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ESG Performance and Corporate Leverage Manipulation

Bao Qu, Xingxing Mo*

School of Accounting, Guizhou University of Finance and Economics, Guiyang, 550025, China
2720052799@qq.com
**Corresponding author*

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Abstract: Preventing and resolving debt risks is an important task in the management of state-owned enterprises and a crucial foundation for their high-quality development. This article takes A-share listed companies from 2007 to 2022 as research samples to examine the impact of ESG performance and corporate leverage manipulation behavior. Research has found that ESG performance effectively suppresses corporate leverage manipulation, and subdividing E, S, and G all have significant inhibitory effects. Mechanism research has found that ESG suppresses corporate leverage manipulation behavior by alleviating financing constraints, improving corporate reputation, and curbing earnings manipulation. Heterogeneity analysis found that the inhibitory effect of ESG on corporate leverage manipulation is mainly more significant in non-heavy polluting enterprises and enterprises with high deleveraging pressure.

1. Introduction

The Central Financial Conference in October 2023 proposed the goal of building a strong financial country, and financial work has become a national strategic priority. "Deleveraging" is an important means of preventing financial risks. The adjustment of corporate leverage ratio is crucial for supply side reform, but under internal and external deleveraging pressures, companies may use leverage manipulation to reduce their debt levels, such as exploiting loopholes in accounting standards, off balance sheet liabilities, and other means. This not only exacerbates agency conflicts and reduces investment and financing efficiency, but also increases financial risks and threatens economic stability. Therefore, it is crucial to study corporate leverage manipulation and its governance mechanisms.

Existing research suggests that financing constraints and agency problems are the main incentives for companies to engage in leverage manipulation. The expansion of local government debt[1], the motivation for issuing bonds[2], and the distraction of institutional investors[3] can exacerbate corporate leverage manipulation. In terms of internal governance, national auditing [4], chain shareholder governance [5], and capital market openness [6] have effectively suppressed corporate leverage manipulation.

ESG, as a key indicator of national sustainable development strategy, plays an important role in promoting the high-quality development efficiency of enterprises. Research has found that ESG has strong economic and value effects, which can enhance corporate resilience [7], suppress corporate cost markups [8], enhance corporate value [9], etc. However, it is still unknown whether there are

effective governance effects on corporate leverage manipulation behavior, and if so, through which channels?

Based on the above analysis, this article explores the impact of ESG on leverage manipulation from an ESG perspective. The innovation of this article lies in: firstly, enriching the research on ESG economic consequences and subdividing the impact of E, S, and G on corporate leverage manipulation; Secondly, it expands the research on the influencing factors of corporate leverage manipulation and reveals the important value of ESG; The third is to integrate ESG and leverage manipulation into the same framework, and explore the logical relationship between the two from the perspectives of resource siphon effect, reputation effect, and governance empowerment effect, which is a supplement to relevant research.

2. Hypotheses development

The main driving factors for corporate leverage manipulation include resource constraints and agency problems. ESG, as a key indicator of sustainable development strategy, plays an important role in the high-quality development of enterprises. ESG effectively addresses corporate leverage manipulation through three effects: resource siphoning, reputation monitoring, and governance empowerment.

Firstly, from the analysis of the resource siphon effect of ESG, good ESG performance can reduce financing costs, alleviate resource constraints, and suppress corporate leverage manipulation. China has long faced the problem of "difficult and expensive financing", which is often the motivation for enterprises to engage in leverage manipulation. Good ESG performance can send positive signals to the outside world, boost confidence in the information supply side, enhance the availability of corporate financing, and weaken the motivation for leverage manipulation. As non-financial information, ESG supplements the lack of quantitative information and showcases the company's good performance in environmental protection, social responsibility, governance, and operations to stakeholders, helping to maintain commercial financing [10][11], attract investment and government subsidies, and provide sustained resource support for the company.

Secondly, the reputation monitoring effect of ESG shows that good ESG performance can enhance corporate reputation, accumulate social capital, and create favorable social conditions for breaking through resource constraints. Based on reputation theory, a good reputation is an important social capital for a company, which can win social trust, promote sustainable operations, and inhibit leverage manipulation for short-term prosperity[12]. In terms of environmental responsibility, the "green" label establishes a good image, reduces environmental regulations, and wins the tilt of financial resources[13]. In terms of social responsibility, positive behaviors such as charitable donations accumulate reputation capital, form long-term reputation insurance, and help gather resources. In terms of corporate governance, positive ESG performance builds a favourable corporate image, facilitates communication with the outside world to obtain resource support, and mitigates the tendency to leverage manipulation by enhancing risk response[14].

From the governance empowerment effect of ESG, good ESG performance can improve the governance environment, alleviate agency problems, and weaken leverage manipulation tendencies. First, good ESG can standardize the internal governance system, coordinate the interests of management and shareholders to mitigate agency conflicts, and then restrain the self-interested behavior of management. Secondly, companies that value ESG concepts should attract the attention of external stakeholders, form joint supervision, improve the governance environment, and reduce the risk of leverage manipulation. Thirdly, in order to maintain ESG reputation, companies should enhance internal governance, strengthen supervision of decision-makers, alleviate agency problems, and weaken the motivation for leverage manipulation. In summary, this article proposes the

following hypothesis:

Hypothesis 1. ESG performance can weaken the motivation for corporate leverage manipulation.

3. Research design

3.1. Sample Selection and data source

This study sample covers all A-share listed companies in China from 2007 to 2022. The screening criteria include: removing samples from financial and insurance categories, ST/PT companies, abnormal asset liability ratios (>1 or<0), and missing data; Perform Winsorization on the 1% and 99% quantiles of variables. After this screening, the final sample size is 31666. Financial data comes from the CSMAR database, while macroeconomic data comes from the CNRDS data platform.

3.2. Empirical model

To examine the impact of ESG performance on corporate leverage manipulation, we use the following regression model for testing:

$$LEVM_{i,t}=\alpha_0+\alpha_1 ESG_{i,t}+Controls_{i,t}+FE+\varepsilon_{i,t} \quad (1)$$

In Eq. (1), LEVM represents corporate leverage manipulation, ESG represents corporate leverage manipulation, and Controls represents a series of control variables used in this article, including company characteristic variables, governance variables, and macroeconomic variables. This article also includes fixed effects for the year and industry.

3.3. Variable measurement

3.3.1. ESG performance

We use Huazhong ESG rating data to measure. This article refers to Yang et al. (2023) [14]. The approach of assigns ESG ratings of listed companies from low to high, ranging from 1 to 9. The higher the ESG value is, the greater the environmental is, social and corporate governance advantage of the listed company.

3.3.2. Corporate leverage manipulation

Referring to Xu et al. (2021) [15], the basic XLT-LEVM method is used to measure corporate leverage manipulation.

The Basic Law mainly considers the implementation of t+1 period leverage manipulation by enterprises through off balance sheet liabilities and real debt of listed stocks

$$FLEVM_{i,t+1}=\frac{DEBTB_{Total_{i,t+1}}+DEBTB_{Ob_{i,t+1}}+DEBTB_{Nsrd_{i,t+1}}}{ASSETB_{Total_{i,t+1}}+DEBTB_{Ob_{i,t+1}}}-FLEVB_{i,t+1} \quad (2)$$

Among them,$DEBTB\_Total_{i,t+1}$ is the total liabilities of period t+1,$DEBTB\_Ob_{i,t+1}$ is the off balance sheet liabilities of period t+1, $DEBTB\_Nsrd_{i,t+1}$ is the real debt of period t+1,$ASSETB\_Total_{i,t+1}$ is the total assets of period t+1,$FLEVB_{i,t+1}$ is the book leverage ratio, that is, the year-end total asset liability ratio of period t+1.The relevant variables in this article are shown in Table 1.

Table 1: Description of related control variables

Variable properties	Variable name	Variable representation	Variable Description
Explained Variable	Lever manipulation	LEVM	The degree of leverage manipulation in period t+1 calculated by the basic XLT-LEVM method
explanatory variable	ESG performance	ESG	Huazhong ESG Rating
Company characteristic variables	company size	Size	Natural logarithm of annual total assets
	Book leverage ratio	Lev	Year end total liabilities/Year end total assets
	return on assets	ROA	Net profit/average balance of total assets
	Business growth rate	Growth	Current year's operating income/previous year's operating income -1
	Operating cash flow	Cfo	Net cash flows from operating activities/total assets
	Mortgage ability	fata	Net fixed assets/total assets
	non-debt tax shield	Ndts	Depreciation of fixed assets/total assets
	Interest rate of interest bearing liabilities	IR	Interest expenses/total interest bearing liabilities
Corporate Government Variables	Equity balance degree	Balance	Sum of shareholding ratios of the 2nd to 5th largest shareholders/shareholding ratio of the largest shareholder
	Board size	Board	Take the natural logarithm of the number of board members
	Proportion of independent directors	Indep	Independent directors divided by the number of directors
	duality	Dual	If a director concurrently serves as an executive, take 1; otherwise, take 0
	Property Rights Nature	SOE	State owned holding enterprises have a value of 1, while others have a value of 0
Macroeconomic Variables	Level of economic development	Pgdp	Per capita GDP
	Financial Development	Fin	Balance of deposits and loans of financial institutions in each province/GDP

4. Empirical result

4.1. Descriptive statistics

The main descriptive statistics of the text are shown in Table 2. The mean of basic leverage manipulation (LEVM) is 0.1192, the median is 0.0375, and the minimum and maximum values are 0 and 1.5670, respectively. This is consistent with the results of Xu (2021) [15], indicating that there is a certain degree of leverage manipulation behavior among listed companies in China. The average ESG score is 4.0768, with minimum and maximum values of 1 and 8 respectively,

indicating good ESG performance of the company. The distribution characteristics of other control variables are consistent with existing research.

Table 2: Descriptive statistics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	N	mean	sd	min	p25	p50	p75	max
LEVM	31666	0.1192	0.2206	0.0000	0.0000	0.0375	0.1594	1.5670
ESG	31666	4.0768	1.0787	1.0000	3.0000	4.0000	5.0000	8.0000
Size	31666	22.2604	1.2799	19.8377	21.3474	22.0755	22.9820	26.2723
Lev	31666	0.4466	0.2012	0.0749	0.2901	0.4372	0.5904	0.9443
ROA	31666	0.0383	0.0680	-0.2441	0.0125	0.0387	0.0718	0.2148
Growth	31666	0.1679	0.3893	-0.5308	-0.0288	0.1071	0.2703	2.2346
Cfo	31666	0.0466	0.0683	-0.1528	0.0079	0.0454	0.0863	0.2425
fata	31666	0.2178	0.1609	0.0021	0.0922	0.1854	0.3102	0.6985
Ndts	31666	0.0202	0.0147	0.0005	0.0090	0.0171	0.0285	0.0692
IR	31666	0.0678	0.0951	0.0000	0.0320	0.0486	0.0681	0.7203
Balance	31666	0.7278	0.6032	0.0280	0.2510	0.5649	1.0467	2.7657
Boardsize	31666	8.5657	1.6834	5.0000	7.0000	9.0000	9.0000	15.0000
Indep	31666	0.3754	0.0531	0.3333	0.3333	0.3636	0.4286	0.5714
Dual	31666	0.2762	0.4471	0.0000	0.0000	0.0000	1.0000	1.0000
SOE	31666	0.3620	0.4806	0.0000	0.0000	0.0000	1.0000	1.0000
Pgdp	31666	8.0965	3.9408	1.9979	5.1110	7.3276	10.1905	19.0313
Fin	31666	3.8253	1.4000	1.9119	2.7406	3.5829	4.3980	7.6095

4.2. Baseline regressions

Table 3 shows the regression results of corporate ESG performance on leverage manipulation. The first column shows that the regression coefficient of ESG on LEVM is significantly -4.5174 ($p<0.01$), indicating that ESG performance can effectively suppress corporate leverage manipulation. Furthermore, the ESG regression results (columns 2-4) show that the economic (E), social (S), and environmental (G) levels can all suppress corporate leverage manipulation, further verifying hypothesis H1.

Table 3: Corporate ESG Performance and Leverage Manipulation

	LEVM			
	(1)	(2)	(3)	(4)
ESG	-0.0059***			
	(-4.5174)			
E		-0.0154***		
		(-4.7857)		
S			-0.0039***	
			(-3.0639)	
G				-0.0051***
				(-4.7694)
Controls & FE	YES	YES	YES	YES
Observations	31666	31666	31666	31666
Adj-R ²	0.0351	0.0344	0.0347	0.0352

Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1. The same as below.

4.3. Endogeneity concerns and robustness tests

To eliminate the interference of reverse causality and deleveraging policies, this article adopts the instrumental variable method, selects the average ESG performance of other companies in the same industry and year as the instrumental variable, and processes it through two-stage least squares method. Meanwhile, taking the deleveraging policy of the 2018 Central Economic Conference as a reference, competitive interference is eliminated. In addition, robustness testing was conducted by replacing the measurement method of enterprise leverage manipulation variables (indirect method LEVM_I replacing direct method LEVM). Table 4 shows that all tests passed, verifying the robustness of hypothesis H1.

Table 4: Endogeneity concerns and robustness tests

	IV-2SLS		Replace method	Deleveraging policy	
	IV: First	IV: LEVM	LEVM_I	LEVM_Before	LEVM_later
	(1)	(2)	(3)	(4)	(5)
ESG	0.7323***	-0.0046***	-0.0058***	-0.1361***	-0.0067***
	(21.2544)	(-5.5332)	(-3.9161)	(-3.3331)	(-4.3244)
Controls & FE	YES	YES	YES	YES	YES
Observations	31050	31050	31666	11229	20437
Adj-R ²	0.0934	0.0548	0.0583	0.0465	0.0339
Weak IV test	180.84(16.380)				
Identifiable inspection	168.095(0.000)				

5. Further analysis

5.1. Mechanism analysis

Table 5: Mechanism analysis.

	Abs_SA	Reputation	Occupy
	(1)	(2)	(3)
ESG	-0.0898***	0.1292***	-0.0011***
	(-15.4378)	(13.9954)	(-8.4576)
Controls & FE	YES	YES	YES
Observations	30464	30077	30890
Adj-R ²	0.7663	0.7582	0.1510

The previous analysis indicates that ESG suppresses corporate leverage manipulation through three effects: resource siphoning, reputation monitoring, and governance empowerment. This article adopts a two-step mechanism to test [16], revealing its mechanism of action from three channels: financing constraints, corporate reputation, and supervisory empowerment. The absolute value of the SA Financing Constraint Index (Abs_SA) was used to measure financing constraints, and the results showed a negative correlation between ESG and Abs_SA, verifying the resource siphon effect. Referring to the corporate reputation indicators constructed by Guan and Zhang (2019)[17], the results show that ESG performance enhances corporate reputation. Using earnings manipulation (Occupation) as a supervisory empowerment proxy variable, the results also indicate that ESG performance suppresses earnings manipulation, suggesting that ESG performance has a supervisory

empowerment effect. The results in Table 5 confirm that ESG performance effectively inhibits corporate leverage manipulation through resource siphoning, reputational effects and monitoring empowerment.

5.2. Heterogeneity analysis

We mainly explore heterogeneity analysis from industry heterogeneity and deleveraging pressure heterogeneity. Firstly, we distinguish between heavily polluting industries and non heavily polluting industries. In the context of economic greening, ESG (Environmental, Social, Governance) affects the long-term development of companies. Non heavy polluting enterprises are compliant with the law, have stable ESG performance, and are immune to the impact of emission reduction policies and environmental accident risks. At the same time, investors are increasingly valuing ESG and tend to invest in companies with good performance. Therefore, non polluting enterprises have the advantage of ESG performance and are more likely to receive attention and support in the financing process. Their financing constraints are reduced, financing costs are lowered, and their tendency towards leverage manipulation is weaker.

Secondly, explore the heterogeneity of deleveraging pressure using the asset liability ratio. The higher the leverage of a company, the more motivated it is to manipulate it in order to meet regulatory requirements. However, high leverage will attract the attention and supervision of external stakeholders such as creditors, and the possibility of companies engaging in leverage manipulation will also be reduced. The supervisory effect brought by creditors is more beneficial for ESG to play a role, that is, the stronger the deleveraging pressure within the company, the stronger the weakening effect of ESG performance on leverage manipulation. This article follows the approach of Xu et al. (2021)[18], selecting the internal leverage ratio of enterprises and grouping them according to the industry annual median to obtain two groups of high and low deleveraging pressure and conducting regression analysis.

The regression results are shown in Table 6. The inhibitory effect of ESG performance on corporate leverage manipulation is significant in non heavily polluting enterprises and under high internal deleveraging pressure, but not significant in heavily polluting enterprises and under low deleveraging pressure. Our regression results test the above discussion.

Table 6: Heterogeneity analysis

	Heavy polluting	Non-heavy polluting	Non heavy polluting	Low pressure on deleveraging
	(1)	(2)	(3)	(4)
ESG	-0.0020	-0.0039***	-0.0016	-0.0072***
	(-0.8694)	(-2.6822)	(-1.0575)	(-3.5015)
Controls & FE	YES	YES	YES	YES
Observations	10210	20603	15795	15871
Adj-R ²	0.0378	0.0277	0.0647	0.0335
Difference test(p)	0.0120		0.0443	

6. Conclusions

This study found that ESG performance effectively suppresses corporate leverage manipulation, and subdividing E, S, and G all have significant inhibitory effects. Mechanism research has found that ESG suppresses corporate leverage manipulation behavior by alleviating financing constraints, improving corporate reputation, and curbing earnings manipulation. Heterogeneity analysis found that the inhibitory effect of ESG on corporate leverage manipulation is mainly more significant in

non-heavy polluting enterprises and enterprises with high deleveraging pressure. This study provides experience to assist Chinese listed companies in driving ESG economic efficiency and achieving high-quality development.

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