

# Bank Branch Expansion and Corporate ESG Performance: A Dual Perspective Based on Financing Constraints and Agency Costs

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**Abstract.** Against the backdrop of the "dual carbon" goals and sustainable development, ESG performance has gradually become a key indicator for measuring the long-term value enhancement of enterprises. This paper examines the impact and mechanisms of bank branch expansion on corporate ESG performance, using a sample of China's A-share listed companies from 2009 to 2021, based on the dual transmission paths of financing constraints and agency costs. The findings reveal that bank branch expansion significantly improves corporate ESG ratings. Further mechanism analysis shows that this effect is primarily achieved through two pathways: first, bank branch expansion alleviates corporate financing constraints; second, it reduces agency costs, thereby significantly enhancing corporate ESG performance. These conclusions provide a theoretical basis for optimizing regional financial resource allocation and guiding corporate ESG practices.

**Keywords:** Bank branches, ESG performance, financing.

## 1. Introduction

Amid the global wave of sustainable development and the deepening of China's "dual carbon" goals, an increasing number of enterprises are integrating ESG principles into their business strategies to improve sustainability and market competitiveness. In China, ESG development is primarily policy-driven, from the full launch of the carbon trading market to the accelerated construction of a green financial system, transforming ESG from an "option" to a "necessity." However, this transition faces two major challenges: high-cost pressures in areas such as environmental technology investment, supply chain transformation, and employee welfare optimization; and uneven distribution of financial resources, leading to financing constraints or governance inefficiencies, creating a dilemma of "strategic vision versus resource mismatch" (Zhang et al., 2022; Sheng et al., 2021).

In this context, enhancing the inclusivity and accessibility of financial support has become key to overcoming ESG practice bottlenecks. As the core pillar of China's financial system, banks' service reach directly impacts the vitality of the real economy. Physical bank branches, as fundamental carriers of financial services, determine the convenience and quality of financial services for enterprises. Dense branch networks can shorten the distance between banks and enterprises, reduce information asymmetry, and improve financing efficiency. Regional financial agglomeration can also stimulate market competition, drive financial product innovation, and provide tailored transformation support for enterprises. However, existing research primarily focuses on the driving role of macro policies or internal corporate governance on ESG (Liang & He, 2025; Sun & Yin, 2024), leaving a gap in systematic exploration of the impact mechanisms of bank branches as "last-mile" infrastructure.

To address this gap, this paper investigates how the spatial layout of bank branches reshapes corporate resource acquisition paths, with a focus on the dual transmission effects of alleviating financing constraints and reducing agency costs. The findings not only provide theoretical support for optimizing regional financial resource allocation and formulating differentiated policies but also offer practical guidance for corporate managers to leverage financial geographic advantages in ESG investment decisions and enhance sustainable competitiveness.

## 2. Theoretical Analysis and Research Hypotheses

Corporate ESG performance has become a critical indicator of sustainable development, reflecting achievements in environmental protection, social responsibility, and governance optimization, as well as serving as a core dimension for capital markets to assess long-term value creation (Xie & Lyu, 2022). Improving ESG performance requires continuous resource input, which often depends on stable financial support (Li et al., 2024). As the mainstay of China's financial sector, the layout of bank branches is a key component of the financial service system. Existing research indicates that physical branches, as foundational facilities for credit and other financial services, determine the spatial and temporal accessibility of financial resources for enterprises, serving as a vital support for enhancing financial services to the real economy (Sheng & Wang, 2022; Cao & Ding, 2024). Based on existing theories and research, this paper explores the impact of bank branch expansion on corporate ESG performance from the perspectives of financing constraints and agency costs.

### 2.1 Bank Branch Expansion, Financing Constraints, and Corporate ESG Performance

In the current business environment, many enterprises face limited financing channels, high financing costs, and elevated risks, which not only constrain daily operations and expansion plans but also negatively impact ESG performance. Specifically, financing constraints affect ESG performance in two ways: insufficient resource input and restricted strategic implementation. Capital shortages limit investments in green technology R&D and environmental equipment upgrades, hindering environmental performance. Similarly, financial constraints may impede social responsibility initiatives, such as improving employee welfare or optimizing supply chains, and hinder governance structure optimization.

Bank branch expansion effectively alleviates financing constraints (Xu et al., 2024), thereby improving ESG performance. On one hand, increased branches shorten the distance between banks and enterprises, enhancing communication and information exchange. Banks gain deeper insights into corporate operations and financial conditions, enabling tailored financial solutions and reducing information asymmetry, which boosts lending willingness (Li et al., 2024). On the other hand, branch expansion intensifies regional banking competition, prompting banks to optimize services, lower interest rates, and reduce fees. New entrants offer more favorable financing terms and innovative products, meeting diverse corporate needs and lowering financing costs (Qian & Yu, 2024). As financing constraints ease, ESG performance improves significantly.

### 2.2 Bank Branch Expansion, Agency Costs, and Corporate ESG Performance

Agency costs often hinder efficient operations and sustainable development. Agency problems primarily manifest as managerial short-termism and weak internal oversight, increasing operational costs and risks while undermining sustainability. For instance, managers may prioritize personal gains over long-term corporate interests, harming social performance (e.g., neglecting employee welfare) and governance quality (e.g., opaque disclosures).

Bank branch expansion reduces agency costs by enhancing oversight and providing professional services (Yang & Yu, 2023). Proximity enables banks to monitor operations closely, align managerial actions with shareholder interests, and improve governance. Additionally, financial agglomeration fosters competition, encouraging banks to offer advisory services that strengthen internal controls (He & Chen, 2022). Lower agency costs facilitate ESG investments, such as environmental projects and stakeholder engagement, further boosting ESG performance.

Based on the above analysis, the following hypotheses are proposed:

Hypothesis 1: Bank branch expansion significantly promotes corporate ESG performance.

Hypothesis 2: Bank branch expansion enhances corporate ESG performance by alleviating financing constraints and reducing agency costs.

### 3. Research Design

#### 3.1 Sample Selection and Data Sources

The sample comprises China's A-share listed companies from 2009 to 2021. Data processing includes: excluding financial and ST firms; removing samples with missing or abnormal data; and winsorizing continuous variables at the 1% and 99% levels. The final sample includes 25,192 observations. Bank branch data are sourced from the China Banking and Insurance Regulatory Commission (CBIRC), ESG ratings from Hua Zheng ESG, and financial data from CSMAR.

#### 3.2 Variable Definitions and Measurement

##### (1) Corporate ESG Performance

The Huazheng ESG evaluation system integrates the core elements of international mainstream ESG evaluation indicators and incorporates design concepts tailored to the development needs of the Chinese domestic market. It provides a comprehensive framework for assessing the ESG activities of Chinese listed companies and adopts a nine-level rating system from "AAA-C" along with a scoring evaluation method. When measuring corporate ESG performance in this paper, we refer to the research findings of Xie Hongjun and Lü Xue (2022) as well as Bai Shuyuan et al. (2024), and select the Huazheng Index ESG rating as the evaluation basis. The Huazheng Index ESG conducts evaluations four times a year. The ratings from high to low are AAA, AA, A, BBB, BB, B, CCC, CC, and C, with corresponding assigned values decreasing from 9 to 1. The annual corporate ESG performance is determined by taking the average value. A higher value indicates a better ESG evaluation of the company.

##### (2) Bank Branch Expansion

Based on the data from the Financial License Issuance System disclosed by the China Banking and Insurance Regulatory Commission, this paper uses the number of commercial bank branches within a certain radius around the company to measure the degree of bank branch expansion. Referring to the research methods of Zhang Weijun et al. (2021) and Long Zhineng et al. (2024), we use web crawlers combined with the Gaode Map geocoding API to collect the latitude and longitude data of enterprises and bank branches, and then count the number of bank branches within a certain range of the enterprise's office location. This paper mainly focuses on the number of branches within a radius of 5-20 kilometers around the enterprise. This is because research has found that there is a certain "threshold radius" for the impact of banks on enterprises. That is, as the distance range expands, this variable will cover more confounding factors, making it difficult to have a significant impact on the production and operation activities of enterprises. Therefore, referring to the practice in existing literature of limiting the "threshold radius" to mostly 16-20 kilometers, we respectively counted the number of bank branches within 10 kilometers (Bank\_10) and 15 kilometers (Bank\_15) around the enterprise and performed logarithmic processing to ensure the accuracy and reliability of the data and avoid overestimating the impact of branches too far away on the enterprise's ESG performance.

##### (3) Control Variables

To more accurately analyze the impact of bank branch expansion on corporate ESG performance, this paper further controls other factors that may affect it. Specifically, they include: asset-liability ratio (Lev, total liabilities / total assets), firm size (Size, the natural logarithm of the total assets of the enterprise), years of listing (Age, the natural logarithm of the number of years since the enterprise went public plus 1), return on total assets (ROA, net profit / total assets), equity balance degree (Top1, the number of shares held by the largest shareholder / the total number of shares of the enterprise), cash-flow ratio (Cash, net cash flow from operating activities / total assets), Tobin's Q ratio (Tq, (market value of tradable shares + number of non-tradable shares\*net asset value per share + book value of liabilities) / total assets), CEO duality (Dual, taking the value of 1 if the chairman and the general manager are the same person, and 0 otherwise). In addition, we also control for the year variable (Year) and the industry variable (Ind).

### 3.3 Model Specification

In order to explore the effect of bank branch expansion on corporate ESG performance, this paper establishes the following regression model:

$$ESG_{it} = \beta_0 + \beta_1 Bank_{it} + Control_{it} + Year + Ind + \varepsilon_{it},$$

$i$  represents the enterprise,  $t$  represents time. ESG is the enterprise rating measured by the Huazheng Index. Bank\_10、Bank\_15, which are the logarithms of the number of share-holding and urban commercial bank branches within 10km and 15km of the enterprise, are also the explanatory variables of this paper. Control represents the control variables. Year and Ind are the controlled year and industry effects respectively, and  $\varepsilon$  is the random error term.

## 4. Empirical Verification and Analysis

### 4.1 Results of Basic Regression Analysis

This paper uses the method of stepwise regression to explore the impact of bank branch expansion on corporate ESG performance. Results show that bank branch expansion can significantly improve corporate ESG performance, and the results remain robust after adding industry and year control variables. Specifically, column (1) is the regression result of introducing Bank\_10 and adding control variables, but without controlling annual and industry effects; column (2) further controls annual and industry effects on the basis of column (1). Similarly, columns (3) and (4) correspond to the regression results of Bank\_15 without controlling and controlling annual and industry effects, respectively. All regression results show that the coefficients of ESG are significantly positive and significant at the 5% significance level, indicating that regardless of whether annual and industry effects are controlled, bank branch expansion can effectively improve corporate ESG performance, and Research Hypothesis 1 holds. Moreover, the adjusted  $R^2$  in columns (2) and (4) shows a significant improvement compared with that in columns (1) and (3), which is consistent with the design logic of the stepwise regression method, indicating that the introduction of control variables helps to better explain the variability of the model and improve the goodness of fit of the model.

Table 1 Baseline Regression Results

	(1)	(2)	(3)	(4)
	ESG	ESG	ESG	ESG
<i>Bank_10</i>	<b>0.0142***</b> (3.093)	<b>0.0114**</b> (2.531)		
<i>Bank_15</i>			<b>0.0174***</b> (3.611)	<b>0.0140***</b> (2.950)
<i>cons</i>	4.4875*** (35.398)	4.0088*** (28.638)	4.4671*** (35.146)	3.9917*** (28.439)
<i>Year</i>	NO	YES	NO	YES
<i>Ind</i>	NO	YES	NO	YES
<i>N</i>	25192	25192	25192	25192
<i>Adj.R<sup>2</sup></i>	0.0080	0.0508	0.0082	0.0508

Note: The values in parentheses are robust standard errors clustered at the industry level. \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels, respectively, the same below.

### 4.2 Analysis of the Mechanism of Action

The previous text has confirmed that the expansion of bank branches significantly improves the ESG performance of enterprises, but it does not clearly reveal the mechanism of action between the two. In order to deeply explore how the expansion of bank branches affects the ESG performance of enterprises, this paper introduces financing constraints (SA) and agency costs (AC) as mediating variables to test whether the expansion of bank branches improves the ESG performance of enterprises through two mechanisms: alleviating corporate financing constraints and reducing corporate agency costs.

The promoting effect of bank branch expansion on corporate ESG performance is partly achieved by alleviating corporate financing constraints. The SA index model is selected to measure financing constraints. The calculation method of the SA index is as follows.

$$SA = -0.737Size + 0.043Size^2 - 0.040Age$$

Among them, *Size* represents the natural logarithm of the total assets of the enterprise, and *Age* is the operating years of the enterprise. The larger this index is, the stronger the financing constraints faced by the enterprise. In column (2), in the regression result of financing constraints (SA), the coefficient of *Bank\_10* is -0.0036, and it is significantly negative at the 1% significance level, indicating that the expansion of bank branches can significantly alleviate corporate financing constraints. When the financing constraints of an enterprise are alleviated, the improvement of its ESG performance presents resource-driven characteristics. In the environmental dimension, banks can guide enterprises to carry out green transformation, provide preferential loans to environmentally friendly enterprises, and at the same time exert pressure on enterprises with poor environmental performance, forcing them to improve environmental management (Li Bo et al., 2024). Enterprises can invest the newly obtained funds in the R & D of clean technologies, thereby reducing pollution emissions (Yu Maomao and Ma Yanyan, 2024) and achieving the environmental upgrade of the production process. In the social dimension, enterprises can use sufficient funds to improve employee benefits and optimize supply chain management, thus having a positive social impact in a wider range. In the governance dimension, due to the improvement of the financing environment, enterprises have more resources to optimize the corporate governance structure, reduce the risk of large-shareholder expropriation, and improve the information disclosure quality of enterprises (Miao Cuifen and Yu Maomao, 2024), thus improving the level of corporate governance.

The promoting effect of bank branch expansion on corporate ESG performance is also achieved by reducing corporate agency costs. For the measurement of agency costs, it is reflected by the management expense ratio, that is, the ratio of management expenses to the total operating income of the enterprise. The larger this index is, the smaller the agency costs are, and the higher the agency efficiency of the enterprise. From the regression results, in the regression result of agency costs (AC), the coefficient of *Bank\_10* is -0.0007, and it is significantly negative at the 5% significance level, indicating that the expansion of bank branches can significantly reduce corporate agency costs. After the agency costs are reduced, the improvement of corporate governance efficiency is mainly reflected in the following aspects: in the environmental dimension, the management is more likely to accept environmental protection investment projects, avoiding neglecting environmental responsibilities due to short-term profit goals; in the social dimension, governance optimization promotes employee rights and interests protection, thus enhancing the trust of stakeholders; in the governance dimension, strengthened supervision promotes the improvement of board independence, such as introducing ESG independent directors, making decisions more in line with the principles of sustainable development.

Table 2 Regression Results of the Mechanism of Action

	(1)	(2)	(3)
	ESG	SA	AC
<i>Bank_10</i>	<b>0.0114**</b>	<b>-0.0036***</b>	<b>-0.0007**</b>
	<b>(2.531)</b>	<b>(-3.612)</b>	<b>(-2.224)</b>
<i>_cons</i>	4.0088***	-4.9958***	0.1101***
	(28.638)	(-104.831)	(12.237)
<i>Year</i>	Yes	Yes	Yes
<i>Ind</i>	Yes	Yes	Yes
<i>N</i>	25192	25192	25192
<i>Adj.R<sup>2</sup></i>	0.0508	0.4117	0.1421

## 5. Conclusions and Implications

Against the backdrop where corporate ESG performance is increasingly becoming a core indicator for measuring enterprises' sustainable development capabilities and long-term value in the capital

market, this study, based on this context, takes Chinese A-share listed companies from 2009 to 2021 as samples to analyze the impact path of bank branch expansion on corporate ESG performance, providing a new perspective for finance to enable the real economy. The research finds that bank branch expansion significantly enhances corporate ESG performance. An increase in the number of bank branches within 10-kilometer and 15-kilometer ranges around enterprises has a significant positive impact on corporate ESG performance ratings. Mechanism analysis shows that bank branch expansion promotes enterprises' performance in environmental protection, social responsibility fulfillment, and corporate governance structure optimization by alleviating corporate financing constraints and reducing agency costs.

This study not only enriches the theoretical research on the relationship between bank branch layout and corporate sustainable development but also provides important references for policy makers and enterprise managers. Optimizing bank branch layout is an important policy tool to promote corporate sustainable development, which can help enterprises improve ESG performance by alleviating financing constraints and reducing agency costs. Policy makers should encourage banks to set up more branches in areas with scarce financial resources. Enterprises should make full use of the financing convenience and professional services brought by bank branch expansion to optimize their own ESG performance, thereby enhancing their social image and market competitiveness. As the core of China's financial institutions, banks should actively optimize branch layout. By providing customized financial products and services, banks can help enterprises improve ESG performance. At the same time, banks should strengthen supervision over enterprises to reduce agency costs and achieve a win-win situation.

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