Research on the impact of enterprise ESG performance on debt financing cost

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Abstract. Based on the sample of Shanghai and Shenzhen A-share listed companies from 2015 to 2020,this paper studies the impact of enterprise ESG performance on debt financing cost and its mechanism, the results show that enterprise ESG performance can significantly reduce the cost of debt financing. Among them, corporate social performance and corporate governance performance are negatively correlated with debt financing costs, while the positive correlation between corporate environmental performance and debt financing costs is not obvious. At the same time, it is found that ESG performance can reduce the cost of debt financing by alleviating the information risk within the enterprise and increasing the attention of external institutional investors, and further studies have found that the mitigation effect of ESG performance on debt financing cost is more prominent in high audit quality, eastern regions and non-state enterprises. Therefore, enterprises should pay attention to ESG performance in operation management, actively establish enterprise ESG performance management mechanism, take the initiative to assume the responsibility of ESG information disclosure, and promote the sustainable development of enterprises.

Keywords: ESG Performance; Debt Financing Cost; Information Risk; Institutional Investor Attention; Sustainable Development of Enterprises.

1. Introduction

ESG is an abbreviation of environmental,social and governance,which represents a sustainable development investment concept focusing on environmental,social and corporate governance and is an important indicator to evaluate the sustainable development of enterprises(Cao & Xu,2019).Among them,corporate environmental responsibility is concerned about the environmental impact of resources,energy and waste or other business activities used by enterprises(Quan,2020);corporate social responsibility focuses on whether enterprises can take the initiative to assume social responsibility and whether enterprises can achieve coordinated development with stakeholders(Wang,2022);corporate governance responsibility focuses on whether enterprises can protect the interests of stakeholders through internal and external governance(Li et al.,2019).In June 2018,China's Securities Regulatory Commission revised the"governance standards of listed companies",which established the preliminary framework of ESG information disclosure system,which shows that the CSRC began to guide enterprises to take the initiative to assume the responsibility of ESG information disclosure.In December 2020,the White Paper on China's ESG Development advocates the concept of responsible investment and promotes the development of ESG practice,which shows that the government continues to promote enterprises to continuously deepen ESG practice and thus promote the sustainable development of China's economy.In June 2021,the CSRC revised the format guidelines for annual and semi-annual reports and added"environmental and social responsibility"to encourage listed companies to voluntarily disclose ESG performance information during the reporting period. These initiatives have a significant role in promoting ESG disclosure by listed companies.In this context,ESG performance information has gradually been incorporated into decision analysis of fund financing and investment behavior(Li et al.,2021).

Free cash flow is the blood of the normal operation of enterprises. Financing is a key issue related to the development of enterprise operation,and it is also the focus of academic attention.According to the pecking order financing theory,enterprise financing follows the principle of first inside and then outside,when the internal funds are difficult to meet the needs of long-term development of enterprises,enterprises will outward financing.External financing mainly includes equity financing

and debt financing.Equity financing has a high threshold and leads to loss of ownership.In contrast,debt financing has tax shield effect and leverage effect,and has become the main way of external financing(Liu et al.,2016).However,China's capital market is facing the dilemma of "difficult financing and expensive financing".How to carry out debt financing at a lower cost has become a problem worthy of further study.

Against the background of the rapid development of ESG investment concept and the high cost of debt financing,this paper intends to answer the following questions:Can the ESG performance of enterprises reduce the cost of debt financing?What mechanism does the ESG performance of enterprises affect the cost of debt financing?Under what circumstances do enterprise ESG more significantly affect debt financing costs?In view of this,this paper selects China's Shanghai and Shenzhen A-share listed companies from 2015 to 2020 as samples to deeply explore the impact of enterprise ESG performance on enterprise debt financing cost and its mechanism.The main contributions of this paper are:(1)This paper reveals the influence of ESG performance of enterprises and its three dimensions on debt financing cost under the institutional background and market environment in China;(2)The mediating effect model is used to explore the mechanism of ESG performance on debt financing cost from internal and external enterprises;(3)The heterogeneity test is conducted on audit quality,regional difference and property right nature to explore the relationship between ESG performance and debt financing cost under different audit quality,regional difference and property right nature.

The remaining structure of this article is as follows:The second part is literature review;the third part is theoretical analysis and research hypothesis;the fourth part is sample selection and research design;the fifth part is empirical test and result analysis;the last part is the conclusion and enlightenment.

2. Literature Review

2.1 Economic Consequences of ESG Performance

With the continuous development of ESG investment concept,scholars at home and abroad have done a lot of research on stock market performance and enterprise economic performance.In terms of stock market performance,domestic and foreign scholars explored the relationship between ESG performance and enterprise value,but did not form a unified view.Some scholars believe that ESG performance can accumulate social capital by maintaining the friendly relationship between stakeholders(Lins et al.,2017),improve the market valuation and business performance of enterprises,and ultimately enhance the market value of enterprises(Brogi & Lagasio,2019;Wang et al.,2022).However,some scholars believe that the investment in ESG performance will not enhance the market competitiveness of enterprises,but will increase the unnecessary expenses of enterprises,waste the resources of enterprises,and ultimately lead to the decline of enterprise value(Carcia & Orsato,2020).Some scholars believe that ESG performance has no significant impact on enterprise value(Atan et al.,2018).Enterprises with better ESG performance can also attract more institutional investors to hold shares(Wang & Cheng,2017),and their stocks often have better future returns(Joliet & Titova,2018).Enterprises with good ESG performance are more able to attract high-quality talents and institutional investors (Wang,2022) and obtain higher excess returns (Zhou et al.,2020).Improving ESG performance of enterprises can calm investor sentiment,alleviate information asymmetry,and reduce stock price crash risk (Xi & Wang,2022).

In terms of business performance,there is a significant positive correlation between ESG performance and corporate performance.Taking the initiative to assume the responsibility of ESG information disclosure will be transmitted to its stakeholders as a signal to enhance the profitability of enterprises (Zhang et al.,2020). At the same time,based on the principal-agent theory,good corporate governance performance can alleviate the conflict between shareholders and management,alleviate the principal-agent problem,thereby reducing the internal supervision and incentive costs of enterprises and improving corporate performance (Li et al.,2019).Many scholars

also discussed the impact of ESG performance on investment efficiency. Good ESG performance can transmit more enterprise-specific information to its stakeholders,alleviate the information asymmetry between enterprises and stakeholders (Anwar & Malik,2020),better obtain government subsidies (Zeng et al.,2019),and improve the investment efficiency of enterprises.However,some scholars believe that based on the trade-off theory,due to the limited resources of enterprises and the fact that the ESG performance of enterprises is not directly related to its main business and investment field (Bhandari & Javakhadze,2017),improving the ESG performance of enterprises will occupy the resources of enterprises and reduce the investment efficiency of enterprises (Broadstock et al.,2020).The better ESG performance,the more positive information can be delivered to the market,which makes the capital cost of enterprises decrease,and the future financial risk and default risk of enterprises are also significantly reduced (Broadstock et al.,2020).Enterprises with better ESG performance are more likely to receive media attention. The supervision of external media can inhibit the company's illegal behavior and reduce audit risk(Zhou et al.,2016).Good ESG performance can promote the total factor productivity of family enterprises by promoting technological innovation(Wang,2022) and alleviating corporate financing constraints (Sheng et al.,2022).

2.2 Influencing Factors of Debt Financing Cost

Domestic and foreign scholars mainly study the influencing factors of debt financing costs from two aspects. One is internal factors,and the other is external factors.In the study of internal influencing factors,high-quality corporate governance can improve the resource allocation efficiency of enterprises,improve the profitability of enterprises,and thus enhance the investment confidence of creditors,and the cost of debt financing of enterprises is also reduced (Huang,2019).Perfect internal control helps to reduce the operational risk and information asymmetry of enterprises,and reduce the cost of corporate debt financing (Li,2022).High-quality accounting information indicates that the better the financial situation and operating results of enterprises are,the lower the requirements of investors for debt interest and the lower the cost of debt financing are (Zhang,2019).Executives'rich financial experience (Yi,2018) and their positions in industry associations (Qi & Zhou,2021) can play the role of reputation guarantee and information transmission of executives to help enterprises reduce debt financing costs.Employee stock ownership plan can alleviate creditors'concerns about information risk and reduce the cost of debt financing by transmitting a good signal to the market of enterprise development (Dai & Sun,2022).

However,the disclosure of internal control deficiencies will reflect the distortion of corporate accounting information,which makes creditors raise debt interest rates and raise the cost of corporate debt financing (Yang & Gong ,2021).The audit opinions of non-standard opinions represent the significant uncertainty in the operation of enterprises. The non-standard opinions issued by enterprises will lead to the increase of debt financing costs (Chen & Qin,2019).The pledge ratio of large shareholders'warrants can increase the cost of debt financing by influencing the agency cost between large shareholders and small shareholders and the information asymmetry inside and outside the company (Zhou,2021).The active departure of executives will increase the financial risk of enterprises and increase the cost of debt financing (Huang et al.,2022).

In the study of external factors,the uncertainty of economic policy increases,and the level of cash holdings of enterprises will also rise. Enterprises will be more cautious in investment and enhance their ability to resist risks. Therefore,the solvency of enterprises is enhanced and the cost of debt financing is reduced (Wu & Li,2019).The tight monetary policy period,the bank asset credit price increases,raise the enterprise debt financing cost.Higher levels of financial development can increase the cost of debt financing by easing the financing constraints faced by enterprises (Zhao et al.,2020).High-quality analysts predict that it can transmit signals of good business environment and reduce the debt financing cost of enterprises (Huang et al.,2018).As the role of information intermediary,frequent media reports can alleviate the degree of information asymmetry between borrowers and lenders and reduce the cost of debt financing (Ou et al.,2017).Getting more attention

from institutional investors can alleviate the debt agency problem,alleviate the debt constraints of enterprises and reduce the cost of debt financing (Li & Wang,2021).

As mentioned above,domestic and foreign scholars have carried out a more in-depth study on the economic consequences of ESG performance and the influencing factors of debt financing cost. However,there are few literatures that link the economic consequences of ESG performance with the cost of debt financing,and explore its influencing mechanism.Therefore,this paper explores the impact of enterprise ESG performance on the cost of debt financing,and studies the mechanism of action from internal information risk and external institutional investors'attention.

3. Theoretical Analysis and Research Assumptions

3.1 Research on the Impact of ESG Performance on Debt Financing Cost

According to stakeholder theory,enterprises naturally form an "ecological whole"with creditors,customers and other stakeholders,which means that if enterprises want to reduce the cost of debt financing,they must strengthen ties with stakeholders to meet the expectations of stakeholders.Good ESG performance of enterprises can promote benign communication between enterprises and stakeholders,build a bridge for long-term cooperation between enterprises and stakeholders,reduce the degree of information asymmetry between enterprises and stakeholders,alleviate creditors'concerns about information risk (Dai and Sun,2022),enhance stakeholders'investment confidence in enterprises,and thus reduce the cost of debt financing of enterprises (Zhang,2019).At the same time,based on the theory of competitive strategy,good performance of enterprises will become an important strategic resource for enterprises. For example,good ESG performance helps enterprises attract high-quality talents (Wang,2022),and high-quality talents can play the role of reputation guarantee and information transmission to help enterprises reduce the cost of debt financing.Moreover,the improvement of ESG performance can also improve the transparency of enterprise information,transfer more enterprise characteristic information,form the competitive advantage of enterprises,and reduce the cost of debt financing. Based on the above discussion,this paper puts forward the first research hypothesis :

H1:In other cases remain unchanged,ESG performance reduces the cost of corporate debt financing,that is,the higher the enterprise ESG performance,the lower the cost of debt financing.

3.2 The Mediating Effect of Information Risk

Information risk refers to the possibility of low quality of firm-specific information and poor quality of information disclosure related to investors'pricing decisions,mainly manifested as uncertainty and volatility of information quality (Kravet & Shevlin,2010).Firstly,the impact of ESG performance on information risk is discussed.Enterprises take the responsibility of ESG information disclosure initiatively,which can realize the joint of shareholders and stakeholders,strengthen the trust and cooperation between enterprises and stakeholders,to a certain extent,avoid the pursuit of short-term interests of management,and alleviate the agency cost of enterprises. The lower the agency cost of enterprises is,the lower the possibility of information manipulation by management is (Li et al.,2022).At the same time,enterprises with good ESG performance usually focus on optimizing the internal information environment (Cui et al.,2017). They can reduce the information asymmetry between enterprises and stakeholders by improving information transparency,which helps to reduce the information risk of enterprises.Secondly,explore the impact of information risk on debt financing costs.Low information risk can transmit the signal of good information environment of enterprises,indicating that the financial situation and operating results of enterprises are good,reducing the requirements of investors for debt interest and reducing the cost of debt financing (Zhang,2019).Higher information risk will lead enterprises into difficult to maintain stable operation and financial difficulties,which will significantly increase the default risk of enterprises,increase the risk premium cost of debt financing and increase the cost of debt financing (Zhang ,2021).Based on the above discussion,this paper puts forward the second research hypothesis :

H2:Improving ESG performance can reduce the information risk of enterprises,and then reduce the cost of debt financing.

3.3 Mediating Effect of Institutional Investor Attention

First,explore the impact of ESG performance on institutional investor attention.Stocks of enterprises with good ESG performance tend to obtain better future returns (Joliet & Titova,2018) and attract more attention from institutional investors (Wang & Cheng,2017). At the same time,enterprises with better ESG performance are more likely to receive media attention (Zhou Kaiguo,2016). As a bridge between enterprises and institutional investors,frequent media reports can convey the attention of institutional investors.Based on the information transmission theory,enterprises take the initiative to assume the responsibility of ESG information disclosure,convey the image of the responsible enterprise to institutional investors,and enhance the trust of institutional investors in enterprises,which can improve the attention of institutional investors.Secondly,explore the impact of institutional investor attention on corporate debt financing costs.The higher the institutional investors'attention,the more they can ease the debt agency problem,alleviate the debt constraints of enterprises and reduce the cost of debt financing (Li & Wang,2021).At the same time,institutional investors can be used as the supervisor of enterprise information transparency to reduce the information risk of enterprises,and their own investment behavior and published research reports are also valuable information. Through these information,creditors can further understand the enterprise,alleviate the level of information asymmetry between enterprises and creditors,improve the transparency of enterprise information,and reduce the cost of enterprise debt financing.Based on the above discussion,this paper puts forward the third research hypothesis :

H3:Improving ESG performance of enterprises can increase the attention of institutional investors,thereby reducing the debt financing cost of enterprises.

4. Sample Selection and Research Design

4.1 Sample Selection and Data Source

This paper selects the annual data of Shanghai and Shenzhen A-share listed companies from 2015 to 2020 as the research object,and filters and processes the samples according to the following criteria :(1)Excluding corporate samples from the financial and insurance industries;(2)Sample companies excluding ST, *ST and PT;(3)Sample companies excluding missing variables.After screening,this paper finally obtains 17484 observations.Data sources,corporate environmental performance and corporate social performance variable data from Hexun network corporate social responsibility report database,other data are from the Guotaian database.In addition,in order to control the influence of extreme values,the observed values of continuous variables are tailed according to the upper and lower quantiles of 1%. Excel and Stata17 software are used for data processing and model estimation.

4.2 Variable Definition

(1)Variable Being Explained:debt financing cost($Debt_{i,t}$).This paper uses the research method of Wang and Qian (2021) to measure the cost of debt financing by dividing interest expenditure into total liabilities and net financial expenses into total liabilities. Among them,net financial expenses include interest expenditure,formalities and other financial expenses.Since the debt financing of enterprises will generate costs other than interest expenses,the division of net financial expenses by total liabilities can better reflect the actual situation of enterprises. Therefore,this paper selects the division of net financial expenses by total liabilities as the measurement index of basic regression,and replaces interest expenses by total liabilities with explained variables for robustness test.

(2)Explanatory Variables:ESG performance (ESG).This paper uses the environmental responsibility score and social responsibility score of the corporate social responsibility report rating of Hexun to measure the corporate environmental performance (ENV) and corporate social performance (SOC),and uses the method of Qiu and Yin (2019) to construct the corporate governance index to measure the corporate governance performance,and constructs the corporate governance index through component analysis.In this paper,the enterprise environmental performance,corporate social performance and corporate governance performance are calculated by equal weight weighted average method to calculate ESG performance,see formula(1).

$$ESG = (ENV + SOC + GOV) / 3 \quad (1)$$

Intermediary Variable:information risk.Based on the research of Liu et al. (2021),this paper uses the modified Jones model to calculate. When the absolute value of the calculated maneuverability surplus is larger,the information risk is higher.Referring to the research methods of Xi Bin,Zhang Weiwei and Zhou Linjie (2014),this paper selects the shareholding ratio of institutional investors as the index to measure the attention of institutional investors in sample enterprises,and the calculation method is the proportion of institutional investors holding in total circulation market value. The larger the shareholding ratio of institutional investors is calculated,the higher the attention of institutional investors is.

Control Variable:According to the existing research,this paper selects firm size(Size),growth(Growth),proportion of fixed assets(FIXED),profitability (ROA),asset-liability ratio(Rla),financial leverage(Lev),total asset turnover (ATO),book-to-market ratio (BM),net cash flow of business activities (Ocf),year and industry as control variables. The definitions and measurement methods of all variables are shown in Table 1.

Table 1 Variable Definition Table

	Variable Name	Variable Code	Variable Definition
Variable being Explained	Debt Financing Cost	$Debt_{i,t}$	Net Financial Expenses (Interest Expenses + Formalities + Other Financial Expenses)/Total Liabilities
Explanatory Variables	ESG Performance	ESG	(ENV+SOC+GOV)/3
	Corporate Environmental Performance	ENV	Environmental Responsibility Score of Corporate Social Responsibility Report Rating of Hexun
	Corporate Social Performance	SOC	Social Responsibility Score of Corporate Social Responsibility Report Rating of Hexun
	Corporate Governance Performance	GOV	Corporate Governance Scores Based on Model (2)
Intermediary variable	Information Risk	Risk	Calculation with Modified Jones Model
	Investor Attention	Inst	The Proportion of Institutional Investors'Shareholding in the Total Circulation Market Value
control variable	Size of Enterprise	Size	Natural Logarithm of Annual Total Assets
	Growth	Growth	This Year's Operating Income/Previous Year's Operating Income-1
	Fixed Assets Ratio	FIXED	Ratio of Net Fixed Assets to Total Assets
	Profitability	ROA	Average Net Profit/Total Assets
	Assets-Liability Ratio	Rla	Total End-of-Year Liabilities Divided by Total End-of-Year Assets
	Financial Leverage	Lev	Change Rate of Earnings Per Share/PBIT

Total Assets Turnover	ATO	Operating Income/Average Total Assets
Book-Market Ratio	BM	BV/Total Market Value
Net Operating Cash Flow	Ocf	Net Cash Flow from Operating Activities Divided by End-of-Period Total Assets
Industry	Industry	Industry Virtual Variables
Year	Year	Annual Virtual Variables

4.3 Model Specification

To test the impact of ESG performance on debt financing costs,this paper constructs the following model:

$$Debt_{i,t} = \beta_0 + \beta_1 ESG + \beta_2 Size + \beta_3 Growth + \beta_4 FIXED + \beta_5 ROA + \beta_6 Rla + \beta_7 Lev + \beta_8 ATO + \beta_9 BM + \beta_{10} Ocf + \sum Year + \sum Industry + \varepsilon \quad (2)$$

In order to test the mediating role of information risk in the influence mechanism of ESG performance on debt financing cost,this paper constructs the following model:

$$Risk = \beta_0 + \beta_1 ESG + \beta_2 Size + \beta_3 Growth + \beta_4 FIXED + \beta_5 ROA + \beta_6 Rla + \beta_7 Lev + \beta_8 ATO + \beta_9 BM + \beta_{10} Ocf + \sum Year + \sum Industry + \varepsilon \quad (3)$$

$$Debt_{i,t} = \beta_0 + \beta_1 ESG + \beta_2 Risk + \beta_3 Size + \beta_4 Growth + \beta_5 FIXED + \beta_6 ROA + \beta_7 Rla + \beta_8 Lev + \beta_9 ATO + \beta_{10} BM + \beta_{11} Ocf + \sum Year + \sum Industry + \varepsilon \quad (4)$$

To test the mediating effect of institutional investor attention on the impact of ESG performance on debt financing cost,this paper constructs the following model:

$$Inst = \beta_0 + \beta_1 ESG + \beta_2 Size + \beta_3 Growth + \beta_4 FIXED + \beta_5 ROA + \beta_6 Rla + \beta_7 Lev + \beta_8 ATO + \beta_9 BM + \beta_{10} Ocf + \sum Year + \sum Industry + \varepsilon \quad (5)$$

$$Debt_{i,t} = \beta_0 + \beta_1 ESG + \beta_2 Inst + \beta_3 Size + \beta_4 Growth + \beta_5 FIXED + \beta_6 ROA + \beta_7 Rla + \beta_8 Lev + \beta_9 ATO + \beta_{10} BM + \beta_{11} Ocf + \sum Year + \sum Industry + \varepsilon \quad (6)$$

5. Empirical Test and Result Analysis

5.1 Descriptive Statistic

In order to better grasp the characteristics and distribution of the sample data as a whole,this paper conducts descriptive statistical analysis on the sample variables. Table 2 shows the descriptive statistical results of the main variables of the sample enterprises.The average debt financing cost ($Debt_{i,t}$) is 0.0186,which shows that the proportion of net financial cost to total liabilities of listed companies in China is 1.86 %,and the minimum and maximum are 0 and 6.13 %,respectively. This shows that there is a big difference in debt financing cost ($Debt_{i,t}$) between sample enterprises.The average and median of ESG performance (ESG) are 2.9860 and 3.1280,respectively,indicating that the ESG performance of sample enterprises is at a lower-middle level;the average and median of corporate environmental performance (ENV) are 0.0051 and 0,respectively,indicating that most of the sample enterprises do not bear corporate environmental responsibility;the average and standard deviation of corporate social performance (SOC) are 0.0437 and 0.0416,respectively,indicating that there are great differences in corporate social performance among sample enterprises;the average value of corporate governance performance (GOV) is 0.1630,and the maximum values are -0.0204 and 0.4680,respectively,indicating that the corporate governance level of sample enterprises is generally low and there is a large difference between individuals;the average value of information risk (Risk) is 0.0554,indicating that sample enterprises have high information risk;the average value of institutional investors'attention is 37%,which indicates that institutional investors' attention is high in sample enterprises.In addition,the standard deviation of control variables are large,indicating that there are also large differences in the observations between sample companies.

Table 2 Descriptive Statistical Results of Variables

Variable	Sample Size	Average Value	Standard Deviation	Minimum Value	Median	Maximum Value
Debt	17484	0.0186	0.0146	0. 0000	0.0165	0.0613
ESG	17484	2.9860	0.6770	-0.2110	3.1280	4.2400
ENV	17484	0.0051	0.0266	0.0000	0.0000	0.1700
SOC	17484	0.0437	0.0416	-0.1000	0.0408	0.1500
GOV	17484	0.1630	0.0834	-0.0204	0.1650	0.4680
Risk	17484	0.0554	0.0560	0.0007	0.0380	0.2860
Inst	17484	0.3700	0.2400	0.0002	0.3750	0.8770
Size	17484	0.0325	0.0728	-0.3480	0.0357	0.1950
Growth	17484	0.1510	0.2890	-0.3470	0.0847	1.7010
FIXED	17484	0.2020	0.1560	0.0017	0.1690	0.6860
ROA	17484	0.4210	0.2010	0.0630	0.4120	0.8960
Rla	17484	22.2800	1.2760	19.9800	22.1000	26.2500
Lev	17484	1.3670	1.0050	0.0000	1.0810	7.6250
ATO	17484	0.6230	0.4170	0.0644	0.5340	2.5070
BM	17484	0.9970	1.1690	0.0786	0.6100	7.1550
Ocf	17484	0.0497	0.0670	-0.1520	0.0488	0.2410

5.2 Correlation Analysis

Table 3 shows the correlation coefficients of the main variables in this article.As can be seen from table 3,the absolute value of correlation coefficient of each main variable is less than 0.5,therefore,there is no serious multiple co-linearity problem in this empirical study.Among them,the correlation coefficient between ESG performance (ESG) and debt financing cost ($Debt_{i,t}$) is −0.203,which is significantly indigenous at the 1 % confidence level. It preliminarily proves that ESG performance is negatively correlated with debt financing cost, and confirms Hypothesis H1.

5.3 Results of Basic Regression Analysis

(1)Research on the Influence of Enterprise ESG Performance and Debt Financing Cost

In order to test the effect of ESG performance on debt financing cost, this paper estimates the model (3) by fixed effect regression, and the test results are shown in table 4.In table 4 column (1),the regression results show that the regression estimation coefficient of enterprise ESG performance variable (ESG) is significantly negative at 1% confidence level without control variables. Relevant variables are controlled in Columns (2),(4) and (5) in Table 4. From the regression results, it can be seen that the regression coefficients of ESG performance (ESG),corporate social responsibility performance (SOC) and corporate governance responsibility performance (GOV) are all significantly negative at the confidence level of 1%,indicating that ESG performance (ESG) can promote the benign communication between enterprises and stakeholders, enhance the investment confidence of stakeholders, and reduce the cost of debt financing. Hypothesis H1 is established; corporate social responsibility can establish the image of corporate responsibility, ease creditors'concerns about information risk and reduce the cost of debt financing; good corporate governance performance (GOV) can improve the resource utilization of enterprises, enhance the profitability of enterprises, reduce the interest requirements of creditors and reduce the cost of debt financing. However ,the regression estimation coefficient of enterprise environmental performance (ENV) in table 4 (3) is positive but not obvious, which may be because in the case of limited enterprise resources, corporate environmental responsibility will not only occupy enterprise resources, but also increase the direct cost of enterprises.

Table 3 Pearson Correlation Coefficient Matrix of Variables

	Debt	ESG	Size	Growth	FIXED	ROA	Rla	Lev	ATO	BM	Ocf
Debt	1.000										
ESG	-0.203*** (0.000)	1.000									
Size	0.182*** (0.000)	0.160*** (0.000)	1.000								
Growth	-0.189*** (0.000)	0.183*** (0.000)	0.026*** (0.000)	1.000							
FIXED	0.258*** (0.000)	-0.058*** (0.000)	0.104*** (0.000)	-0.152*** (0.000)	1.000						
ROA	-0.270*** (0.000)	0.119*** (0.000)	0.030*** (0.000)	0.289*** (0.000)	-0.026*** (0.000)	1.000					
Rla	0.331*** (0.000)	-0.124*** (0.000)	0.452*** (0.000)	-0.023*** (0.001)	0.051*** (0.000)	-0.332*** (0.000)	1.000				
Lev	0.360*** (0.000)	-0.199*** (0.000)	0.143*** (0.000)	-0.109*** (0.000)	0.156*** (0.000)	-0.211*** (0.000)	0.337*** (0.000)	1.000			
ATO	-0.058*** (0.000)	0.122*** (0.000)	0.046*** (0.000)	0.061*** (0.000)	-0.001 (0.915)	0.177*** (0.000)	0.099*** (0.000)	-0.049*** (0.000)	1.000		
BM	0.206*** (0.000)	-0.001 (0.864)	0.447*** (0.000)	-0.097*** (0.000)	0.068*** (0.000)	-0.152*** (0.000)	0.436*** (0.000)	0.239*** (0.000)	-0.042*** (0.000)	1.000	
Ocf	-0.068*** (0.000)	0.246*** (0.000)	0.054*** (0.000)	-0.033*** (0.000)	0.215*** (0.000)	0.336*** (0.000)	-0.156*** (0.000)	-0.095*** (0.000)	0.146*** (0.000)	-0.089*** (0.000)	1.000

t statistics in parentheses
* $p < 0.10$,** $p < 0.05$,*** $p < 0.01$

Table 4 Impact of ESG Performance on Debt Financing Costs

	Debt				
	(1)	(2)	(3)	(4)	(5)
ESG	-0.002*** (-14.535)	-0.001*** (-5.621)			
ENV			0.001 (0.199)		
SOC				-0.006*** (-2.869)	
GOV					-0.006*** (-5.215)
Size		0.002*** (8.221)	0.001*** (7.212)	0.001*** (7.304)	0.001*** (7.472)
Growth		-0.008***	-0.008***	-0.008***	-0.008***

		(-28.942)	(-30.008)	(-29.976)	(-29.922)
FIXED		0.007***	0.008***	0.008***	0.008***
		(6.919)	(8.014)	(8.028)	(7.809)
ROA		-0.004**	-0.008***	-0.007***	-0.004***
		(-2.434)	(-5.777)	(-5.050)	(-3.147)
Rla		0.006***	0.007***	0.007***	0.007***
		(7.441)	(8.990)	(8.961)	(9.056)
Lev		0.001***	0.001***	0.001***	0.001***
		(15.199)	(14.700)	(14.725)	(14.491)
ATO		0.001	0.000	0.000	0.000
		(1.376)	(0.258)	(0.413)	(0.549)
BM		0.000***	0.001***	0.001***	0.000***
		(2.708)	(3.731)	(3.735)	(3.350)
Ocf		0.011***	0.012***	0.012***	0.012***
		(8.840)	(9.176)	(9.153)	(9.501)
Year	Control	Control	Control	Control	Control
Industry	Control	Control	Control	Control	Control
cons	0.047***	0.010	0.009	0.009	0.009
	(6.327)	(1.264)	(1.158)	(1.111)	(1.098)
N	17484	17484	17484	17484	17484
R^2	0.051	0.153	0.158	0.159	0.160

t statistics in parentheses
* $p < 0.10$,** $p < 0.05$,*** $p < 0.01$

5.4 The Mediating Effect Test of Information Risk

Table 5 Fixed effect regression for model (2) and model (3).Column (1) of the regression results in Table 5 shows the regression results with information risk (Risk) as the explained variable and ESG performance (ESG) as the explanatory variable.It can be seen from the regression results in Column (1) of Table 5 that the regression estimation coefficient of ESG performance (ESG) is significantly negative at the 1% confidence level,indicating that ESG performance can reduce the information asymmetry between enterprises and stakeholders and inhibit the information risk of enterprises by improving information transparency.Model (3) of this paper adds information risk as an intermediary variable on the basis of Model (1) of the impact of ESG performance on debt financing costs.The regression coefficient of the ESG performance variable (ESG) in table 5(2) is negative at 1% confidence level;at the same time,the regression estimation coefficient of information risk variable (Risk) is significantly positive at 5% confidence level.This shows that enterprises to improve ESG performance,can reduce the internal information risk of enterprises,thereby reducing the cost of debt financing,assuming H2.

5.5 Mediating Effect Test of Institutional Investor Attention

Table 5 conducts fixed effect regression on Model (4) and Model (5).Column (3) of the regression results in Table 5 shows the regression results when institutional investor attention (Inst) is used as the explained variable and ESG performance (ESG) is used as the explanatory variable.As can be seen from the regression results of table 5,column (3),the regression estimation coefficient of ESG performance (ESG) is significantly positive at 1 per cent confidence level,indicating that ESG performance can convey a responsible corporate image to institutional investors,enhance institutional investors'trust in enterprises and increase institutional investors'attention.

Model (5) of this paper adds investor attention as an intermediary variable based on Model (1) of the impact of ESG performance on debt financing costs.The regression coefficients of the ESG

performance variable (ESG) in table 5 (4) are significantly negative at 1 per cent confidence level and the regression coefficients of the institutional investor attention variable (Inst) are significantly negative at 1 per cent confidence level.This shows that enterprises'improvement of ESG performance can increase the attention of institutional investors outside the enterprise,thereby reducing the cost of debt financing,and Hypothesis H3 holds.

Table 5 Mediating Effect of ESG Performance on Corporate Debt Financing Cost

	Risk	Debt	Inst	Debt
	(1)	(2)	(3)	(4)
ESG	-0.006***	-0.001***	0.023***	-0.001***
	(-7.065)	(-2.633)	(22.685)	(-6.565)
Risk		0.004**		
		(2.558)		
Inst				-0.002***
				(-3.200)
Size	0.001	0.002***	-0.007**	0.001***
	(0.418)	(8.665)	(-2.552)	(6.620)
Growth	0.023***	-0.009***	0.012***	-0.008***
	(13.757)	(-30.509)	(2.990)	(-29.727)
FIXED	-0.038***	0.017***	0.030**	0.008***
	(-5.026)	(13.513)	(1.965)	(7.872)
ROA	-0.171***	-0.006***	0.109***	-0.007***
	(-14.301)	(-3.120)	(5.679)	(-5.452)
Rla	0.017***	0.008***	0.017	0.007***
	(2.904)	(8.820)	(1.493)	(9.036)
Lev	-0.002***	0.001***	-0.001	0.001***
	(-4.085)	(15.981)	(-0.603)	(14.661)
ATO	0.039***	0.000	-0.028***	-0.000
	(15.265)	(0.604)	(-4.744)	(-0.578)
BM	-0.005***	0.000	-0.010***	0.000***
	(-5.584)	(1.021)	(-4.704)	(3.158)
Ocf	-0.078***	0.011***	-0.026	0.012***
	(-9.929)	(8.585)	(-1.391)	(9.261)
Year	Control	Control	Control	Control
Industry	Control	Control	Control	Control
cons	0.037	-0.010	0.319***	0.010
	(0.689)	(-1.147)	(2.678)	(1.221)
N	16695	16695	16457	16457
R^2	0.093	0.184	0.091	0.155

t statistics in parentheses
* $p < 0.10$,** $p < 0.05$,*** $p < 0.01$

6. Robustness Testing

6.1 Endogenous Discussion

Firms with lower debt financing costs may be more likely to reduce internal information risk and gain institutional investor attention,which in turn will be relatively easy to have better ESG performance,which will also lead to deviation of empirical regression results.Therefore,this paper discusses the endogenous problems between ESG performance and debt financing cost.In this

paper,one-period lagged ESG performance (ESG_{t-1}) is used as an instrumental variable,and 2SLS method is used for robustness test. The test results are shown in Table 6.It can be seen from the regression results in Table 6 that the regression estimation coefficient of one-period lagged ESG performance (ESG_{t-1}) is still significantly negative at the 1% confidence level. This indicates that,after controlling the endogeneity problem,the conclusions drawn above are still consistent.

Table 6 Two-Stage Least Squares Regression Results

	ESG	Debt
ESG		-0.001***
		(-5.254)
L.ESG	0.115***	
	(16.909)	
Size	0.239*	0.002***
	(1.881)	(5.234)
Growth	0.074***	-0.011***
	(2.664)	(-11.241)
FIXED	0.140	0.016***
	(1.091)	(7.501)
ROA	0.254	-0.149***
	(1.590)	(-3.570)
Rla	-0.939***	0.006***
	(-9.810)	(3.748)
Lev	-0.010	0.002***
	(-1.235)	(9.380)
ATO	0.071*	0.002**
	(1.742)	(2.348)
BM	-0.046***	0.002***
	(-3.280)	(4.066)
Ocf	-0.242**	0.015***
	(-2.002)	(6.430)
cons	-1.173*	-0.021**
	(-1.817)	(-2.026)
N	14703	14703
R^2	0.441	0.177

t statistics in parentheses
* $p < 0.10$,** $p < 0.05$,*** $p < 0.01$

6.2 Changing Sample Measurement Standards

In order to ensure the stability of the empirical results,this paper adopts the method of replacing the explained variables,and further selects the alternative measurement standard of dividing interest expenditure by total liabilities under the detailed items of financial costs to conduct the robustness test. It is found that the coefficient symbol and the visibility of the core variables have not changed significantly,which is still consistent with the previous conclusion.The specific test results are shown in Table 7.

Table7 Changes the Bond Financing Cost Measurement Regression Results Analysis

	Debt	Risk	Debt	Inst	Debt
	(1)	(2)	(3)	(4)	(5)
ESG	-0.002***	-0.006***	-0.001***	0.023***	-0.000**
	(-5.980)	(-7.065)	(-3.360)	(22.685)	(-2.425)
Risk			0.010***		

			(3.121)		
Inst					-0.002*** (-4.373)
Size	0.000 (0.753)	0.001 (0.418)	0.003*** (4.916)	-0.007** (-2.552)	0.001*** (7.272)
Growth	-0.004*** (-6.384)	0.023*** (13.757)	-0.005*** (-7.492)	0.012*** (2.990)	-0.008*** (-30.045)
FIXED	0.018*** (7.620)	-0.038*** (-5.026)	0.031*** (11.142)	0.030** (1.965)	0.008*** (7.976)
ROA	0.005 (1.224)	-0.171*** (-14.301)	-0.002 (-0.346)	0.109*** (5.679)	-0.008*** (-5.948)
Rla	0.033*** (18.062)	0.017*** (2.904)	0.045*** (21.637)	0.017 (1.493)	0.007*** (9.185)
Lev	0.003*** (16.110)	-0.002*** (-4.085)	0.003*** (16.408)	-0.001 (-0.603)	0.001*** (14.825)
ATO	0.006*** (6.907)	0.039*** (15.265)	0.006*** (6.517)	-0.028*** (-4.744)	-0.000 (-0.425)
BM	-0.001** (-2.566)	-0.005*** (-5.584)	-0.001*** (-4.127)	-0.010*** (-4.704)	0.000*** (3.038)
Ocf	0.021*** (7.357)	-0.078*** (-9.929)	0.023*** (8.010)	-0.026 (-1.391)	0.012*** (9.417)
Year	Control	Control	Control	Control	Control
Industry	Control	Control	Control	Control	Control
cons	0.009 (0.482)	0.037 (0.689)	-0.059*** (-3.001)	0.319*** (2.678)	0.010 (1.234)
N	16695	16695	16695	16695	16695
R^2	0.129	0.093	0.157	0.091	0.157

t statistics in parentheses
* $p < 0.10$,** $p < 0.05$,*** $p < 0.01$

6.3 Replace Enterprise ESG Performance Database

The ESG score of Huazheng in Wind database is used to measure ESG performance,and the ESG performance database is replaced for robustness test.The Chinese Securities ESG score divides the enterprise's ESG performance into 9 grades. This paper assigns 1 to 9 grades from low to high,and the higher the score of ESG performance assignment,the better the enterprise's ESG performance.Table 8 shows the results of the robustness regression test,and the conclusions are consistent with the above.

Table 8 Regression Analysis of ESG Performance Database for Replacement Enterprises

	Debt	Risk	Debt	Inst	Debt
	(1)	(2)	(3)	(4)	(5)
ESG	-0.000*** (-7.261)	-0.001** (-2.222)	-0.001*** (-5.704)	0.006*** (4.009)	-0.000*** (-6.621)
Risk			0.003** (2.326)		
Inst					-0.002*** (-3.323)
Size	0.001*** (6.686)	-0.000 (-0.126)	0.002*** (8.034)	-0.012*** (-4.409)	0.001*** (6.143)
Growth	-0.008***	0.024***	-0.009***	0.016***	-0.008***

	(-29.804)	(13.715)	(-30.967)	(4.094)	(-29.404)
FIXED	0.008***	-0.046***	0.018***	0.025*	0.008***
	(7.820)	(-5.842)	(14.159)	(1.651)	(7.382)
ROA	-0.007***	-0.349***	-0.005***	0.145***	-0.008***
	(-5.603)	(-41.145)	(-3.421)	(7.450)	(-5.609)
Rla	0.007***	0.014**	0.009***	0.008	0.007***
	(8.995)	(2.394)	(10.256)	(0.633)	(8.259)
Lev	0.001***	-0.003***	0.001***	-0.001	0.001***
	(14.673)	(-4.826)	(15.355)	(-1.198)	(14.505)
ATO	-0.000	0.044***	-0.000	-0.033***	-0.000
	(-0.456)	(16.809)	(-0.626)	(-5.457)	(-0.559)
BM	0.000***	-0.006***	0.000**	-0.009***	0.000***
	(3.281)	(-7.011)	(2.139)	(-4.405)	(3.256)
Ocf	0.012***	-0.033***	0.011***	-0.037*	0.013***
	(9.294)	(-4.109)	(8.727)	(-1.944)	(9.596)
Year	Control	Control	Control	Control	Control
Industry	Control	Control	Control	Control	Control
cons	0.015*	0.038	-0.006	0.588***	0.017**
	(1.877)	(0.682)	(-0.740)	(4.851)	(2.051)
N	17440	17440	17440	17440	17440
R^2	0.159	0.160	0.189	0.061	0.156

t statistics in parentheses
* $p < 0.10$,** $p < 0.05$,*** $p < 0.01$

7. The Heterogeneity Test of Enterprise ESG Performance on Debt Financing Cost

7.1 Heterogeneity Test Based on Audit Quality

There are significant differences in the level of corporate audit quality,and high-level audit quality is more conducive to the development of enterprises. Therefore,this paper further studies the impact of ESG performance on debt financing costs in enterprises with different audit quality.This paper takes whether the enterprise has been issued a standard audit opinion as an alternative variable of audit quality,and divides the sample enterprises into the sample group of enterprises with high audit quality (Opinion = 1,that is,issued a standard audit opinion) and low audit quality (Opinion = 0,that is,not issued a standard audit opinion).Table 9 (1) shows that the regression coefficient of ESG performance of enterprise sample groups with high audit quality is significantly negative,and table 9 (1) shows that the regression coefficient of ESG performance of enterprise sample groups with low audit quality is negative,but not significantly.The results of this study show that the mitigation effect of ESG performance on debt financing costs is more prominent in enterprises with high audit quality. In enterprises with high audit quality,the information disclosed by enterprises is more credible. Therefore,enterprises bear the responsibility of ESG information disclosure,and there is no false signal to the market. Therefore,more credible ESG performance can significantly reduce the cost of debt financing.Enterprises with low audit quality may have bad motives to take the initiative to assume the responsibility of ESG information disclosure. Their ESG performance is difficult to convince creditors,so the impact of ESG performance on debt financing costs is not obvious.

7.2 Heterogeneity Test Based on Regional Differences

In China,there are significant differences in the level of economic development between different regions,especially in the eastern region and the central and western regions.Therefore,this paper further studies the impact of ESG performance on debt financing costs in enterprises with different regional differences. In this paper,the sample enterprises are divided into the eastern region sample

group (Area = 1) and the central and western region sample group (Area = 0) according to the location of the main place of business. Table 9 (3) shows that the regression estimation coefficient of the eastern region sample group is negative at 1% confidence level;Table 9 (4) shows that the regression coefficient of ESG performance of enterprise sample groups in the Midwest is negative,but not significant.The results of this study show that the mitigation effect of ESG performance on debt financing costs is more prominent in enterprises in the eastern region.This is mainly because the overall level of economic development in the eastern region is high and the institutional environment is relatively perfect,the public will consciously pay attention to the performance of corporate social responsibility and corporate governance.At the same time,in the eastern region,the government has more abundant financial resources,which can provide policy support for enterprises to better assume corporate social responsibility and enhance the enthusiasm of enterprises to improve ESG performance.In addition,the government's supervision of enterprises is more stringent than the central and western regions,which makes enterprises in the eastern region pay more attention to the ESG performance of enterprises in order to reduce information asymmetry and increase the attention of institutional investors,thereby reducing the cost of debt financing.On the contrary,in the central and western regions,investors pay much more attention to economic performance than ESG performance. At the same time,the lack of government financial resources also greatly reduces the enthusiasm of enterprises to improve ESG performance.

7.3 Heterogeneity Test Based on Property Rights

Under the institutional background of our country,there are obvious differences in social responsibility,organization and management between state-owned enterprises and non-state-owned enterprises,which will have an important impact on the performance of enterprise ESG and the cost of debt financing. Therefore,this paper further studies the impact of ESG performance on debt financing costs in enterprises with different property rights.This paper is divided into the state-owned enterprise sample group (SOE = 1) and the non-state-owned enterprise sample group (SOE = 0) according to the nature of nature of the sample enterprises. Column (5) of Table 9 shows that in the state-owned enterprise sample group,the regression estimation coefficient of the ESG performance variable (ESG) is negative,but it is only significantly indigenous at the 10% confidence level. Column (6) of Table 9 shows that in the non-state-owned enterprise sample group,the regression estimation coefficient of the ESG performance variable (ESG) is significantly indigenous at the 1% confidence level.At the same time,compared with the state-owned enterprise sample group,the regression estimation coefficient of ESG performance in the non-state-owned enterprise sample group is larger. The test results show that under different property rights,compared with state-owned enterprises,non-state-owned enterprises ESG performance has a greater role in promoting corporate debt financing costs.This is because there is a deep political connection between state-owned enterprises and the government,and state-owned enterprises are more likely to receive government subsidies. Therefore,creditors have more confidence in the solvency of state-owned enterprises,while ESG has less influence in the process of creditors measuring the solvency of state-owned enterprises.However,non-state-owned enterprises are more closely related to the market. Compared with state-owned enterprises,creditors pay more attention to ESG performance. Enterprises with better ESG performance are more likely to reduce creditors'requirements for debt interest,thereby reducing the cost of debt financing.

Table 9 Regression Results of Heterogeneity Analysis

	Debt					
	(1) High Audit Quality(Opinion= 1)	(2) Low Audit Quality(Opinion= 0)	(3) Eastern Regions(Area= 1)	(4) Central and Western Regions(Area= 0)	(5) Non-State-Owned Enterprises(SOE= 0)	(6) State-Owned Enterprise(SOE= 1)
ESG	-0.001***	-0.001	-0.002**	-0.001	-0.001***	-0.000*
	(-4.320)	(-1.135)	(-2.181)	(-1.061)	(-4.327)	(-1.887)

Size	0.002***	0.004	0.002***	0.002***	0.002***	0.001
	(8.207)	(1.335)	(7.146)	(4.023)	(7.563)	(1.507)
Growth	-0.007***	-0.017***	-0.008***	-0.008***	-0.007***	-0.010***
	(-27.611)	(-3.574)	(-25.369)	(-14.663)	(-23.197)	(-15.551)
FIXED	0.007***	0.015	0.007***	0.008***	0.003**	0.019***
	(6.556)	(0.813)	(5.429)	(3.958)	(2.305)	(10.696)
ROA	-0.006***	0.024**	-0.005***	0.002	-0.009***	0.016***
	(-2.994)	(2.068)	(-2.630)	(0.608)	(-4.129)	(3.715)
Rla	0.005***	-0.003	0.005***	0.006***	0.004***	0.011***
	(6.092)	(-0.301)	(5.814)	(3.459)	(4.036)	(6.233)
Lev	0.001***	-0.000	0.001***	0.001***	0.002***	0.001***
	(15.935)	(-0.122)	(12.561)	(7.992)	(12.312)	(8.602)
ATO	0.000	0.001	0.001**	-0.001	0.001	-0.000
	(0.538)	(0.272)	(2.262)	(-1.217)	(1.306)	(-0.208)
BM	0.000*	-0.001	0.000**	0.001**	0.000*	0.001***
	(1.864)	(-0.353)	(2.518)	(2.105)	(1.809)	(5.343)
Ocf	0.012***	-0.000	0.012***	0.011***	0.012***	0.012***
	(9.301)	(-0.022)	(7.793)	(4.170)	(6.907)	(5.776)
Year	Control	Control	Control	Control	Control	Control
Industry	Control	Control	Control	Control	Control	Control
cons	0.009	-0.046	0.012	-0.009	0.008	-0.006
	(1.124)	(-0.746)	(1.429)	(-0.783)	(0.838)	(-0.539)
N	16999	485	12604	4880	11641	5843
R^2	0.144	0.252	0.159	0.175	0.159	0.220

t statistics in parentheses
t statistics in parentheses
* $p < 0.10$,** $p < 0.05$,*** $p < 0.01$

8. Conclusion and Enlightment

Based on the sample of Shanghai and Shenzhen A-share listed companies from 2015 to 2020,this paper studies the impact of ESG performance on corporate debt financing costs. The study finds that:(1)ESG performance has an inhibitory effect on corporate debt financing costs,among which improving corporate social responsibility performance and corporate governance performance can effectively reduce debt financing costs;(2)The impact mechanism test finds that ESG performance can reduce the cost of debt financing by alleviating the internal information risk of enterprises and increasing the attention of external institutional investors;(3)Heterogeneity analysis found that in high audit quality,eastern regions and non-state-owned enterprises,enterprise ESG performance has a more significant inhibitory effect on corporate debt financing costs. After controlling the endogeneity problem,changing the sample measurement standard and replacing the enterprise ESG performance database,the conclusion of this paper is still valid.Based on the above research,this paper puts forward the following policy suggestions. First,from the enterprise level,ESG performance includes the enterprise's multi-dimensional sustainable development concept of environment,society and corporate internal governance. At present,China is in the transition period of the whole economy and society,enterprises are facing the dilemma of high financing cost. Improving ESG performance can effectively reduce the debt financing cost of enterprises,break the dilemma of high debt financing cost,and promote the sustainable development of enterprises.Therefore,enterprises should pay attention to ESG performance in operation management,take ESG performance as a long-term "value investment"rather than a simple "cost investment",and actively establish enterprise ESG performance management mechanism.Second,from the perspective of external investors,in the current social context of sustainable development,institutional investors are external supervisors that promote enterprises to fulfill their social responsibilities and improve corporate governance. Therefore,investors should not only focus on the performance of financial performance,but also pay attention to its ESG performance when choosing investment objects,so as to obtain longer-term sustainable returns.Third,from the government level,the government should conform to the

development trend and establish an incentive and restraint mechanism for ESG information disclosure. Enterprises with good ESG performance should be rewarded with certain incentives in tax policies and government bidding projects,such as tax exemption or tax reduction,preferential bidding rights,etc. In order to guide enterprises to pay attention to and actively disclose their ESG information,it is necessary to carry out appropriate punishment measures for enterprises with poor ESG performance,such as notification of such enterprises and ordering to pay fines,and ultimately promote the whole market to develop in a sustainable direction.

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