

The Moderating Effect of ROA on the Relationship between ESG and Firm Value: Evidence from China

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〈Abstract〉

This paper investigates the relationship between environmental, social, and governance (ESG) performance and firm value in China, focusing on the moderating effect of return on assets (ROA) as a proxy for financial performance. Analyzing data from listed companies in China's A-share market spanning 2018 to 2020, we first find that ESG performance is positively associated with firm value. Secondly, we show that this positive association is more pronounced for firms with strong financial performance, suggesting that the market might place less emphasis on ESG performance if financial performance remains subpar. Lastly, our study reveals that the moderating effect of the relationship between ESG performance and firm value is less pronounced for state-owned enterprises (SOEs) than non-SOEs. This phenomenon stems from the perception that SOEs possess greater stability due to government support. Our study highlights the need for firms to balance ESG performance with financial performance.

Keywords : ESG, Firm Value, Financial Performance, ROA, State-Owned Enterprises (SOEs)

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I . Introduction

In recent years, the Chinese financial authorities have embarked on a series of initiatives to establish a standardized framework for disclosing the environmental, social, and governance (ESG) performance information among publicly listed companies, and these efforts signal a commitment to bolstering the regulations governing the obligatory disclosure of ESG in the future. This shift is primarily driven by the increased allure of overseas investment. The inclusion of China's A-shares in prominent global indices has elevated the influence and engagement of foreign investors in the A-share market. Consequently, there arises a pressing need to recalibrate the investor structure and investment ecosystem of listed Chinese firms. The overarching objective of China is to attract investor interest to the A-share market and enhance the value of listed firms through the effective and constructive implementation of ESG practices.

The ongoing debate surrounding the nexus between ESG performance and firm value continues to captivate the realm of finance (e.g., Navarro, 1988; Bhaskaran et al., 2020; Bénabou and Tirole, 2010). In light of prior research, this paper examines how investors value a firm's ESG performance. We mainly focus on two dimensions. The first dimension scrutinizes firms with varying levels of financial performance, while the second dimension delves into the distinction between state-owned enterprises (SOEs) and non-state-owned enterprises (non-SOEs), a quintessential concern within the Chinese market.

This paper builds upon the findings of Cho et al. (2023), who investigate the value implications of ESG performance in the Korean stock market, by extending to the context of Chinese firms. We find that firms exhibiting superior ESG performance tend to have higher firm value, implying that investors appreciate ESG investments (e.g., Yu and Xiao, 2022; Zhao and Huang, 2022; Zhang et al., 2022; Chen, 2023). Next, we follow Cho et al. (2023) and split the sample firms into two groups based on their financial performance: firms with strong financial performance and those with weak financial performance. Remarkably, ESG activities are more valued by investors when firms exhibit superior financial performance. On the other hand, ESG performance becomes less pronounced when firms grapple with inferior financial performance. Again, similar to Cho et al. (2023), when ROA is split into four groups as dummy variables, the value

implications of ESG performance decrease monotonically with ROA. Such valuation can be interpreted from a strategic perspective because ESG is an extra discretionary activity compared to firms' core business. From an investor's perspective, if firms have poor financial performance, they should invest their effort and resources into their core business instead of ESG activities. Waddock and Graves (1997) show that better financial performance enables firms to get slack resources to allocate in ESG, while poor financial performance cannot. It is also concerned that managers might prioritize ESG investments to increase their personal reputation, potentially at the expense of overall firm value (Masulis and Reza, 2015). Given limited resources, firms might need to seek external funding at higher costs, if they insist on investing in ESG amidst financial constraints.

Finally, we investigate the influence of a firm's ownership structure on the observed relationships in the Chinese market, which sets us apart from the work of Cho et al. (2023). Our findings reveal that the moderating effect of financial performance on firm value is exclusive to non-SOEs. This implies that investors lack interest in assessing the ESG performance of SOEs, because of the financial backing provided by the government to these enterprises.

Our findings suggest that policymakers should encourage firms to achieve a balance between ESG performance and financial performance. Promoting a harmonious equilibrium can lead to more responsible and resilient business practices, thereby fostering the creation of long-term value. Our findings also suggest that policymakers need to implement tailored strategies to help SOEs increase their commitment to ESG initiatives to comply with the dynamic regulatory environment and growing expectations for ESG standards in China.

The remainder of the paper is as follows. In Section II, we review the relevant literature and develop hypotheses. In Section III, we describe the data and methods. Empirical results are presented in Section IV, and concluding remarks are in Section V.

II. Literature Review and Hypothesis Development

1. ESG and Firm Value

Numerous studies over the past decades have extensively explored the relationship between ESG and firm values. Several empirical studies across various countries have

consistently demonstrated a positive link between ESG scores and firm values. Bhaskaran, Ting, Sukumaran, and Sumod (2020) indicate that firms with superior ESG performance tend to generate greater market value, drawing from a global dataset of 4,887 firms. In the context of the Korean market, Yoon, Lee, and Byun (2018) ascertain a positive and significant impact of corporate social responsibility (CSR) practices on a firm's market value. Examining listed firms across ASEAN (Indonesia, Malaysia, Philippines, Singapore, and Thailand) countries, Chairani and Siregar (2021) uncover that ESG practices enhance the influence of enterprise risk management (ERM) on firm value, which has a positive relationship with both firm value and profitability. The role of ESG as an advertising tool for enhancing firm value is also supported by Navarro (1988). This trend extends to the Chinese market, where both Zhao and Huang (2022) and Chen (2023) show that higher ESG quality is correlated with increased firm value. Yu and Xiao (2022) also show a positive relationship between ESG performance and firm value, which aligns with the stakeholder theory. Wong et al. (2021) indicate that ESG certification can reduce the cost of capital, leading to an increase in firm value.

In contrast, arguments suggesting ESG's potential to diminish firm value are mostly from managerial incentives. Brown, Helland, and Smith (2006) demonstrate that firms with larger boards tend to allocate more cash to charitable causes, indicative of agency cost theory that managers may use firm resources to satisfy personal preferences for charitable giving. This line of thought is further expounded upon by Bénabou and Tirole (2010) and Masulis and Reza (2015), who propose that managerial conflicts in ESG investment could destroy firm value. As such, the foundational premise is that ESG activities will have a positive influence on firm value because ESG can enable firms to reduce financing costs, convey affirmative signals to the public, maintain stakeholder relationships, and consequently increase firm values (Wang, Pan, Feng and Du, 2023).

Hypothesis 1: ESG performance has a positive effect on firm value.

2. The Moderating Effect of Financial Performance on the Relationship between ESG and Firm Value

Under the perspective of slack resource theory, firms with better financial performance

are more apt and engage in ESG activities. Schaltegger and Synnestvedt (2002) characterize ESG as a “luxury” good, requiring a certain degree of financial flexibility. This argument finds global support, spanning Spain, France, and Japan (Ortas, Álvarez, and Garavar, 2015), the U.S. (Waddock and Grave, 1997; Artiach, Lee, Nelson, and Walker, 2010), and Canada (Makni, Francoeur, and Bellavance, 2009). Consequently, firms with strong financial performance possess greater resources to invest in ESG initiatives. Investors, therefore, are more inclined to attach value to ESG when firms are in a good financial state and are more capable of taking additional strategic actions. Conversely, managers might pursue ESG even during periods of financial fragility to enhance their own reputations or visibility (Cheng, Hong, and Shue, 2013; Di Giuli and Kostovetsky, 2014; Masulis and Reza, 2015). This scenario might raise concerns among investors about management decisions, potentially leading to a decline in firm value. Taken together, we can anticipate that the influence of ESG activities on firm value will be contingent upon the firm’s financial performance.

Hypothesis 2: The positive effect of ESG on firm value is weaker when firms exhibit poor financial performance.

3. The Distinct Nature of SOEs

In the context of SOEs in China, ESG decisions are shaped by government incentives and the broader social responsibility attributed to SOEs, transcending mere economic benefits. Kornai (1998) first introduced the concept of “soft budget constraint” (or budgetary soft constraint), which has gained prominence in socialist economies and transitional economies. It typifies situations where, during periods of loss, the government usually intervenes to prevent market elimination through various methods such as financial allocations, credit support, and increased subsidies to provide relief to investors.

Many empirical studies have also confirmed the prevalence of this phenomenon in China (Shen, Hua, and Lang, 2019; Tian, 2005). Shen et al. (2019) analyze the data of China’s unlisted SOEs from 2005 to 2013. They find that SOEs lean more on external financing and possess higher debt ratios, which deviates from the pecking-order theory. Moreover, SOEs rely on short-term debt for investment, and investment decisions are

not sensitive to profitability. This finding confirms the existence of soft budget constraints in Chinese SOEs. Tian (2005) also reveals the problem of the high debt ratio of SOEs under soft budget constraints. As posited by Kornai (1998), the origins of soft budget constraints are ascribed to both exogenous and endogenous factors, with exogenous factors primarily stemming from government, while endogenous factors stemming from profitability. Lin, Lin, and Zhang (2004) suggest, based on the data of China's market data, that the main driver of soft budget constraints of Chinese firms is the policy burden, an exogenous factor. To achieve the country's strategic goals, the government invests and establishes SOEs and is the owner (but not the operator) of the companies. Government-initiated SOEs operate as policy executors rather than operators, rendering profitability considerations secondary. Government interventions mitigate operational losses, sustaining an environment where profit, loss, and investment choices remain insulated from market dynamics.

Based on previous studies, the association between ESG performance and corporate value is inconclusive depending on whether a firm is SOE or not. Yu and Xiao (2022) show a significantly positive relationship between ESG performance and firm value, with a stronger effect for SOEs. Bing and Meng (2019) provide evidence that there are no statistically significant differences in the effect of CSR on firm value between SOEs and non-SOEs. Deng and Cheng (2019), on the other hand, demonstrate that the association between ESG performance and stock market performance exhibits a stronger positive correlation in non-SOEs compared to SOEs. This discrepancy can be attributed to the fact that SOEs, being government-supported, benefit from a certain level of stability that shields them from market fluctuations.

In light of these dynamics, investors will exhibit less sensitivity to whether SOEs invest in ESG. Market stability characterizes SOEs, driven by the government's role as a financial backstop. Consequently, our hypothesis posits that ESG has limited influence on the market value of SOEs, suggesting the moderating effect of financial performance on the link between ESG and firm value is weaker in SOEs.

Hypothesis 3: The moderating effect of financial performance on the association between ESG and firm value is weaker in SOEs.

III. Data and Methods

We use data from the China A-share market spanning from 2018 to 2020. After eliminating financial firms, entries with incomplete data, and outliers, our final dataset consists of 10,186 firm-year observations. Financial data, as well as ESG ranks and scores, are obtained from the Wind database. While ESG adoption among Chinese firms has been rapidly increasing in recent years, it still lags behind that of other developed countries. Interestingly, existing ESG studies on Chinese firms have consistently found a positive correlation between ESG management and corporate value, which prompts us to inquire about the validity of the moderating effect of ROA in Chinese firms.

<Table 1> provides the definition of variables employed in our analysis. We use Tobin's Q (Q) as a measure of firm value, calculated as the sum of the market value of equity

<Table 1> Variable Definitions

This table provides definitions for the variables employed in our analysis.

Variable	Definition
Q	(Market value of equity+ book value of total liabilities)/total assets
ESG	ESG ratings, ranging from CCC to AAA, assigned values from 1 to 9
ESG_S	ESG scores, ranging from 0 to 10
ROA	Net income/total assets
$LowROA$	Equals one if a firm's ROA is below median, and zero otherwise
$HighestROA$	Equals one if a firm is classified as the highest ROA quartile, and zero otherwise
$HighermiddleROA$	Equals one if a firm is classified as the second highest ROA quartile, and zero otherwise
$LowermiddleROA$	Equals one if a firm is classified as the second lowest ROA quartile, and zero otherwise
$LowestROA$	Equals one if a firm is classified as the lowest ROA quartile, and zero otherwise
SOE	Equals one if a firm is state-owned, and zero otherwise
$Size$	The logarithm of total assets
$Cashflow$	(EBIT+ depreciation)/total assets
$Leverage$	Total liabilities/total assets
$Capex$	Capital expenditures/total assets
SG	The growth rate of sales
Vol	The standard deviation of stock returns over the previous 52 weeks
$INDIR$	Total number of independent directors/total number of board directors
$Concentration$	The ratio of equity shares held by the top 5 shareholders

and the book value of total liabilities, divided by total assets. ESG ratings (*ESG*) range from CCC to AAA, assigned corresponding numerical values from 1 to 9, and ESG scores (*ESG_S*) span from 0 to 10. Financial performance is represented by *ROA*, calculated as net income divided by total assets. We introduce *LowROA*, an indicator variable that takes the value of one if a firm's ROA is below the median, and zero otherwise. Additionally, *SOE* is an indicator variable that takes one for SOE firms and zero for others. For control variables, we incorporate firm-specific characteristics, including firm size (*Size*), which is a natural logarithm of total assets; *Cashflow*, calculated as the sum of earnings before interest and taxes and depreciation (EBITDA), divided by total assets; *SG*, reflecting the change in sales relative to the previous year; *Leverage*, computed as total liabilities divided by total assets; *Capex*, representing capital expenditures scaled by total assets; Return volatility (*Vol*), indicating the standard deviation of stock returns over the previous 52 weeks; *INDIR*, denoting the ratio of the number of independent directors to the total number of board directors; and *Concentration*, which denotes the proportion of equity shares held by the top five shareholders.

We first examine the impact of ESG performance on firm value. The regression model is defined as below:

$$Q_{i,t+1} = \alpha + \beta_1 ESG_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t} \quad (1)$$

Here, the dependent variable is the firm value (*Q*), the independent variable is ESG performance (*ESG*), and our key coefficient of interest is represented by β_1 . Control variables (*X*) include *Size*, *Cashflow*, *Leverage*, *Capex*, *SG*, *Vol*, *INDIR*, and *Concentration*. In all regression analyses, we include firm fixed effects to control for any time-invariant heterogeneity and year fixed effects to control for any time-specific shocks.

Next, we investigate the moderating effect of ROA on the relationship between ESG performance and firm value. The regression model is extended as follows:

$$Q_{i,t+1} = \alpha + \beta_1 ESG_{i,t} + \beta_2 LowROA_{i,t} + \beta_3 ESG_{i,t} \times LowROA_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t} \quad (2)$$

Our key coefficient of interest is the interaction term of *ESG* and *LowROA*, represented by β_3 . Moreover, we explore whether financial performance functions as a moderator

in the context of a firm's ownership status. We segment our observations into two categories based on ownership attribution: SOEs and non-SOEs.

IV. Empirical Results

1. Descriptive Statistics

<Table 2> provides the descriptive statistics, encompassing a final dataset of 10,186 observations spanning from 2018 to 2020. The mean of Tobin's Q (Q) stands at 2.2, accompanied by a standard deviation of 2. As for ESG data, the mean of ESG rank (ESG) is 3.37, within a range of 1 to 9. ESG score (ESG_S) exhibits variation from 2.9 to 9.57 over a scale of 0 to 10, with an average of 5.88. Additionally, the mean ROA is approximately 3% with a standard deviation of 0.12. The sample comprises 30% SOEs and 70% non-SOEs. Turning to control variables, the average value of $Size$ is 3.92, and the median value is 3.74. On average, the sample firms have 43% leverage compared to total assets, coupled with a 12% increase in sales and approximately 53% of equity held by the top five shareholders.

<Table 2> Descriptive Statistics

This table presents an overview of summary statistics on the sample firms. The sample consists of China's A-share market spanning from 2018 to 2020. All variables are winsorized at 1 percent in both tails of the distribution. Definitions of the variables are available in <Table 1>.

Variables	N	Mean	Std.	Min	p25	p50	p75	Max
Q	10186	2.20	2.00	0.54	1.19	1.65	2.46	42.33
ESG	10186	3.37	0.86	1.00	3.00	3.00	4.00	7.00
ESG_S	10186	5.88	0.80	2.90	5.34	5.83	6.36	9.57
ROA	10186	0.03	0.12	-1.86	0.01	0.04	0.07	4.49
SOE	10186	0.30	0.46	0.00	0.00	0.00	1.00	1.00
$Size$	10186	3.92	1.35	-0.77	2.98	3.74	4.65	10.22
$Cashflow$	10186	0.06	0.10	-3.51	0.04	0.07	0.10	0.68
$Leverage$	10186	0.43	0.22	0.01	0.27	0.42	0.58	5.00
$Capex$	10186	0.05	0.05	0.00	0.01	0.03	0.06	0.48
SG	10186	0.12	0.67	-1.32	-0.06	0.07	0.21	29.80
Vol	10186	0.45	0.17	0.00	0.35	0.43	0.53	2.97
$INDIR$	10186	0.38	0.06	0.14	0.33	0.36	0.43	0.80
$Concentration$	10186	0.53	0.15	0.00	0.42	0.53	0.64	0.96

<Table 3> Correlation Analysis

This table reports the results of a correlation analysis conducted on the sample firms. All variables are winsorized at 1 percent in both tails of the distribution. *, **, and *** indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively. Definitions of the variables are available in <Table 1>.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. <i>Q</i>	1											
2. <i>ESG</i>	0.05***	1										
3. <i>ESG_S</i>	0.04***	0.92***	1									
4. <i>ROA</i>	0.14***	0.12***	0.13***	1								
5. <i>LowROA</i>	-0.21***	-0.13***	-0.14***	-0.46***	1							
6. <i>Size</i>	-0.34***	0.09***	0.08***	0.05***	0.08***	1						
7. <i>Cashflow</i>	0.08***	0.15***	0.16***	0.56***	-0.42***	0.08***	1					
8. <i>Leverage</i>	-0.18***	-0.15***	-0.17***	-0.34***	0.34***	0.39***	-0.42***	1				
9. <i>Capex</i>	0.07***	0.12***	0.12***	0.14***	-0.17***	-0.02*	0.20***	-0.07***	1			
10. <i>SG</i>	0.09***	0.00	0.00	0.14***	-0.11***	-0.02**	0.14***	-0.01	0.05***	1		
11. <i>Vol</i>	0.17***	-0.02**	-0.02*	-0.06***	0.04***	-0.28***	-0.09***	-0.03***	0.04***	0.01	1	
12. <i>INDIR</i>	0.04***	0.03***	0.03***	-0.02	0.02*	-0.01	-0.03***	0.01	0.01	0.01	0.03***	1
13. <i>Concentration</i>	0.03***	0.09***	0.10***	0.18***	-0.20***	0.17***	0.16***	-0.05***	0.12***	0.00	-0.05***	0.04***

<Table 3> shows the results of the correlation analysis. All ESG measurements (*ESG*, *ESG_S*) are related to the firm value positively and statistically significantly. Pertaining to financial performance, *LowROA* exhibits a negative and significant correlation with both Tobin's Q (*Q*) and ESG (*ESG*, *ESG_S*), respectively. These results confirm alignment with the hypotheses posited in this study.

2. The Effect of ESG on Firm Value

We first investigate the association between ESG and firm value to ensure the previous research. <Table 4> shows the results of the effect of ESG on firm value. The dependent

<Table 4> The Effect of ESG on Firm Value

This table shows the impact of ESG on firm value. The dependent variables are *Q*, the sum of the market value of equity and the book value of total liabilities divided by total assets. *ESG* refers to Wind ESG rank, assigned values from 1 to 9 correspondingly. Definitions of the variables are available in <Table 1>. The numbers in parentheses represent standard errors. ***, **, and * indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Dep. variable: <i>Q</i>	(1)	(2)
<i>ESG</i>	0.036 (0.027)	0.057** (0.027)
<i>ROA</i>		0.172 (0.146)
<i>Size</i>		-0.622*** (0.061)
<i>Cashflow</i>		0.340 (0.215)
<i>Leverage</i>		0.214 (0.166)
<i>Capex</i>		1.249*** (0.471)
<i>SG</i>		-0.147*** (0.020)
<i>Vol</i>		-0.469*** (0.103)
<i>INDIR</i>		0.840* (0.489)
<i>Concentration</i>		-0.254 (0.146)
<i>N</i>	10186	10186
<i>Adj R</i> ²	0.722	0.730
Year FE	Yes	Yes
Firm FE	Yes	Yes

variable is firm value (Q), and the independent variable is ESG performance (ESG). We include firm fixed effect and year fixed effect in the regression. The results are presented without control variables in column (1) and with control variables in column (2). The coefficient is positive but statistically insignificant in column (1). In column (2), however, the coefficient of ESG is 0.055 and is significant at the 5% level. This finding supports the first hypothesis that ESG performance has a positive impact on the firm value, echoing prior research findings (e.g., Zhao and Huang, 2022; Chen, 2023).

3. The Moderating Effect of ROA on the Relationship between ESG and Firm Value

We next examine the ESG's influence on firm value moderated by ROA. <Table 5> shows the results of the analysis. Employing ROA as a proxy for financial performance, the results emphasize the influence of the interaction term, $ESG \times LowROA$. We control for firm fixed effects and year fixed effects. We also show the results without controlling for firm characteristics in odd-numbered columns.

The coefficient on $ESG \times LowROA$ is positive and statistically significant in columns (1) and (2), which indicates that the influence of ESG performance on firm value weakens for firms with financial performance below the median. In column (2), when ESG increases (decreases) by a unit, corporate value correspondingly increases (decreases) by 0.145. However, for firms exhibiting poor financial performance ($LowROA$), the positive ESG effect on firm value diminishes by 0.162. The cumulative effect demonstrates that for firms with ROA below the median, the relationship between ESG and Q shifts from positive to negative. This implies that a one-unit ESG increase (decrease) corresponds to a firm value decrease (increase) of 0.017 units. Importantly, $LowROA$ has a positive effect on firm value, which is consistent with Kang and Jung (2020).

To delve further, ROA is categorized into four groups as dummy variables— $LowestROA$, $LowermiddleROA$, $HighermiddleROA$, and $HighestROA$. In both columns (3) and (4), we find a gradual decrease in regression coefficients from $ESG \times HighestROA$ to $ESG \times LowestROA$. For example, in column (4), the coefficient of $ESG \times HighestROA$ is significantly positive, suggesting that a unit increase in ESG performance corresponds to an increase in Tobin's Q of 0.205 for firms that belong to the highest ROA group.

<Table 5> The Moderating Effect of ROA

This table shows the moderating effect of ROA on the association between ESG rating and firm value. The dependent variables are Q , the sum of the market value of equity and the book value of total liabilities divided by total assets. ESG refers to Wind ESG rank, assigned values from 1 to 9 correspondingly. $LowROA$ is a dummy variable that equals one if a firm's ROA is below the median, and zero otherwise. $LowestROA$ ($LowermiddleROA$, $HighermiddleROA$, $HighestROA$) is a dummy variable that equals one if a firm is categorized in the lowest (second lowest, second highest, highest) ROA quartile, and zero otherwise. Definitions of the variables are available in <Table 1>. The numbers in parentheses represent standard errors. ***, **, and * indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Dep. variable: Q	(1)	(2)	(3)	(4)
$ESG \times LowROA$	-0.160*** (0.038)	-0.162*** (0.038)		
ESG	0.124*** (0.034)	0.145*** (0.034)		
$LowROA$	0.328** (0.133)	0.285** (0.133)		
$ESG \times HighestROA$			0.183*** (0.043)	0.205*** (0.072)
$ESG \times HighermiddleROA$			0.086** (0.042)	0.107** (0.043)
$ESG \times LowermiddleROA$			0.017 (0.041)	0.028 (0.030)
$ESG \times LowestROA$			-0.099** (0.040)	-0.069* (0.048)
$HighestROA$			-0.509*** (0.188)	-0.349* (0.334)
$HighermiddleROA$			-0.513*** (0.175)	-0.389** (0.252)
$LowermiddleROA$			-0.420*** (0.159)	-0.289* (0.209)
$Size$		-0.633*** (0.153)		-0.638*** (0.153)
$Cashflow$		0.250 (0.348)		0.032 (0.350)
$Leverage$		0.143 (0.227)		0.110 (0.226)
$Capex$		1.163*** (0.429)		1.096** (0.428)
SG		-0.154*** (0.082)		-0.158*** (0.080)
Vol		-0.466*** (0.160)		-0.465*** (0.159)
$INDIR$		0.897* (0.588)		0.899* (0.582)
$Concentration$		-0.275 (0.504)		-0.319 (0.501)
N	10186	10186	10186	10186
$Adj R^2$	0.724	0.732	0.726	0.735
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes

Interestingly, while the coefficient of $ESG \times HighermiddleROA$ remains positive and significant, it slightly diminishes. Conversely, the coefficient of $ESG \times LowestROA$ becomes negative and statistically significant. This suggests that in firms that belong to the lowest ROA group, a unit increase in ESG performance leads to a Q decrease of 0.069. These results from <Table 5> uphold the second hypothesis of this study—namely, the positive relationship between ESG rating and firm value weakens when firms exhibit poor financial performance. This underscores that ESG practices hold more value when firms exhibit strong financial performance.

4. SOEs and Non-SOEs

Finally, this section examines the moderating effect of financial performance on the relationship between ESG performance and firm value, discerning differences between SOEs and non-SOEs.

Our hypothesis posits that the moderating effect of ROA is more pronounced among non-SOEs. This stems from the understanding that SOEs, given consistent government support, are less driven by the economic benefits of ESG. To test this, we partition the samples into SOEs and non-SOEs.

<Table 6> presents the regression results. Columns (1) and (2) pertain to the moderating effect of ROA on the relationship between ESG rating and firm value, while columns (3) and (4) explore the presence of a monotonic pattern within SOE and non-SOEs. Odd-numbered columns correspond to SOEs, while even-numbered columns relate to non-SOE firms. In columns (1) and (2), the coefficient of interest, $ESG \times LowROA$, is negative and significant only for non-SOEs. Furthermore, the coefficient on ESG stands as positive solely for non-SOEs. This suggests that the value effect and the moderating effect of ROA are more prominent only in non-SOEs.

By categorizing ROA into four groups— $LowestROA$, $LowermiddleROA$, $HighermiddleROA$, and $HighestROA$ —, we observe a gradual decline in regression coefficients from $ESG \times HighestROA$ to $ESG \times LowestROA$ in columns (3) and (4). Notably, all coefficients of interest remain insignificant in column (4), affirming the monotonic declining pattern solely among non-SOEs. These results in <Table 6> reinforce hypothesis 3, concluding that investors exhibit indifference toward ESG rating in the context of SOEs.

<Table 6> SOEs and Non-SOEs

This table shows the moderating effect of ROA on the relationship between ESG rating and firm value, whether a firm is state-owned or not. The dependent variables are Q , the sum of the market value of equity and the book value of total liabilities divided by total assets. ESG refers to Wind ESG rank, assigned values from 1 to 9 correspondingly. $LowROA$ is a dummy variable that equals one if a firm's ROA is below the median, and zero otherwise. $LowestROA$ ($LowermiddleROA$, $HighermiddleROA$, $HighestROA$) is a dummy variable that equals one if a firm is categorized in the lowest (second lowest, second highest, highest) ROA quartile, and zero otherwise. Definitions of the variables are available in <Table 1>. The numbers in parentheses represent standard errors. ***, **, and * indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Dep. variable: Q	(1) Non-SOEs	(2) SOEs	(3) Non-SOEs	(4) SOEs
$ESG \times LowROA$	-0.206*** (0.069)	-0.047 (0.053)		
ESG	0.217*** (0.060)	-0.019 (0.064)		
$LowROA$	0.404** (0.265)	-0.019 (0.182)		
$ESG \times HighestROA$			0.283*** (0.054)	-0.053 (0.065)
$ESG \times HighermiddleROA$			0.156*** (0.056)	0.007 (0.050)
$ESG \times LowermiddleROA$			0.100* (0.057)	-0.081* (0.044)
$ESG \times LowestROA$			-0.073 (0.054)	-0.037 (0.049)
$HighestROA$			-0.604** (0.245)	0.506* (0.266)
$HighermiddleROA$			-0.564** (0.235)	0.038 (0.218)
$LowermiddleROA$			-0.559** (0.219)	0.222 (0.187)
$Size$	-0.700*** (0.207)	-0.480*** (0.159)	-0.701*** (0.079)	-0.482*** (0.092)
$Cashflow$	0.285 (0.454)	0.053 (0.290)	0.070 (0.269)	-0.167 (0.305)
$Leverage$	0.081 (0.271)	0.468 (0.566)	0.033 (0.190)	0.421 (0.287)
$Capex$	1.529** (0.533)	-0.185 (0.537)	1.466** (0.593)	-0.178 (0.686)
SG	-0.191*** (0.097)	-0.034 (0.033)	-0.195*** (0.026)	-0.041 (0.028)
Vol	-0.411*** (0.205)	-0.609*** (0.162)	-0.395*** (0.136)	-0.640*** (0.132)
$INDIR$	1.079 (0.890)	0.621 (0.626)	1.057 (0.697)	0.666 (0.544)
$Concentration$	-0.162 (0.729)	0.002 (0.512)	-0.217 (0.444)	-0.099 (0.483)
N	7104	3082	7104	3082
$Adj R^2$	0.717	0.744	0.720	0.746
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes

5. Robustness Check

To ensure the robustness of our findings, we conduct a robustness check by substituting ESG ratings (*ESG*) with ESG scores (*ESG_S*). As presented in <Table 7>, the results consistently mirror those of the prior analyses. The dependent variable is *Q*. In column (1), a notable impact of ESG score on firm value is evident. Shifting the focus to column (2), the coefficient of the interaction term ($ESG_S \times LowROA$) is both negative and statistically significant, indicating that the influence of ESG score on firm value is weaker for firms exhibiting inferior financial performance compared to those with superior financial performance. Likewise, in column (3), a discernible monotonic decline is observed as a firm's ROA diminishes. Expanding our examination to columns (4) and (5), we discern a similar trend: ROA serves as a moderator in the connection between ESG score and firm value solely for non-SOEs. As such, the results further validate our hypothesis.

<Table 7> Robustness Check

This table displays the results of the robustness analysis. The dependent variables are *Q*, the sum of the market value of equity and the book value of total liabilities divided by total assets. *ESG_S* refers to Wind ESG scores, assigned values from 0 to 10 correspondingly. *LowROA* is a dummy variable that equals one if a firm's ROA is below the median, and zero otherwise. *LowestROA* (*LowermiddleROA*, *HighermiddleROA*, *HighestROA*) is a dummy variable that equals one if a firm is categorized in the lowest (second lowest, second highest, highest) ROA quartile, and zero otherwise. Definitions of the variables are available in <Table 1>. The numbers in parentheses represent standard errors. ***, **, and * indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Dep. variable: <i>Q</i>	(1)	(2)	(3)	(4) Non-SOEs	(5) SOEs
$ESG_S \times LowROA$		-0.207*** (0.062)		-0.276*** (0.086)	-0.065 (0.058)
<i>ESG_S</i>	0.092*** (0.042)	0.210*** (0.062)		0.326*** (0.081)	-0.021 (0.083)
<i>LowROA</i>		0.953*** (0.389)		1.329*** (0.537)	0.205 (0.343)
$ESG_S \times HighestROA$			0.276*** (0.093)		
$ESG_S \times HighermiddleROA$			0.180*** (0.054)		
$ESG_S \times LowermiddleROA$			0.059 (0.047)		
$ESG_S \times LowestROA$			-0.054 (0.058)		

Dep. variable: Q	(1)	(2)	(3)	(4) Non-SOEs	(5) SOEs
<i>HighestROA</i>			-1.362*** (0.697)		
<i>HighermiddleROA</i>			-1.171*** (0.470)		
<i>LowermiddleROA</i>			-0.628** (0.398)		
<i>Size</i>	-0.625*** (0.153)	-0.633*** (0.152)	-0.636*** (0.152)	-0.703*** (0.207)	-0.479*** (0.160)
<i>Cashflow</i>	0.417** (0.342)	0.250 (0.350)	0.031 (0.351)	0.279 (0.457)	0.053 (0.288)
<i>Leverage</i>	0.142 (0.232)	0.139 (0.225)	0.104 (0.222)	0.073 (0.266)	0.469 (0.566)
<i>Capex</i>	1.257*** (0.431)	1.167*** (0.428)	1.104** (0.429)	1.557*** (0.532)	-0.180 (0.540)
<i>SG</i>	-0.145*** (0.083)	-0.153*** (0.082)	-0.158*** (0.080)	-0.190*** (0.097)	-0.033 (0.034)
<i>Vol</i>	-0.469*** (0.161)	-0.468*** (0.159)	-0.470*** (0.158)	-0.415*** (0.203)	-0.611*** (0.162)
<i>INDIR</i>	0.819* (0.590)	0.863* (0.587)	0.870* (0.582)	1.034 (0.889)	0.637 (0.620)
<i>Concentration</i>	-0.247 (0.507)	-0.281 (0.501)	-0.343 (0.501)	-0.185 (0.724)	-0.015 (0.517)
<i>N</i>	10186	10186	10186	7104	3082
<i>Adj R²</i>	0.730	0.733	0.735	0.717	0.744
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes
<i>Firm FE</i>	Yes	Yes	Yes	Yes	Yes

V. Conclusion

This paper builds upon the findings of Cho et al. (2023) by extending their research to the context of China A-share market firms. Moreover, recognizing the unique landscape of the Chinese market, we further explore the distinctions between SOEs and non-SOEs in relation to these conclusions. Our results underscore the positive influence of ESG performance on corporate value. This effect is particularly pronounced in firms exhibiting strong financial performance, while it wanes in firms with weak financial performance. Importantly, these relationships are mainly evident in non-SOEs, as investors demonstrate a limited interest in the ESG activities of SOEs.

This study contributes by analyzing the intricate interplay between ESG performance, financial performance, and ownership type within the Chinese market. Our primary contribution lies in dissecting the moderating role of financial performance and emphasizing the differential impact on SOEs and non-SOEs. Our study also highlights the imperative for firms to harmonize ESG performance with their financial performance delicately. Given the dynamic regulatory environment and increasing expectations for SOEs to align with ESG standards, our findings also might be influenced by future policy changes.

Nonetheless, this study is subject to limitations. One primary limitation of our study is the short duration of the sample period. This is mainly due to restrictions in data gathering, which require caution when interpreting and generalizing the research findings. On the other hand, a shorter time horizon could be appropriate because the analysis of longer sample periods may increase the likelihood of encountering noise, given the dynamic and evolving nature of ESG policies within China. One further limitation of our study relates to potential endogeneity concerns that could affect the interpretation of our findings. Therefore, we leave this matter for further investigation.

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ESG와 기업 가치 간의 관계에 대한 ROA의 조절 효과: 중국 기업을 중심으로

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〈요 약〉

본 논문은 재무적 성과를 대표하는 총자산순이익률(ROA)의 조절 효과에 주목하여, 중국 기업의 ESG 성과와 기업 가치 간의 관계를 살펴보았다. 2018년부터 2020년까지 중국 A주 시장에 상장된 기업의 데이터를 분석하였으며, 주요 결과는 다음과 같다. ESG 성과가 기업 가치 상승에 긍정적인 영향을 미칠 수 있음을 확인하였다. 특히, 재무 성과가 뛰어난 기업에서 이러한 긍정적인 관련성이 더욱 뚜렷하게 나타났으며, 이는 재무 성과가 다소 저조한 경우 시장이 ESG 노력에 대한 중요성을 상대적으로 덜 가진다고 해석할 수 있다. 또한, 본 연구는 ESG성과가 기업 가치에 미치는 영향이 국유기업(SOEs)과 비국유기업(Non-SOEs) 간에 차이가 있음을 밝혔다. ESG성과와 기업 가치 사이의 관계에 대한 조절 효과는 국유기업에서 상대적으로 덜 두드러지게 나타났으며, 이러한 현상은 정부의 지원으로 인해 국영기업이 안정성을 갖추었다는 인식에서 비롯되었다고 할 수 있다. 본 연구의 결과는 기업이 재무적 성과와 ESG 성과를 균형 있게 조화시킬 필요성이 있음을 시사한다.

주제어 : ESG, 기업가치, 재무성과, ROA, 국유기업

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