DOI: 10.54254/2754-1169/171/2025.21846

The Impact of Social Security Fund Investment on Corporate ESG Performance

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Abstract: As an important component of the capital market, the investment behavior of social security funds has increasingly drawn attention for its impact on corporate ESG performance. Based on data from publicly listed companies in China, this paper explores the influence of social security fund investment with respect to corporate ESG performance and its core mechanisms. The study finds that social security fund investment effectively enhances corporate ESG integration. Heterogeneity tests show that the relationship between the two varies across aspects such as auditor quality, information transparency, and analyst attention. This paper provides policy insights for optimizing social security fund investment strategies and enhancing corporate sustainability.

Keywords: Social security fund investment, ESG performance, Information transparency

1. Introduction

With the rise of global sustainability issues, ESG (Environmental, Social, and Governance) has gradually become a core consideration in corporate operations and investment decisions. According to the "2024 Global ESG Outlook" report, the ESG market is expected to exceed $40 trillion by 2030, highlighting its importance in the capital market. Internationally, institutional investors have played a key role in promoting corporate ESG performance. Driven by the concept of sustainable development and the "dual carbon" goals, ESG-related policies and market practices have rapidly developed in China. The "2022-2023 ESG Action Report of Chinese Listed Companies" shows that as of June 2023, 33.28% of A-share listed companies had disclosed ESG reports. However, compared to international markets, the development of ESG in Chinese enterprises is still in its infancy, particularly in terms of policy guidance and capital market support.

The social security fund, as a pivotal institutional investor in China’s capital market, exerts significant influence in guiding companies to enhance their ESG practices. The fund consistently upholds its investment principles of "long-term investment, value investment, and responsible investment," which aligns closely with the long-term focus of ESG principles. Furthermore, it not only bears the responsibility for safeguarding people's livelihoods and social welfare but also exerts a profound impact on corporate management through its investment activities. For example, the research by Du Xingye [1] found that it participates in ESG investment through green bonds, green equity, and other means, thereby promoting corporate environmental and social responsibility practices.

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This study focuses on the impact of the social security fund investment on corporate ESG performance in China. Based on data from Chinese publicly listed companies from 2008 to 2023, this study specifically addresses the following questions: Can social security fund investment significantly improve corporate ESG performance? What are the specific pathways at play? Does the relationship between the two exhibit heterogeneity? The significance of this research lies in: First, systematically constructing a theoretical framework for understanding how social security fund investment affects corporate ESG performance, analyzing its impact pathways through four mechanisms—financing constraints, agency costs, behavioral consistency, and financialization.

This enriches existing research on ESG, especially empirical studies on the linkages between institutional investment and firms' ESG performance. In addition, providing empirical evidence to policymakers for optimizing social security fund investment strategies, promoting the maturation of ESG practices and policies in China's capital market. Third, offering practical guidance for corporate managers on attracting ESG investment, helping enterprises enhance their competitiveness in sustainable development.

2. Literature Review

2.1. Analysis of Social Security Fund Investment Effects

Prior studies have examined the diverse dimensions of social security fund investment impacts, including research and development (R&D) innovation, earnings management, and investment efficiency. Studies show that social security fund holdings can significantly enhance R&D resource allocation and innovation levels, primarily in non-state-owned enterprises [2]. Additionally, social security fund holdings promote corporate innovation output through mechanisms such as alleviating managerial agency costs and attracting institutional investor research, and they significantly improve the quality of patents [3]. In terms of earnings management, social security fund holdings not only improve financial information quality, reducing the risks of financial restatements and fraud, but also improve corporate operations and long-term equity value. Furthermore, the social security fund, by reducing agency costs and optimizing management behavior, effectively curbs corporate financialization tendencies, thereby enhancing investment efficiency.[4]

2.2. Research on Factors Affecting ESG Performance

Corporate ESG performance is influenced by both internal governance mechanisms and external environmental factors. Internally, a company's governance structure and management behavior are strongly associated with ESG performance. Such as executive incentive mechanisms, executives' green experience, and board diversity can significantly strengthen corporate ESG integration [5]. Moreover, digital transformation and the application of green information technologies have significantly increased companies' scores on environmental and social responsibility.[6]

Externally, policies and market factors also have a profound effect on corporate ESG initiatives. Studies show that in emerging markets, legal systems, economic growth, and policy mechanisms are core factors in accelerating corporate ESG adoption [7]. For instance, green credit and carbon market policies can improve ESG scores by facilitating sustainable technological transformations.[8]. Additionally, analyst attention and foreign institutional investor holdings are particularly prominent in improving a firm's environmental and governance scores.[9]

It is important to note that there is an interaction between internal and external factors. Existing research has found that social security fund holdings can improve ESG performance by enhancing corporate governance efficiency and reducing financing costs [10]. Ni Zhixing et al. [11] further point out that social security fund investments in R&D innovation and improving earnings quality play a crucial role in achieving ESG goals. International experience also shows that South Korea's national pension fund has successfully promoted corporate sustainability through an ESG-oriented investment strategy [12]. The corporate governance mechanisms in Brazil are critical in attracting social security fund investments [13]. Furthermore, Wang et al. [14] and Weiss et al. [15] have verified the important engagement of social security funds in strengthening ESG information disclosure, based on institutional investor heterogeneity and governance mechanisms.

Through a review of previous research, it is evident that recent studies have highlighted the significant outcomes of social security fund investments on enhancing corporate governance and market value, while also beginning to focus on their impact on corporate ESG performance. However, existing research still faces issues such as insufficient exploration of intermediary mechanisms and limited heterogeneity analysis. Therefore, this paper will combine the latest data and case studies to explore the ESG effects of social security fund investments and delve deeper into their underlying mechanisms.

3. Theoretical Analysis and Research Hypotheses

3.1. Social Security Fund Investment, Financing Constraints, and Corporate ESG Performance

Corporate ESG requires substantial financial investment. Financing constraints prevent companies from allocating sufficient resources to the ESG domain. Institutional investment is an important means for companies to secure external funding. Institutional investor influence in governance mechanisms promotes high-quality information disclosure, alleviates the company’s disadvantage in external financing information, reduces creditors' perceptions of default risk, and optimizes the company’s financing conditions [16]. This makes it easier for companies to obtain loans from affiliated financial institutions, significantly reducing financing constraints [17]. The social security fund represents a critical segment of institutional investment portfolios and can directly alleviate financing constraints for companies. Moreover, social security fund investment, due to its significant social reputation and public welfare attributes, brings multiple positive effects to corporate financing. On one hand, according to signaling theory, when a company obtains social security fund holdings, it attracts widespread attention from the media, analysts, and other potential investors. Meanwhile, the involvement of the social security fund enhances the liquidity of the company’s stock, reduces transaction costs, and lowers the cost of equity capital, thus releasing more funds to support the company’s ESG practices.

3.2. Social Security Fund Investment, Agency Costs, and Corporate ESG Performance

From the perspective of agency theory, conflicts arising from the distinct objectives of shareholders and management, management may use company resources to pursue personal interests rather than focusing on improving the company’s long-term value. Regarding ESG performance, management might allocate funds to projects that offer short-term returns rather than long-term ESG practices. Excessive agency costs may lead to an imbalance in a company’s capital structure, increasing financing costs, and further restricting the company's ability to invest in ESG activities.[18]

After social security funds acquire shares, the fund as a major shareholder directly participates in corporate governance, significantly reducing agency costs. On one hand, the social security fund, through the governance mechanisms of the board of directors and supervisory board, supervises major company matters, improving the scientific nature and transparency of corporate decision-making [19]. On the other hand, as a supervisory institutional investor, the social security fund can effectively reduce management’s opportunistic behaviors through constraints on managerial actions, thereby enhancing corporate governance efficiency [20]. Besides, the holdings of the social security fund attract more attention from external analysts and the media, not only reducing the likelihood of

DOI: 10.54254/2754-1169/171/2025.21846

management exploiting information asymmetry but also reinforcing the firm's long-term strategic orientation, making the firm’s social responsibility and governance efficiency more aligned with market expectations and societal demands. This strengthens management’s focus on long-term goals, such as ESG performance.

3.3. Social Security Fund Investment, Behavioral Consistency, and Corporate ESG Performance

Behavioral consistency theory holds that investors’ actions should align with their investment goals and philosophy. Guided by social responsibility, the social security fund, in its capacity as an institutional investor, consistently implements the principles of long-term investment, value-oriented investment, and responsible investment." This philosophy dictates the goal-oriented and long-term nature of its investment behavior. Social security fund investments can significantly promote corporate social responsibility [21]. Since a firm’s ESG performance is a crucial aspect of fulfilling its social responsibility, based on behavioral consistency theory, the long-term investment philosophy and ESG goals of the social security fund are highly aligned. Therefore, companies receiving social security fund investment are more likely to promote ESG performance.

3.4. Social Security Fund Investment, Financialization, and Corporate ESG Performance

According to the investment substitution theory, financialization can significantly suppress corporate ESG performance. Financialization diverts company resources from real investment areas to financial assets, thereby reducing investments in long-term development and social responsibility and weakening the company’s focus on ESG goals [22]. Shareholder value maximization theory also points out that excessive financialization may cause company resources to shift away from long-term innovation and sustainable development [23]. Companies with a higher degree of financialization generally perform worse in the ESG domain [24]. Additionally, financialization may lead to governance issues and insufficient transparency in information disclosure, further reducing the credibility of the company’s ESG practices. The investments held by the social security fund can substantially decrease the proportion of corporate investment in financial assets by improving internal governance and enhancing external supervision, while increasing capital expenditures on real assets.[25]

Reflecting on the prior analysis, this paper introduces the following hypothesis:

Social security fund investment can substantially enhance corporate ESG performance.

4. Empirical Design

4.1. Data Sources

The ESG data used in this study comes from the Huazheng ESG rating. Since Huazheng's ESG rating began in 2009, the research sample is limited to the period from 2009 to 2023 for listed companies on the Shanghai and Shenzhen A-share markets. The Huazheng ESG rating data is sourced from the Wind database, while other company data is primarily obtained from the CSMAR database. Following previous studies, this paper excludes financial industries, ST (Special Treatment) and PT (Partially Traded) companies, as well as samples with missing variable data.

4.2. Empirical Model

Referencing existing research [10], this paper constructs the following two-way fixed effects model to examine the impact of social security fund holdings on corporate ESG performance:

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$$ESG_{it} = a + \beta shebao_{it} + control + firm + year + industry + \varepsilon$$

Where:

ESG represents the dependent variable, which measures the company's ESG performance. shebao represents the core independent variable, which indicates the social security fund investment in the company. control represents other variables that affect corporate ESG performance. firm, year, and industry represent the firm, year, and industry fixed effects, respectively. ε represents the random error term. Since the dependent variable is a discrete variable ranging from 0 to 8, the study uses an ordered probit model for regression analysis.

4.3. Variable Definitions

4.3.1. Dependent Variable: ESG

Based on previous research [10], the ESG variable in this study is derived from the Huazheng ESG rating results, with values assigned from 0 to 8 according to the ratings of C-AAA. A higher value indicates better ESG performance by the company.

4.3.2. Core Independent Variable: shebao

Referencing Du Qiuxuan et al. [10], the study uses a dummy variable to represent social security fund investment. If the company has social security fund investment, then shebao is assigned a value of 1, otherwise it is 0.

4.3.3. Control Variables

Following established studies [11], the study controls for the following variables: company size, leverage ratio, return on assets, ownership structure, dual-role leadership, operating cash flow, ownership concentration, board size, proportion of independent directors, and other institutional ownership variables.

Table 1 below outlines the fundamental variables utilized in this study.

Table 1: Description of Main Variables

Variable Type	Variable Symbol	Variable Name	Variable Description
Dependent Variable	ESG	ESG Performance	Huazheng ESG rating result
Independent Variable	shebao	Social Security Fund Investment	Dummy variable based on whether the company has social security fund investment
Control Variables	size	Company Size	Natural logarithm of total assets
	lev	Leverage Ratio	Total debt / Total assets
	roa	Return on Assets	Net profit / Total assets
	SOE	Ownership Structure	1 if state-owned enterprise, 0 otherwise
	dual	Dual-role Leadership	1 if chairman and CEO are the same person, 0 otherwise
	cfo	Operating Cash Flow	Net cash flow from operating activities / Total assets

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Table 1: (continued).

	first	Ownership Concentration	Percentage of shares held by the largest shareholder
	board	Board Size	Natural logarithm of the number of board members +1
	indexp	Proportion of Independent Directors	Number of independent directors / Total number of board members

4.4. Descriptive Statistical Analysis

The detailed summary of the descriptive statistics for the key variables is shown in Table 2. The maximum value of corporate ESG performance is 8, while the minimum value is 0, with a standard deviation of 1.1415, indicating significant variability in ESG performance across different companies. The mean value of the social security fund investment dummy variable is 0.1826, suggesting that, on average, 18.26% of companies have social security fund investments. This indicates that the coverage of social security fund investments in China is still limited.

Table 2: Descriptive Statistical Analysis of Main Variables

variable	N	mean	p50	sd	min	max
ESG	42,580	4.0070	4.0000	1.1415	0.0000	8.0000
shebaodum	42,580	0.1826	0.0000	0.3863	0.0000	1.0000
size	42,580	22.1119	21.9164	1.3050	19.6286	26.2313
lev	42,580	0.4145	0.4027	0.2099	0.0502	0.9333
roa	42,580	0.0713	0.0733	0.1760	-0.9106	0.5146
SOE	42,580	0.3405	0.0000	0.4739	0.0000	1.0000
dual	42,580	0.3023	0.0000	0.4593	0.0000	1.0000
cfo	42,580	0.0486	0.0476	0.0705	-0.1671	0.2520
first	42,580	34.6973	32.4100	14.8540	8.4800	74.9800
board	42,580	2.2339	2.3026	0.1743	1.7918	2.7081
indexp	42,580	37.5190	35.7100	5.2214	33.3300	57.1400

5. Empirical Test

5.1. Benchmark Empirical Results

Empirical results from the benchmark regression confirm a significantly positive coefficient for the key explanatory variables.Column (1) presents the results without control variables, while column (2) shows the results with control variables. Regardless of whether control variables are included, the coefficient for social security fund investment is significantly positive and passes the 1% significance test. This indicates that social security fund investment significantly improves corporate ESG performance.

Table 3: Benchmark Regression Results

	(1)	(2)
VARIABLES	ESG	ESG
shebaodum	0.374***	0.174***
	(0.0136)	(0.0141)
control	no	yes
Observations	42,580	42,580
year	yes	yes
industry	yes	yes

Note: (no) and (yes) represent whether the control variables are included, respectively, as noted throughout.

5.2. Robustness Tests

5.2.1. Changing the Regression Model

To ensure robustness, an OLS regression is used. The empirical results in column (1) of Table 4 highlights that even with the implementation of this alternative empirical method, the coefficient of the core explanatory variable remains positive and statistically significant.

5.2.2. Changing the Measurement of the Explanatory Variable

Following the approach of Ni Zhixing et al. [11], this study uses the percentage of social security fund shares as the core explanatory variable. As shown in column (2) of Table 4, the coefficient of the core explanatory variable remains both positive and statistically significant.

5.2.3. Changing the Measurement of the Dependent Variable

The study further uses the Shandao Ronglv ESG rating to measure corporate ESG performance. Since the Shandao Ronglv ESG rating began in 2015, the sample size in column (3) of Table 4 is significantly reduced. The empirical results in column (3) of Table 4 show that the coefficient of the core explanatory variable remains significantly positive.

Table 4: Robustness Tests

	(1)	(2)	(3)
	Change in Regression Model	Change in Explanatory Variable	Change in Dependent Variable
VARIABLES	ESG	ESG	sESG
shebaodum	0.0671***		0.147***
	(0.0162)		(0.0205)
rshebao		0.0586***	
		(0.00587)	
control	yes	yes	yes
Constant	-4.499***		
	(0.469)		
Observations	42,580	42,580	31,084
R-squared	0.102		

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Table 4: (continued).

Number of code	4,982		
year	yes	yes	yes
industry	yes	yes	yes

5.3. Heterogeneity Tests

5.3.1. From the Perspective of Auditor Quality

Auditing can also play a role in external governance. Generally, the Big Four auditing firms are recognized for delivering audits of superior quality. The empirical results in columns (1) and (2) of Table 5 show that the positive impact of social security fund investment on corporate ESG performance is only present in samples where the auditors are from non-Big Four firms, i.e., firms with lower audit quality. The possible reason for this is that companies with lower external audit quality tend to perform worse, leaving more room for improvement.

5.3.2. From the Perspective of Information Transparency

Agency costs are an important factor in inhibiting corporate ESG performance. Generally, higher information transparency reduces agency costs. This study uses the Shenzhen Stock Exchange information disclosure rating to construct an information transparency index for companies. If the rating is A, it indicates higher information transparency; otherwise, it is considered lower. The empirical results in columns (3) and (4) of Table 5 show that the positive impact of social security fund investment on corporate ESG performance mainly exists in samples with lower information transparency. The possible reason is that companies with lower information transparency have higher agency costs and worse ESG performance.

5.3.3. From the Perspective of Analyst Attention

Some studies suggest that analyst attention can improve corporate ESG performance. This paper divides the sample into two sub-samples based on whether analyst attention is above or below the annual sample average, and performs sub-sample regressions. The empirical results in columns (5) and (6) of Table 5 show that the positive impact of social security fund investment on corporate ESG performance is only present in samples with lower analyst attention. The possible reason is that companies with lower analyst attention tend to have lower information transparency, higher agency costs, and worse ESG performance.

Table 5: Heterogeneity Analysis

	(1)	(2)	(3)	(4)	(5)	(6)
	Big Four	Non-Big Four	High Information Transparency	Low Information Transparency	Low Analyst Attention	High Analyst Attention
VARIABLES	ESG	ESG	ESG	ESG	ESG	ESG
shebaodum	0.0337	0.160***	0.0540*	0.124***	0.0517**	0.0295
	(0.0505)	(0.0148)	(0.0295)	(0.0189)	(0.0254)	(0.0194)
control	yes	yes	yes	yes	yes	yes
Observations	2,489	39,504	6,514	28,030	14,966	13,580

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Table 5: (continued).

year	yes	yes	yes	yes	yes	yes
industry	yes	yes	yes	yes	yes	yes

6. Conclusion and Policy Recommendations

Using data from publicly traded companies, this research examines the role of social security fund investment in shaping corporate ESG performance. Building on theoretical analysis, the empirical results confirm that social security fund investment does indeed help to boost corporate ESG effectiveness, and this effect is robust. Heterogeneity tests show that the improvement effect is primarily observed in samples of companies with lower audit quality, lower information transparency, and lower analyst attention, which generally have worse performance. This finding suggests that social security fund investment plays a larger role in improving companies with relatively weak corporate governance.

According to the findings above, this study introduces the following policy implications to further enhance corporate ESG performance:

a. Improve the Social Security Fund Investment Mechanism

Establish and improve the ESG evaluation system for social security fund investment, adopting a sustainability-driven approach in investment decision-making. Additionally, regulatory authorities should further optimize the investment policy framework for social security funds, encouraging increased investment in companies with potential for ESG improvement, while ensuring the security of investments.

b. Strengthen External Supervision Mechanisms

On the one hand, audit quality requirements should be raised to enhance the independence and professionalism of external auditing institutions. On the other hand, analysts should be encouraged to conduct in-depth research and evaluations of corporate ESG performance to provide the market with more professional judgment and reference.

c. Enhance Information Transparency

Regulatory bodies should further improve ESG information disclosure systems, clarify disclosure standards and requirements, and enhance the comparability and verifiability of information.

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