

## ESG Performance and Firm Value: The Moderating Role of Government Subsidy

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### Abstract

This study examines the moderating effects of government subsidies on the relationship between ESG performance and firm value among Chinese A-share listed manufacturing firms. Balanced panel data from the period 2012 to 2021 is employed, and fixed-effects models are utilized for analysis. The key findings are as follows. First, it is observed that ESG performance has a significantly positive impact on the firm value of Chinese manufacturing firms. This finding suggests that the value generated through the implementation of ESG activities offsets the associated compliance costs, leading to an increase in the firm value of Chinese manufacturing firms. Second, government subsidies play a positively moderating role in the relationship between ESG performance and firm value. In China, government subsidies are found to enhance the impact of ESG on firm value. Third, an analysis of the impact of each dimension of ESG on firm value reveals that, among the three dimensions—environmental, social, and governance—the performance of the environmental and social dimensions has a positive impact on firm value. Furthermore, the moderating role of government subsidies in the relationship between environmental and social dimensions of ESG and firm value indicates that subsidies promote Chinese firms in enhancing firm value through environmental and social responsibility compliance.

**Keywords:** ESG, firm value, government subsidy, moderating role.

### 1. Introduction

In recent years, corporations have come to recognize the significance of Environmental, Social, and Governance (ESG) factors in achieving sustained growth and value creation. The rapid progress of industrialization, population growth, climate change, and environmental pollution is transforming the paradigm within the corporate business environment. Corporations are actively engaging in ESG initiatives, and investors, regulatory bodies, and stakeholders scrutinize a company's ESG performance as a key metric for corporate evaluation. Amidst corporate endeavors to integrate ESG principles into their operational activities, the relationship between ESG performance and firm value has emerged as a central theme in academic and industry discourse. In the context of the impact of ESG performance on financial performance or corporate value, stakeholder theory posits that ESG activities enhance the interests of a company's stakeholders. This theory asserts that corporations face strong pressure to actively engage in ESG initiatives to build trust among diverse stakeholders and contribute proactively to the enhancement of

corporate value [1]. Conversely, shareholder theory argues that ESG activities incur costs for corporations and result in disadvantages for shareholders [2]. Shareholders are considered the ultimate owners of a company's assets, and, therefore, the primary responsibility of management and the board is argued to be the protection and augmentation of these assets for the benefit of shareholders. Although existing research has not uniformly presented consistent results, the prevailing tendency suggests that, overall, ESG performance has a positive impact on corporate value.

As the importance of ESG considerations continues to gain prominence, research on the relationship between a firm's ESG performance and its financial outcomes has seen an increased focus. While existing literature has made significant strides in elucidating the direct impact of ESG performance on corporate value, there remains a substantial gap in exploring the moderating factors that may influence this relationship. While numerous studies have analysed moderating factors in the relationship between ESG performance and corporate value, research on the role of an

important moderating factor, government subsidy, is notably scarce. Governments worldwide are implementing various policies and incentives to encourage corporate ESG initiatives. The extent to which these government subsidies moderate the relationship between ESG performance and corporate value remains a crucial yet underexplored research topic.

This study seeks to contribute to filling this gap in the existing literature by investigating the interaction between ESG performance, corporate value, and the moderating effects of government subsidy. By examining how government subsidies may enhance or diminish the impact of ESG initiatives on corporate value, this study aims to provide valuable insights for scholars and practitioners navigating the complex landscape of sustainable business practices.

## **2. Literature Review and Hypothesis**

The literature on the impact of ESG performance on corporate financial performance has experienced a quantitative surge in response to the increasing significance of sustainable growth. Scholars have delved into the realms of environmental protection, social responsibility, and governance practices. Research findings on the relationship between ESG performance and corporate value have been diverse, encompassing positive, negative, or mixed relationships. Studies reporting a positive relationship between ESG and financial performance account for over 78% [3]-[4]. [5] posit that companies fulfilling ESG responsibilities enhance stakeholder interactions, communication, and corporate image, consequently improving overall corporate performance. Multiple studies highlight that companies with higher ESG performance exhibit greater market value [6]-[8]. Companies, post-adherence to environmental responsibilities, maintain a competitive edge and enhance corporate value [9]-[10]. Corporate engagement in social responsibility activities contributes to elevating corporate value [11]. Moreover, a well-structured corporate governance framework aids in resolving agency issues, allowing optimal utilization of managerial competencies for the long-term development of the corporation and enhancement of corporate value [12]-[17].

Based on the above studies, this research posits the following research hypothesis:

Hypothesis 1: ESG performance is positively correlated with corporate value.

Hypothesis 1a: E performance is positively correlated with corporate value.

Hypothesis 1b: S performance is positively correlated with corporate value.

Hypothesis 1c: G performance is positively correlated with corporate value.

Recent scholarly attention has shifted towards exploring the moderating factors that influence the relationship between ESG performance and corporate value. Among these factors, the role of government subsidies emerges as a crucial determinant. Governments worldwide have introduced various policies and incentives to encourage companies to adopt sustainable practices. These include subsidies for environmentally friendly projects, social responsibility programs, and governance improvements. Investigating whether government subsidies act as a moderating factor in the nexus between ESG performance and corporate value represents a significant direction. Government subsidies typically manifest in the form of financial aid, tax incentives, and technological innovation [18]-[19]. Government subsidies are considered policy tools for promoting innovation, sustaining business operations, and achieving policy objectives. Numerous empirical studies have explored the impact of government subsidies on the relationship between ESG performance and corporate value. Some studies suggest that government intervention can enhance the positive effects of ESG projects, while others argue that specific subsidy structures may pose challenges or lead to unintended consequences. Certain scholars assert that fulfilling corporate social responsibility contributes to enhancing corporate image, strengthening political connections, and garnering government support. Some studies indicate a positive correlation between corporate environmental responsibility and government subsidies [20].

Building on the above studies, this research formulates the following research hypothesis:

Hypothesis 2: Government subsidies exert a positive moderating effect in the relationship between ESG performance and corporate value.

Hypothesis 2a: Government subsidies exert a positive moderating effect in the relationship between E performance and corporate value.

Hypothesis 2b: Government subsidies exert a positive moderating effect in the relationship between S performance and corporate value.

Hypothesis 2c: Government subsidies exert a positive moderating effect in the relationship between G performance and corporate value.

### 3. Variables and Methodology

This study analyses Chinese A-share listed manufacturing companies over the period from 2012 to 2021. The data utilized for analysis are sourced from Bloomberg and Guotaian databases. Only companies that did not face any sanctions from the Chinese securities market during the analysis period and for which data were available for the entire period were considered. To prevent the sample data from being influenced by extreme values, a 99% upper limit and 1% lower limit were applied, resulting in the use of 1,630 observations from 163 companies. The study employs balanced panel data and employs fixed-effects models analysed through LM and Hausman tests.

The dependent variable in this study is Tobin's Q (TQ), measured by dividing market capitalization by total assets. The independent variable is the ESG performance (ESG) of Chinese manufacturing companies, using Bloomberg's corporate ESG scores. Additionally, the three dimensions of ESG—environment (E), social (S), and governance (G)—are individually considered to analyse whether each dimension has a different impact on corporate value. The moderating variable is the government subsidies (SUB) received in each year, using the logarithm of the government subsidy amount. Control variables include firm size (SIZE), debt ratio (DAR), operating profit growth rate (GRO), and fixed asset ratio (FAR). Firm size is measured by the natural logarithm of total assets, debt ratio is the total debt divided by total equity, operating profit growth rate is the growth rate of the main business revenue, and fixed asset ratio is the ratio of fixed assets to total assets for each year.

The estimation equation of this study is as follows, where  $i$  and  $t$  represent the firm and year, respectively. Furthermore, CTLs represents the control variables in the model.

$$TQ_{it} = \alpha_1 + \alpha_2 EPS_{it} + \alpha_3 \sum CTLs + \varepsilon_{it} \quad (1)$$

$$TQ_{it} = \alpha_1 + \alpha_2 EPS_{it} + \alpha_3 SUB_{it} + \alpha_4 \sum CTLs + \varepsilon_{it} \quad (2)$$

$$TQ_{it} = \alpha_1 + \alpha_2 EPS_{it} + \alpha_3 SUB_{it} + \alpha_4 SUB_{it} * EPS_{it} + \alpha_5 \sum CTLs + \varepsilon_{it} \quad (3)$$

### 4. Results and Discussion

As shown in Table 1, the mean value of Tobin's Q is 1.854, with a standard deviation of 1.034, indicating significant variation in Tobin's Q across companies. The average ESG score is 21.311 with a standard deviation of 6.667, underscoring substantial differences in ESG among Chinese manufacturing companies. Government subsidies also exhibit considerable variability among companies, with a maximum value of 22.199 and a minimum value of 0.000. The standard deviation of the operating profit growth rate is 189.66, indicating a significant variation among companies.

**TABLE I**  
**DESCRIPTIVE STISTICS**

	Mean	Max	Min	Std. Dev.
TQ	1.854	9.614	0.743	1.034
ESG	21.311	52.479	1.240	6.667
SUB	16.049	22.199	0.000	4.721
SIZE	23.065	27.547	19.541	1.339
DAR	47.877	110.194	4.147	18.171
GRO	37.996	6021.72	-136.58	189.66
FAR	18.524	62.587	0.554	10.359

Correlation analysis results reveal a positive association between ESG and government subsidies with firm value. The correlation coefficients between ESG and firm value, as well as government subsidies and firm value, are 0.181 and 0.016, respectively. The correlation coefficients among all variables were positive, and none of the correlation coefficients between variables exceeds 0.5. The average Variance Inflation Factor (VIF) for each variable is well below 10, indicating the absence of multicollinearity among the variables.

**TABLE II**  
**CORRELATION COEFFICIENTS**

	TQ	ESG	SUB	SIZE	DAR	GRO
ESG	0.181					
SUB	0.016	0.008				
SIZE	0.376	0.452	0.106			
DAR	0.389	0.216	0.032	0.567		
GRO	0.015	0.068	0.007	0.016	0.054	
FAR	0.007	0.049	0.010	0.104	0.009	0.042

**TABLE III**  
**ESG AND FIRM VALUE**

	Model 1	Model 2	Model 3
ESG	0.009**	0.009**	0.009**
SUB		0.001	0.027
SUB*ESG			0.001**
SIZE	-0.464***	-0.463***	-0.456***
DAR	0.006***	0.006***	0.006***
GRO	0.001	0.001	0.002
FAR	0.004	0.003	0.004
Adj. $R^2$	0.615	0.615	0.615

Note: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

In Table 3, Model 1, the ESG coefficient is 0.009, indicating that, at a 5% significance level, ESG performance positively influences the corporate value of Chinese manufacturing firms. Similar results are observed in Model 2 and Model 3, supporting research hypothesis H1. This suggests that the value generated through ESG compliance can offset compliance costs, and superior ESG performance explains an enhancement in the corporate value of Chinese manufacturing firms. Among the control variables, firm size shows a negative impact on corporate value at the 1% significance level, implying that larger firms have an unfavorable effect on corporate value enhancement. Conversely, the debt ratio shows a positive impact on corporate value at the 1% significance level, indicating that leverage is beneficial for enhancing corporate value, particularly for Chinese firms in a high-growth

phase. In Model 3, the interaction term between government subsidies and ESG exhibits a positive coefficient at the 5% significance level, revealing that government subsidies facilitate the impact of ESG on corporate value. Consequently, Hypothesis 2 is supported.

The ESG score, encompassing the three dimensions of environment, social, and governance, represents a composite outcome, wherein the positive effects in one dimension may offset or counterbalance the negative effects in other dimensions. Therefore, it is essential to examine whether each dimension of ESG has distinct impacts on corporate value. Models 4, 5, and 6 in Table 4 are variants replacing ESG with the environmental dimension (E) instead of the complete ESG in Models 1, 2, and 3. As shown in Table 4, environmental performance (E) positively contributes to the corporate value of Chinese manufacturing firms, indicating that better environmental responsibility performance is associated with higher corporate value. Thus, research hypothesis 1a is supported. Additionally, the interaction term between government subsidies and E shows a positive coefficient at the 10% significance level, suggesting that government subsidies encourage Chinese firms to enhance corporate value through environmental responsibility compliance. Therefore, hypothesis 2a is supported.

**TABLE IV**  
**E DIMENSION OF ESG AND FIRM VALUE**

	Model 4	Model 5	Model 6
E	0.010***	0.010***	0.009**
SUB		0.001	0.009
SUB*E			0.005*
SIZE	-0.467***	-0.466***	-0.463***
DAR	0.006***	0.006***	0.006***
GRO	0.001	0.001	0.001
FAR	0.004	0.003	0.004
Adj. $R^2$	0.616	0.616	0.616

Note: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Models 7, 8, and 9 in Table 5 are alternative specifications replacing the ESG with the social dimension (S) instead of the complete ESG in Models 1, 2, and 3, aiming to capture the impact of the social dimension of ESG on corporate value. As depicted in Table 5, social performance (S)

positively contributes to the corporate value of Chinese manufacturing firms, supporting research hypothesis 1b. However, the social dimension (S) exhibits a lower significance level and coefficient magnitude compared to the environmental dimension (E), indicating that the environmental dimension has a relatively larger positive impact on the corporate value of Chinese firms than the social dimension. The influence of control variables is similar to the preceding cases. Furthermore, the interaction term between government subsidies and S shows a positive coefficient at the 1% significance level, suggesting that government subsidies stimulate Chinese firms to enhance corporate value through social responsibility compliance. Therefore, hypothesis 2b is supported.

**TABLE V**  
**S DIMENSION OF ESG AND FIRM VALUE**

	Model 7	Model 8	Model 9
S	0.004*	0.004*	0.017*
SUB		-0.001	0.034
SUB*S			0.013***
SIZE	-0.459***	-0.458***	-0.443***
DAR	0.006***	0.006***	0.006***
GRO	0.001	0.001	0.001
FAR	0.004	0.004	0.004
Adj. $R^2$	0.614	0.614	0.616

Note: \*\*\*p<0.01, \*\*p<0.05, \*p<0.1.

Models 10, 11, and 12 in Table 6 represent alternative specifications, replacing the ESG with the governance dimension (G) instead of the complete ESG in Models 1, 2, and 3, aiming to capture the impact of the governance dimension of ESG on corporate value. As observed in Table 6, governance performance (G) positively contributes to the corporate value of Chinese manufacturing firms, although it is not statistically significant. Therefore, research hypothesis 1c is not supported. Additionally, the interaction term between government subsidies and G shows a positive coefficient, but it is not statistically significant, indicating that government subsidies do not significantly stimulate Chinese firms to enhance corporate value through governance responsibility compliance. Therefore, hypothesis 2c is not supported.

**TABLE VI**  
**G DIMENSION OF ESG AND FIRM VALUE**

	Model 11	Model 11	Model 12
G	0.015	0.015	0.028
SUB		0.001	0.037
SUB*G			0.001
SIZE	-0.443***	-0.443***	-0.442***
DAR	0.005**	0.005**	0.005**
GRO	0.002	0.002	0.003
FAR	0.004	0.004	0.004
Adj. $R^2$	0.615	0.615	0.615

Note: \*\*\*p<0.01, \*\*p<0.05, \*p<0.1.

## 5. Conclusion

This study analyses the moderating effects of government subsidies on the relationship between ESG performance and corporate value among Chinese A-share listed manufacturing firms from 2012 to 2021. Employing balanced panel data, the study utilizes fixed-effects models with LM and Hausman tests. The key findings are as follows. First, it is discovered that ESG performance has a significantly positive impact on the corporate value of Chinese manufacturing firms. This suggests that the value generated through ESG activities offsets the associated compliance costs, thereby elevating the corporate value of Chinese manufacturing firms. Second, government subsidies play a positively moderating role in the relationship between ESG performance and corporate value. In China, government subsidies are found to stimulate the impact of ESG on corporate value. Third, analysing the impact of each dimension of ESG on corporate value reveals that the environmental, social, and governance dimensions all have positive effects on corporate value. However, the performance of the governance dimension does not exhibit a statistically significant impact on corporate value. Furthermore, the analysis of the moderating role of government subsidies in the relationship between the three dimensions of ESG and corporate value indicates that subsidies promote Chinese firms in enhancing corporate value through environmental and social responsibility compliance. While this study contributes to filling a gap in the existing literature by investigating the interaction between ESG performance, corporate value, and the moderating effects of government subsidies, it is limited by

focusing on a single country and having a relatively short analysis period. Future research is anticipated to address these limitations and provide a more comprehensive understanding of the dynamics involved.

#### **Funding Statement**

Funding for this paper was provided by Namseoul University.

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