV	Total liabilities/total assets

### 3.3. Models

Model (1) examines the impact of ESG on ROA. Model (2) is used to examine the relationship between ESG and TBQ.

$$ROA_{i,t} = \beta_0 + \beta_1 ESGPER_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 DR_{i,t} + \beta_4 NPL_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$TBQ_{i,t} = \beta_0 + \beta_1 ESGPER_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 DR_{i,t} + \beta_4 NPL_{i,t} + \varepsilon_{i,t} \quad (2)$$

where  $i$  and  $t$  represent bank and year, respectively;  $\beta$  stands for the presumed parameter;  $\varepsilon$  signifies the error term.

## 4. Results

### 4.1. Descriptive statistics

The descriptive statistics for each variable are presented in Table 2. The mean value of ROA is 0.008, indicating a relatively weak profitability among commercial banks. The mean value of TBQ is 0.983. ESGPER has a mean value of 5.48, suggesting a strong focus on ESG among commercial banks. The mean value of SIZE is 28.206, with a standard deviation of 1.671, indicating considerable variations in the size of commercial banks. The mean values of DR, NPL and LEV are 82.463, 1.351 and 0.923, respectively.

**Table 2.** Descriptive statistical results for each variable

Variable	N	Mean	Median	Maximum	Minimum	Standard deviation
ROA	171	0.008	0.008	0.012	0.005	0.001
TBQ	171	0.983	0.985	1.037	0.943	0.017
ESGPER	171	5.48	5	7	4	0.770
SIZE	171	28.206	28.338	31.155	25.467	1.671
DR	171	82.463	81.620	111.223	54.500	12.349
NPL	171	1.351	1.370	2.190	0.780	0.297
LEV	171	0.923	0.921	0.941	0.903	0.008

#### 4.2. Correlation analysis

This study employs the Pearson correlation analysis to investigate the correlations among various variables. The results of correlation analysis is presented in Table 3. As can be seen from Table 3, ESGPER has a negative correlation with ROA, with a correlation coefficient of -0.142, which is significant at the 10% level. Additionally, ESGPER has a negative correlation with TBQ, with a correlation coefficient of -0.269, which is significant at the 1% level. Furthermore, SIZE has a positive correlation with ROA and a negative correlation with TBQ. DR and NPL both have negative correlations with ROA and TBQ. LEV has a negative correlation with ROA and a positive correlation with TBQ. In addition, all values of variance inflation factor (VIF) are calculated and found to be less than 5, suggesting that there is no serious multicollinearity.

**Table 3.** Correlation Analysis

Variable	ROA	TBQ	ESGPER	SIZE	DR	NPL	LEV
ROA	1						
TBQ	0.234***	1					
ESGPER	-0.142*	-0.269***	1				
SIZE	0.172**	-0.294***	0.316***	1			
DR	-0.138*	-0.385***	0.218***	0.323***	1		
NPL	-0.228***	-0.135*	-0.108	0.29***	0.259***	1	
LEV	-0.308***	0.191**	-0.012	-0.038	-0.252***	-0.035	1

Note: \*, \*\*, \*\*\* represent the significance levels of 10%, 5% and 1%, respectively.

#### 4.3. Regression results

The regression results for the current period's ESG and ROA are shown in Table 4. As shown in Table 4, the coefficient of ESGPER is negative and significant at the 5% level, indicating that ESG performance of commercial banks has a significant and negative impact on their current financial performance. H1 is not supported. This is consistent with Li (2023) [18]. However, Sun and Yu (2024) found the opposite results [19]. This may be due to the substantial investments commercial banks need to make in environmental upgrades, social responsibility projects, and other areas to enhance their ESG performance. These investments may increase the banks' operational costs in the short term, adversely affecting financial performance. However, in the long run, these investments are expected to enhance the banks' brand image and market competitiveness, leading to higher returns.

Regarding control variables, the coefficient of SIZE is negative and significant at the 1% level, suggesting that larger size of commercial banks is associated with lower financial performance. The coefficient of DR is positive and significant at the 5% level. The coefficient of NPL is negative and significant at the 1% level, while the coefficient of LEV is positive but not significant.

**Table 4.** Regression results of the current ESG and ROA

Variable	Coefficient	Standard error	t	P
Constant	0.075***	0.019	3.937	0.000
ESGPER	-0.000**	0	-2.229	0.028
SIZE	-0.003***	0.001	-5.08	0.000
DR	0.000**	0	2.073	0.040
NPL	-0.003***	0	-7.006	0.000
LEV	0.012	0.013	0.929	0.355
R <sup>2</sup>	0.329			
F	12.285***			

Note: \*, \*\*, \*\*\* represent the significance levels of 10%, 5% and 1%, respectively.

The regression results for the current period's ESG and TBQ are shown in Table 5. According to Table 5, the coefficient of ESGPER is negative and not significant at the 5% level, indicating that ESG performance of commercial banks has no impact on their current Tobin's Q. This is because the impact of ESG performance on commercial bank performance may be lagged and long-term in nature. Even if commercial banks improve their ESG performance in the short term, it may not immediately reflect in financial indicators such as TBQ. Therefore, longer-term data observation and analysis are required to accurately assess the impact of ESG performance on bank performance.

In terms of control variables, the coefficient of SIZE is negative and significant at the 1% level. The coefficient of DR is negative but not significant. The coefficient of NPL is negative and significant at the 5% level, while the coefficient of LEV is positive but not significant.

**Table 5.** Regression results of the current ESG and TBQ

Variable	Coefficient	Standard error	t	P
Constant	2.339***	0.265	8.838	0.000
ESGPER	-0.001	0.001	-0.693	0.490
SIZE	-0.054***	0.007	-7.332	0.000
DR	-0.000	0	-1.513	0.133
NPL	-0.010**	0.005	-1.994	0.048
LEV	0.231	0.176	1.31	0.193
R <sup>2</sup>	0.568			
F	32.915***			

Note: \*, \*\*, \*\*\* represent the significance levels of 10%, 5% and 1%, respectively.

The regression results for the previous period's ESG and ROA are presented in Table 6. According to Table 6, the coefficient of the 1-year lagged ESGPER is negative and significant at the 10% level, indicating that ESG performance in the previous period has a negative impact on the current financial performance of commercial banks as measured by ROA. This is not consistent with the findings of Sun and Yu (2024) [19]. This is due to the fact that the process of ESG transformation requires commercial banks to adjust their original business structure and resource allocation, such as reducing loans to high-polluting industries and increasing green financial products. Such adjustments may lead to the contraction of original high-yield businesses, while the returns from new businesses have not yet materialized, thereby affecting current profitability.

**Table 6.** Regression results of the previous period's ESG and current ROA

Variable	Coefficient	Standard error	t	P
Constant	0.075***	0.024	3.066	0.003
1-year lagged ESGPER	-0.000*	0	-1.727	0.088
SIZE	-0.002***	0.001	-3.418	0.001
DR	0	0	0.988	0.326
NPL	-0.003***	0	-6.162	0.000
LEV	0.001	0.016	0.055	0.956
R <sup>2</sup>	0.359			
F	9.424***			

Note: \*, \*\*, \*\*\* represent the significance levels of 10%, 5% and 1%, respectively.

The regression results for the previous period's ESG and current TBQ are shown in Table 7. According to Table 7, the coefficient of the 1-year lagged ESGPER is negative and significant at the 5% level, suggesting that ESG performance in previous period has a negative impact on the current enterprise value of commercial banks as measured by TBQ. Due to investors' preference for short-term returns, some investors focus more on the short-term financial performance and dividends of banks, rather than giving sufficient attention to long-term factors such as ESG. If the improvement of ESG performance of commercial banks affects their financial indicators in the short term, these investors who pay attention to short-term returns may reduce their holdings of bank stocks, resulting in the decline of the bank's stock price and the corresponding market value.

**Table 7.** Regression results of the previous period's ESG and current TBQ

Variable	Coefficient	Standard error	t	P
Constant	2.36***	0.333	7.084	0.000
1-year lagged ESGPER	-0.003**	0.001	-2.047	0.044
SIZE	-0.053***	0.009	-5.832	0.000
DR	-0.000	0	-1.428	0.157
NPL	-0.015**	0.006	-2.384	0.019
LEV	0.213	0.215	0.988	0.326
R <sup>2</sup>	0.518			
F	18.06***			

Note: \*, \*\*, \*\*\* represent the significance levels of 10%, 5% and 1%, respectively.

We continue to examine the 2-year lagged impact of ESGPER on ROA and TBQ. The results are shown in Table 8 and Table 9. In Table 8, the coefficient of the 2-year lagged ESGPER on ROA is positive and significant at the 10% level. In Table 9, the impact of 2-year lagged ESGPER on TBQ is positive but insignificant. In the long run, ESG performance has a positive impact on financial performance of listed commercial banks.

**Table 8.** Regression results of the 2-year lagged ESG and current ROA

Variable	Coefficient	Standard error	t	P
Constant	0.107***	0.022	4.930	0.000
2-year lagged ESGPER	0.000*	0.000	1.69	0.073
SIZE	0.000**	0.000	2.112	0.040
DR	-0.000**	0.000	-2.330	0.024
NPL	-0.003***	0.001	-5.780	0.000
LEV	-0.107***	0.023	-4.650	0.000
R <sup>2</sup>	0.512			
F	10.686***			

Note: \*, \*\*, \*\*\* represent the significance levels of 10%, 5% and 1%, respectively.

**Table 9.** Regression results of the 2-year lagged ESG and current TBQ

Variable	Coefficient	Standard error	t	P
Constant	0.730**	0.292	2.497	0.016
2-year lagged ESGPER	0.002	0.003	0.645	0.522
SIZE	-0.000	0.001	-0.026	0.979
DR	-0.000	0.000	-1.537	0.131
NPL	-0.015**	0.007	-2.051	0.045
LEV	0.300	0.312	0.962	0.341
R <sup>2</sup>	0.210			
F	2.704**			

Note: \*, \*\*, \*\*\* represent the significance levels of 10%, 5% and 1%, respectively.

## 5. Conclusions

This study examines the impact of ESG performance on financial performance of 42 listed commercial banks in China from 2017 to 2022, and employs the OLS method to conduct correlation analysis and regression analysis on the panel data. The main conclusions are as follows. First, there is a negative relationship between the current ESG performance of Chinese listed commercial banks and their financial performance. Second, the previous period's ESG performance exhibits a negative correlation with banks' financial performance. In the long run, ESG performance has a positive impact on financial performance of listed commercial banks.

This study puts forward some practical implications. Firstly, Chinese listed commercial banks should strengthen the disclosure of their ESG information. Although major listed commercial banks are able to disclose relevant information in their annual social responsibility reports in accordance with regulations, the quality of disclosure varies greatly. Among them, large state-owned commercial banks significantly outperform other commercial banks in terms of the extent and detail of disclosure. Adequate disclosure of social responsibility information helps external stakeholders better understand the banks' ESG performance and serves as the basis for evaluating commercial banks. Secondly, Chinese listed commercial banks should prioritize the fulfillment of ESG responsibilities. At the strategic level, it is essential for commercial banks to ensure that the interests of stakeholders are safeguarded, which is crucial for gaining a competitive advantage. At the tactical implementation level, commercial banks should first identify the stakeholders and their specific demands in order to better execute tasks related to fulfilling ESG responsibilities. Finally, the government, as a regulatory authority, should encourage commercial banks to invest in ESG, which not only contributes to the improvement of their financial performance but also promotes overall environmental protection, social responsibility fulfillment, and the enhancement of corporate governance in China.

The current study has some limitations. First, the sample in this study comprises only listed commercial banks, excluding other types of banks. Future research could include a broader range of bank types to facilitate comparative studies. Second, this study only considers the direct impact of commercial banks' ESG performance on their financial performance, without examining additional mechanisms such as mediating effects and moderating effects. Future research could explore more mechanisms.

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