

# Impact of ESG Performance on Firms' Exports - Moderating Effect of Based on Market Share in Host Industry

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**Abstract:** Based on foreign trade enterprises, this paper analyzes whether ESG performance can enhance exports and adds the industry's market share as a moderating variable. This paper selects A-share listed companies in 2017-2022 as the research object and constructs the moderating effect model for research. The empirical results prove that ESG performance has a significant positive effect on enhancing enterprise exports. At the same time, the interaction between ESG performance and the market share of the host industry can significantly enhance enterprise exports.

**Keywords:** ESG performance, corporate exports, moderating effect.

## 1. Introductory

In recent years, many well-known enterprises have continuously launched low-carbon concept products or services, which has aroused public concern about environmental protection, and the impact of ESG performance on corporate exports has also received widespread attention. In September 2018, the revised version of the Listed Company Governance Guidelines for the first time required ESG disclosure by listed companies. ESG requires companies to focus more on the Environment, Social, and Corporate Governance multi-dimensional balanced development rather than traditional financial data. In recent years, international trade protectionism has intensified, with the United States, the European Union, and other countries upgrading carbon tariffs, increasing measures and rules restricting trade, and even promoting regional economic monopolies. The new ESG regulations, green trade barriers, and blue trade barriers make China's enterprises face more severe challenges in export trade. The formal inclusion of A-shares in the MSCI index in 2018 and the revision of the CSRC's Code of Governance for Listed Companies in the same year require that listed companies disclose ESG-related information by the law.

## 2. Literature Review

Shen Yan and Cai Jian believe enterprises should pay attention to the trade barriers caused by social responsibility standards. Enterprises should actively fulfill their social responsibility. On the one hand, improving corporate social responsibility performance can help enterprises avoid specific trade barriers and enhance the competitiveness of enterprises to promote exports. On the other hand, although higher social responsibility standards hinder enterprise exports, higher and reasonable social responsibility standards are conducive to promoting the sustainable development of enterprises and, in the long run, will be conducive to the continuous export of enterprises. Levinson and Taylor analyze the impact of environmental information disclosure on enterprise exports as an example of listed companies, and the results show that

environmental information disclosure will lead to higher costs for enterprises and increase the cost of exports. Information disclosure will increase the cost of enterprises, which is unfavorable to enterprises' exports. The good social responsibility performance of enterprises can help them avoid trade barriers of social responsibility and promote their exports. Han Chao and Sang Ruicong analyzed the impact of environmental information disclosure policies on enterprises and related interest subjects in different regions in light of the implementation of various environmental governance measures in domestic municipalities. In their research, they found that environmental information disclosure and its related policies have a special impact on the category and pricing of intermediate products as well as transaction costs, and furthermore have an impact on enterprises' exports, resulting in unfavorable exports for enterprises. Friede et al. and Brogi et al. used local firms' ESG data to conduct empirical research and found that ESG performance can positively impact firms' profitability. Anastasiadou, Lindh, and Vasse found that firms with a good sense of social responsibility can stimulate the willingness to consume abroad, which is conducive to firms' product exports. Using the Heckman model, Lu Juan, Li Bin, and Li He examined the impact of environmental information disclosure of listed companies on corporate exports. The results showed that corporate environmental information disclosure has a specific role in promoting corporate exports. When we analyzed heterogeneity, we found that its impact on the exports of foreign companies, large companies, and prominence was more significant among companies in heavily polluted industries. When analyzed using heterogeneity, it was found that its impact on the exports of foreign companies, large companies, and companies in heavily polluted industries was prominent. By studying the economic consequences of ESG investment, Jane Li found that ESG investment strategies can bring considerable investment returns to investors and generate long-term social value. Xu Yan found that the better the ESG performance of a company, the better ESG performance enhances the corporate image and enables the company to occupy a larger market share, which affects the company's profitability [1-3].

### 3. Theoretical Analysis and Research Hypothesis

Export trade can expand the enterprise's overseas market, find more potential demand to promote production, realize economies of scale, and even obtain higher profits. There are generally two ways for export enterprises to maximize profits: to reduce costs and increase the profit margin of individual products, to expand sales, and to achieve total growth. According to stakeholder theory, good ESG performance of enterprises is more likely to gain the favor of relevant stakeholders in the market so that export enterprises can obtain the advantages of low cost and high market share. Based on the appeal analysis, this paper proposes the following three hypotheses:

H1: The positive influence of a company's ESG performance on its export activities

H2: Firms' ESG performance can increase market share in their industry

H3: Firms with good ESG performance can boost their

exports by increasing market share in their industry

### 4. Research Design

#### 4.1. Study Sample and Data Sources

The A-share listing in the year 2017-2022 is taken as the initial sample. Due to the limitation of ESG score and overseas sales revenue data, the updated data is more meaningful for research. Based on the initial sample, we exclude (1) financial industry samples (2) ST and \*ST companies (3) samples with gearing ratio more excellent than one (4) samples with missing variables (5) companies with more missing data of overseas sales revenue are excluded. After processing, the final "company-year" observations are obtained. The ESG performance data of companies used in the study are from the Business Gateway Green database, while the other data are from the Wind database. To account for negative influences of extreme values, all continuous variables were quantified with tails at the 1% and 99% levels.

Specific variables are defined as shown in Table 1

Table 1. Definition table of main variables

Variable type	notation	variable name	Measurement Methods	Data sources
explanatory variable	EXP	Enterprise exports	Natural logarithm of Income from overseas operations	Wind database
explanatory variable	ESG	ESG performance	Annual Average of ESG Ratings for the Business Gateway to Green	Commercial Greenway
moderator variable	Pms	Market share in the industry		Wind database
control variable	Size	Enterprise size	Natural logarithm of total business assets	Wind database
	Roa	profitability	Net profit/average balance of total assets	Wind database
	Cash	Enterprise cash volume	Monetary funds/total assets	Wind database
	Grow	Enterprise growth	(Income from the main business of the current period - Income from the main business of the previous period)/Income from the main business of the previous period	Wind database
	Lev	gearing	Total liabilities/total capital	Wind database

#### 4.2. Modeling

According to the article's hypotheses, the natural logarithm of overseas business revenues of listed firms is the explanatory variable in this paper, and firms' ESG performance is the explanatory variable. In addition, an individual dummy variable (Ind) and a time dummy variable (Year) are also generated to control the individual fixed effects and time fixed effects, and the following panel regression model is built in two steps.

In the first step, according to hypothesis 1, a single relationship model of the impact of firms' ESG performance on firms' exports is constructed as in equation (1):

$$EXP = \eta + \alpha_1 ESG + \alpha_2 Control_i + \sum a_i Ind + \sum a_j Year + \varepsilon \quad (1)$$

In the second step, according to hypotheses 2 and 3, the market share of the host industry (Pms) is used as a moderating variable to build a moderating model to reveal why the ESG performance of enterprises has a facilitating effect on their exports. The specific channels through which the ESG performance of enterprises affects their exports are investigated through the construction of the moderating model. The steps of constructing the moderating model are as

follows: firstly, regress the ESG performance of enterprises using enterprise exports. Secondly, regress the ESG performance of enterprises using the market share of the host industry, and finally, regress the ESG performance of enterprises using the moderating variable of enterprise exports on the market share of the host industry and the core explanatory variable (ESG) mentioned above. The specific construction of the moderating effects model is as follows:

$$EXP = \eta + \alpha_1 ESG \times PMS + \alpha_2 Control_i + \sum a_i Ind + \sum a_j Year + \varepsilon \quad (2)$$

### 5. Empirical Research

Based on the research design of chapter four, the author will use multiple regression models to analyze the impact of firms' ESG performance on its exports. It constructs a moderating effect regression model by invoking the market share of the host industry to explore how firms' ESG performance affects firms' exports through the market share of the host industry.

#### 5.1. Descriptive statistical analysis

The results of descriptive statistics of variables are shown in Table 2. Analysing from the perspective of

explanatory variables, the maximum value of ESG performance (ESG) is 8, which is equal to the A- level, the minimum value is 2, which is equal to the C- level, and the mean value is 4.504, which is equal to the B- level. Thus, these data indicated that the ESG performance level of the sample firms as a whole is not high. The standard deviation is 1.069, which indicates a significant difference in the level of ESG performance among the sample firms. The standard deviation is 1.069, indicating a significant difference between

the ESG performance levels of sample enterprises. From the perspective of the explanatory variables, the average value of enterprise export is 21.09, which is quite different from the minimum and maximum values, and there is still a big gap between the export business of different enterprises. In addition, the average value of the industry in which it is located is 0.00923, with a significant difference from the maximum value, indicating that the share of the industry in which it is located has an enormous difference.

**Table 2.** Descriptive statistical analysis

Variable	Obs	Mean	Std.	Min	Max.
EXP	2,125	21.09	2.179	15.08	25.24
ESG	2,125	4.504	1.069	2	8
PMS	2,125	0.00923	0.0298	6.57e-05	0.230
GROW	2,125	0.124	0.255	-0.490	1.157
CASH	2,125	0.161	0.0963	0.0204	0.483
ROA	2,125	0.0448	0.0780	-0.646	0.541
SIZE	2,125	23.98	1.201	21.74	27.51

## 5.2. Hausmann test

The results of the Hausman test are detailed in Table 3. To prevent the problem of endogeneity among variables, this paper carried out the Hausman test on the variables. The fixed and random effects models were successively used for the test.

Prob > chi2 = 0.0007 was found, so the original hypothesis was rejected, and the variables had fixed effects. Therefore, the next chapter generates an individual dummy variable (Ind) and a time dummy variable (Year) to control for individual fixed effects and time-fixed effects.

**Table 3.** Hausman test analysis

	(1) FE1	(2) RE1
ESG*PMS	0.884*** (3.03)	0.751*** (2.81)
LEV	-0.570*** (-2.59)	-0.292 (-1.40)
GROW	0.215*** (3.88)	0.210*** (3.79)
CASH	0.247 (0.95)	0.112 (0.44)
ROA	0.334 (1.40)	0.442* (1.87)
SIZE	0.926*** (17.85)	0.967*** (22.34)
_cons	-0.956 (-0.79)	-2.049** (-2.03)
<i>N</i>	2125	2125
<i>R</i> <sup>2</sup>	0.2080	

*t* statistics in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## 5.3. Multivariate regression analysis

To further test the impact of firms' ESG performance on firms' exports as well as the impact of ESG performance on the share of the industry in which they operate, this paper empirically tests the hypotheses proposed in this paper using multiple linear regression models on the sample data using Stata—17 software. Table 4 reports the relationship between firms' ESG performance and firms' exports and the relationship between the impact of ESG performance on the share of the industry in which they operate.

The regression results show that column (1) is the regression analysis of enterprise ESG performance on enterprise export. The results show that ESG performance is positively correlated with enterprise export, with a correlation

coefficient of 0.111, which is significant at 1% significance level, indicating that the better the ESG performance of the enterprise, the more conducive to the enhancement of the enterprise's export business, and Hypothesis 1 is proved; column (2) and (3) are the regression analyses of ESG performance on the market share of the host industry, the results show that ESG performance is significantly positively correlated with the host industry at 1% significance level. The regression analysis shows that ESG performance is significantly and positively correlated with the share of industry at the 1% significance level. It also means when the ESG performance of an enterprise is good, the positive effect of the host country's industry market share on the firm's exports is increasing

**Table 4.** Multiple regression analysis

	(1) EXP	(2) EXP
ESG	0.111*** (0.038)	
ESG*PMS	0.013 (0.293)	0.834*** (0.292)
GROW	0.486*** (0.163)	0.240*** (0.058)
CASH	-0.955** (0.404)	0.326 (0.260)
ROA	0.681 (0.542)	0.529** (0.227)
SIZE	1.015*** (0.036)	0.915*** (0.062)
2018. Annual		0.000 (.)
2019. Annual		0.067* (0.036)
2020.		-0.041 (0.037)
2021.		-0.063 (0.039)
2022.		0.044 (0.042)
_cons	-3.673*** (0.832)	-0.999 (1.472)
N	2125.000	2125.000
r2	0.355	0.214
ar2		
individual fixed effect	Yes	Yes
time fixed effect	Yes	Yes

Standard errors in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ 

#### 5.4. Robustness check

(1) In order to make the results more robust, this paper conducts a robustness test by the following methods. (1) Replacement of Measurement Indicators This paper uses the export intensity (exp) of enterprises as an indicator to measure the export of enterprises, i.e., the proportion of the revenue from overseas business to the total operating revenue, which on the one hand can reflect the enhancement of the export business of enterprises, and on the other hand can indicate the change of the export structure of the enterprises, and both of which can measure the impact of the performance of the ESG of enterprises on the export of enterprises. The regression results are shown in Table 5. After adopting export intensity as an explanatory variable, the ESG coefficient is still significant at the 1% significance level, and the results are still robust. This paper is conditional on the robustness test concerning the study of the impact of ESG performance on firms' exports.

(2) In order to deal with the endogeneity issue, the ESG performance of firms in period  $t+1$  is used. The base regression results of this paper show that ESG performance has a significant positive effect relationship on corporate export exports, i.e., the better the ESG performance of exporting firms is conducive to enhancing corporate exports. However, this result may be because the better the export performance, the more the firms have the ability and willingness to enhance their ESG performance, which brings

about the problem of endogeneity of the reverse causality type. In order to alleviate the problem of mutual causality between ESG performance and corporate exports, this paper refers to Yu Fengfeng's "Research on the Impact of ESG Performance on Corporate Exports," drawing on Jayaraman and Milbourn's (2012) methodology. It considers that lagged ESG performance is not likely to have an impact on corporate exports in the current period, the lagged one-period ESG disclosure is chosen as the instrumental variable, and the relative lagged one-period ESG disclosure indicator replaces the current-period ESG performance indicator in the model. The ESG performance indicators in the model were replaced by data with relative lag periods. The test results show that poor ESG performance remained significantly positive in relation to enterprise exports at a statistical level of 10%, confirming that poor ESG performance was having an increasingly positive impact on enterprise exports, driven by a slowdown in market share in their sector.

**Table 5.** Regression results of robustness test

	(1) EXP	(2) EXP	(3) EXP
ESG	0.111*** (0.038)		
ESG*PMS	0.013 (0.293)	0.834*** (0.292)	1.035*** (0.321)
GROW	0.486*** (0.163)	0.240*** (0.058)	0.126** (0.058)
CASH	-0.955** (0.404)	0.326 (0.260)	-0.098 (0.289)
ROA	0.681 (0.542)	0.529** (0.227)	0.889*** (0.258)
SIZE	1.015*** (0.036)	0.915*** (0.062)	0.904*** (0.075)
2018. Annual		0.000 (.)	
2019. Annual		0.067* (0.036)	
2020.		-0.041 (0.037)	
2021.		-0.063 (0.039)	
2022.		0.044 (0.042)	
L. Annual			-0.005 (0.012)
_cons	-3.673*** (0.832)	-0.999 (1.472)	9.170 (23.898)
N	2125.000	2125.000	1700.000
r2	0.355	0.214	0.197
ar2			
individual fixed effect	Yes	Yes	Yes
time fixed effect	Yes	Yes	Yes

Standard errors in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## 6. Conclusions and Recommendations for Response

### 6.1. Conclusions of the study

The regression results show that ESG performance has a significant role in promoting enterprises' exports. In contrast, with the introduction of the host industry market share regulating variables to establish a regulation model, the results show that the ESG performance of enterprises can promote exports by increasing the market share of the host industry, and the empirical results are consistent with the research hypothesis of the text.

Firms' ESG performance an enterprise has a positive impact on the export of an enterprise [1], i.e., the better the ESG performance of the enterprise, the higher the score, the more favorable the export of the enterprise.

The positive effect of enterprise ESG performance on enterprise export is increasing under the moderating effect of the market share of the industry in which it is located, i.e., the better the ESG performance of the enterprise, the higher the score, the larger the market share of the industry in which it is located, and the more favorable it is for the enterprise's export.

### 6.2. Revelations

The government needs to play more role in the ESG field, establish an official ESG rating system, and formulate comprehensive and strict policy documents to stipulate corporate disclosure. A reward and punishment system should be implemented to provide policy incentives and subsidies to enterprises with positive performance and to penalize enterprises with poor performance or falsified data. Improve the external legal environment.

Promote banks or financial institutions and others to lend to the ESG sector and launch more green ecological loans, funds, and carbon financial products or financial products with ESG concepts[2,4].

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