

Article

Environmental, Social, Governance Activities and Firm Performance: Evidence from China

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Abstract: Increasingly noticeable environmental and risk problems have made more and more companies and regulatory agencies realize the importance of environmental, social, and governance (ESG) activities. However, on the question that whether ESG activities have promoted or reduced firm performance, there is still no consensus. Especially for China, a representative country in emerging markets whose corporate ESG activities are still in their infancy and related systems and regulatory measures not complete, its theoretical and practical circles more urgently need to know an accurate answer to this question. Therefore, this article takes China's Shanghai and Shenzhen A-share listed companies that have ESG rating data from 2015 to 2019 as samples and finds that corporate ESG activities have a significantly negative impact on firm performance. Further research finds that compared with state-owned enterprises and environmentally sensitive enterprises, non-state-owned enterprises and non-environmentally sensitive enterprises provide stronger evidence to support the above conclusions.

Keywords: ESG rating; tobin Q; information disclosure; enterprise nature; industry characteristics



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1. Introduction

In the era of pursuing high-quality growth and sustainable development, environmental, social, and governance (ESG) has become the focus of everyone [1]. On the one hand, from a micro perspective, corporate sustainability has become one of the mainstream research topics [2]. Stakeholders such as shareholders, investors, governments, and regulatory agencies have shown rapidly increased interests in ESG issues [3,4]. Especially after the appearance of the COVID-19 epidemic, global investors' recognition of and attention to ESG and sustainable investing have risen to a higher degree, and global ESG investment has seen rapid growth. According to the statistics from Morningstar, from January to July 2020, global inflows of ESG-themed exchange traded fund (ETF) products totaled USD 38.8 billion, representing an increase of 2.13 times over the same period in 2019. Amundi, the largest asset management company in Europe, found in its study in 2018 that ESG has become a filter for the selection of portfolios. This strategy picks the best in class stocks and sells stocks with poor performance in one of the main ESG factors, which generates 3.3% extra yield in the North American market and 6.6% in the Eurozone market [5]. At the same time, government departments and regulatory agencies in various countries attach great importance to ESG policy regulations and guidelines. The US Nasdaq Stock Exchange issued "ESG Reporting Guide 1.0" and "ESG Reporting Guide 2.0" in 2017 and 2019, respectively, aiming to provide guidance on ESG information disclosure of listed firms and inspire the ESG engagement of small- and medium-sized firms; The European Union has implemented mandatory disclosure of ESG on a "comply or explain" basis; the China Securities Regulatory Commission revised the "Listed Company Governance Guidelines" to clearly and directly require listed companies to "disclose environmental information and social responsibility performance such as poverty alleviation participation" and "corporate governance related information." On the other hand, from a macro perspective, the ESG concept is consistent with China's five concepts for development: "development that is

innovative, coordinated, green, open, and inclusive.” Jiafu, Hu, vice chairman of the Asset Management Association of China, and deputy secretary of its party committee, pointed out that a complete ESG chain should cover “multi-party decision-making from policy to investing practice, from economy to finance, from productive enterprises to financial investing institutions,” and “forming synergistic effects from policy to practice.” In this chain, the government and regulatory authorities promote the improvement of policies and the guidance of paths of ESG, and financial institutions and investors attach importance to ESG investment to inspire enterprises to better conduct ESG activities that promote the transition of the entire society to high-quality development, finally achieving the virtuous circle of economy, society, and nature.

In view of the significance of ESG, many scholars have explored the impact of ESG on firm performance but have obtained different research conclusions: Some scholars have found that ESG is positively correlated with corporate financial performance and firm value [6–12]. Another group of scholars has found that ESG is negatively correlated with corporate financial performance and firm value [13–17]. In addition, some scholars have found that ESG or a certain dimension of ESG has no correlation with corporate financial performance [18,19]. We believe that the different conclusions may be due to the following aspects: First, ESG disclosure lacks comparability among countries, industries, and sectors in terms of standards, scope, and focus [1,20,21], resulting in lack of quantitative, reliable, objective, and comparable data. This inevitably leads to different research conclusions. Second, the industry nature of the research objects is different. Different in business activities, the impact of ESG disclosure may be discrepant for enterprises in environmentally sensitive industries and non-environmentally sensitive industries [22,23]. Third, emerging markets and developed markets are at different stages of development. Compared with mature developed countries, many emerging market countries are still in the early stages of economic development. They usually pay more attention to the scale and speed of economic growth, as well as related financial indicators, which often lead to neglect of ESG issues. This inconsistency in the development stage is reflected in the fact that in developed countries stakeholders such as shareholders, creditors, regulators, and media pay more attention to corporate social responsibility (CSR) information than those in developing countries [24], which leads to differences of the outcomes of ESG implementation. It is the same in China. As a typical representative of emerging markets, China gradually turns to ESG issues when it begins to transition to high-quality development.

However, most of the existing studies investigate developed markets, and only limited studies investigate emerging markets, among which few studies focus on the contradictory development features of ESG issues in China, which is on the path of high-quality development and at the initial stage of developing ESG. Such features are reflected as, on the one hand, the government and regulatory agencies attach great importance to ESG issues and continuously improve related policies. In 2019, the Shanghai Stock Exchange’s “Science and Technology Innovation Board Stock Listing Rules” clearly set forth mandatory ESG-related information disclosure requirements. In 2020, the Hong Kong Stock Exchange revised “How to Prepare Environmental, Social and Governance Reports,” and “The Green Finance Regulations of Shenzhen Special Economic Zones” requires companies to disclose environmental information. These all reflect the emphasis on ESG information transparency at the policy level. On the other hand, firstly, Chinese investors have not paid enough attention to disclosed ESG information, so they have not fully realized the value of ESG information on avoiding investment risks. For example, about six months before the severe financial fraud incident of Kangmei Pharmaceuticals Co., Ltd was brought to light, Morgan Stanley Capital International (MSCI) had already lowered its ESG rating from B to CCC due to the exposure of its bribery scandal at the end of 2018. However, this significant change of rating did not increase the alertness of market investors in China. Secondly, Chinese enterprises lack initiatives to ensure the objectiveness and truth of ESG information disclosure. Their disclosure on ESG often shows as “report only the good news and not the bad,” which aggravates the information asymmetry between investors

and enterprises and is not conducive for enterprises to attract potential investors. These all reflect the neglect of ESG information transparency by investors and companies at the practice level.

This discrepancy in the perception of ESG is not conducive to the coordinated development of ESG from policy to practice. The reason is that China is still in the initial stage of ESG development, so investors and companies still cannot clearly understand the specific impact of ESG activities on firm performance, nor what the mechanism of action is between the two. Therefore, research on this key issue that affects the implementation of corporate ESG activities has important theoretical and practical value for improving the high-quality development of China's economy.

Based on the above analysis, this article takes China, the representative emerging market country, as the example to study. The purpose of this article is to study the impact of corporate ESG activities on firm performance in the context of China's top-down implementation of ESG ideas, that is, whether the ESG activities of Chinese companies improve their organization performance. In addition, it further examines the mediating effect of information transparency on the relationship between ESG activities and firm performance. The research contributions of this article are mainly reflected in the following aspects: First, this article takes Chinese A-share listed companies as the examples to provide a rich, large sample of evidence for the verification of the relationship between ESG activities and firm performance. Second, this article further examines the mediating effect of information transparency on the relationship between the two, which has certain practical value in promoting the ESG information disclosure of listed companies in China. Finally, based on the current institutional background of China in which ESG information disclosure is gradually transitioning from voluntary to semi-compulsory, the research conclusions obtained can provide reference significance for other countries whose economic development is transitioning from high-growth development to high-quality development.

The remaining parts of this article are arranged as follows: The second part sorts out the literature on the impact of ESG on firm performance and proposes the research hypotheses of this article. The third and fourth parts clarify the research design and empirical conclusions of this article, respectively. The fifth part further examines and investigates the impact of enterprise nature and industry characteristics on the relationship between the two. The sixth part discusses the research conclusions of this article in detail, including the similarities and differences with the existing research and an analysis of possible reasons. The seventh part contains the research conclusions of this article and future research directions.

2. Literature Review and Research Hypotheses

2.1. ESG Activities and Firm Performance

The literature on the relationship between ESG activities and firm performance has a long and rich history [25]. Most research believes that ESG information disclosure, rating, and other activities have a positive effect on firm performance [18]. Some scholars have studied the impact of ESG on performance from the perspective of operating performance. Among their studies, a lot have shown that ESG activities have indeed reduced corporate financing costs, thereby reducing corporate risk-taking behavior [17,26,27], which means that companies with good ESG commitments obtain more stability and elasticity in terms of operating and finance [1]. Deng et al. pointed out that acquirers with high ESG engagement have higher returns on mergers, as well as better operating performance after mergers [28]. Ashwin et al. found that compared with competitors in the same industry, the stock returns of companies that incorporate ESG factors have less volatility [29]. Some scholars studied the impact of ESG on performance from the perspective of risk management. ESG has become an important source of firm risk [30] and a measure of management quality [31]. Sharfman and Fernando found that effective ESG risk management strategies can enhance the flexibility of companies to respond to economic downturns, thereby reducing the company's systemic risks [32,33]. Sassen et al. also found that higher comprehensive

ESG scores lead to lower total risk and idiosyncratic risk [33]. The research conclusions of Oikonomou et al. and Lee and Faff were similar to this [34,35]. Kim et al. found that ESG is negatively correlated with the risk of future stock prices plummeting [36]. Neitzert and Petras investigated a sample of 3392 banks in 121 countries and found that ESG engagement reduces default risk and portfolio risk [37]. Some scholars studied the impact of ESG on performance from the perspective of external stakeholders. Eccles et al. pointed out that because highly sustainable companies take seriously long-term development, they are more likely to attract long-term investors [38]. Crifo et al. found that in some French companies, their attitude towards ESG affect private equity investors' decisions to invest in them. The practice or policy indicating that companies do not undertake social responsibility in the environmental field reduces the probability that private equity investors invest in them by 30.8% [39]. In addition, Deslée et al. found that ESG rating scores have a positive correlation with corporate credit ratings [40]. Dhaliwal et al. found that the issuance of independent CSR reports is associated with lower analyst forecast errors [41].

Apart from above views, some scholars believe that ESG activities have a significantly negative correlation with firm performance. Hillman and Keim found a significantly negative correlation between corporate social responsibility (CSR) behavior and market added value in their study of 500 listed companies in Standard & Poor's (S&P) [13]. Brammer et al. also found that CSR has a significantly negative impact on stock returns in the research on 451 listed companies in the UK [42]. Duque-Grisales and Aguilera-Caracuel found a negative correlation between ESG scores and financial performance in Latin American countries [43]. Brammer et al. found that higher ESG engagement by enterprises causes lower shareholder value [14]. Some scholars explained the negative impact of ESG on firm value from the perspective of agency costs and over-investment. ESG investment may be regarded as agency costs, that is, managers conduct ESG investments at the expense of shareholders to improve managers' own reputations [16]. Under the assumption of over-investment, the ESG engagement of companies transfers out scarce resources from the activities of maximizing shareholder wealth, thereby squeezing investment and reducing bank value [16,17,44].

2.2. Research Hypothesis

Obviously, current research conclusions on the relationship between ESG activities and firm performance are not consistent. This may be due to the current differences in ESG information disclosure requirements, evaluation systems, and research methods among different countries [25,45]. This article believes that the relationship between ESG activities and firm performance can be analyzed from at least two aspects, as followed: On the one hand, from the perspective of information effect, one of the most important reasons why enterprises engage in environmental, social, and governance activities is to reduce firm risk, improve market performance, and enhance corporate sustainable development ability [46]. In order to achieve this purpose, in addition to regulating their own environmental, social, and governance behavior, it is more important for enterprises to explore how to pass the information of their active ESG activity engagement to external stakeholders, thereby reducing the environmental risks faced by enterprises and boosting their market performance. According to the signaling theory, the disclosure of ESG information can bring better firm reputation [47,48], thereby affecting customer confidence [49] and helping the company establish a more stable relationship with superior employees, investors, and customers [50,51]. This helps reduce their transaction costs and distribution conflicts among major stakeholders and provides a competitive advantage for obtaining and utilizing environmental resources, finally positively affecting firm value. Meanwhile, based on the perspective of resource-based theory and strategic management, ESG activities can form unique competitive advantages for companies [52], and they are also sources of corporate opportunities, innovation, and competitive advantages [53], which are conducive to corporate sustainable value creation. On the other hand, from the perspective of cost effect, based on the alternative substitution hypothesis, neoclassical economist

Friedman believed that the resources of enterprises are limited, so the ESG activities of enterprises inevitably consume resources that should be used to improve the economic interests of shareholders. Therefore, it leads to increased costs and reduced profits of enterprises, resulting in a weaker status of enterprises in competition [54]. Especially for China, an emerging market country, the concept of ESG has not been valued or promoted in the previous stage of capital market development. With the continuous improvement of China's capital market system, enterprises, whether from an active or passive point of view (government mandatory requirements), promote the implementation of the ESG concept, and it is essential to a large number of cost inputs. Especially for environment activities, most companies are bound to carry out comprehensive transformation and upgrades for their original equipment and processes in order to meet the environmental protection requirements set by the country or industry, which create a heavier burden on them and then affect the performance level of the enterprise [43]. Meanwhile, as an emerging market country, China is confronted with the capital market and external supervision system, which are not very mature. In order to maintain a good social image and improve their own governance level, companies need to improve and optimize their governance structure in addition to necessary cost inputs, which inevitably affect firm performance to a certain extent, especially short-term performance [45].

Based on the above analysis, this article proposes the following competitive hypotheses:

Hypothesis 1a: *When the information effect of ESG activities is in the dominant state, ESG activities have a significantly positive correlation with firm performance.*

Hypothesis 1b: *When the cost effect of ESG activities is in the dominant state, ESG activities have a significantly negative correlation with firm performance.*

3. Methodology and Measures

3.1. Sample Selection and Data Sources

In China's capital market, ESG as an emerging concept has not received much attention. At present, only a few investing and financing institutions, such as SynTao Green Finance, China Corporate Social Responsibility Institute, and MSCI, have developed ESG rating data for the Chinese capital market. Among them only SynTao Green Finance has gradually disclosed Chinese listed companies' ESG rating information and data since 2015 and covers a relatively wide number of companies. This article selected China's A-share listed companies from 2015 to 2019 as the original research samples. The initial samples were then screened according to the following criteria: (1) Exclude companies whose ESG rating information is absent, (2) exclude financial and insurance listed companies, (3) exclude special treatment (ST) and *ST sample listed companies, and (4) exclude sample listed companies that lack data. According to the above sample screening process, this article finally obtained 1372 "company-year" observations. The ESG data used in the study came from the Wind database, and the data on firm performance and other financial data came from the China Stock Market & Accounting Research Database (CSMAR) database. Meanwhile, in order to control the possible influence of extreme values on the conclusions of this article, this article winsorized all continuous variables at the levels of 1% and 99%. The specific information of the sample observed values is shown in Table 1:

Table 1. Sample annual observed values.

Year	2015	2016	2017	2018	2019
Quantity	176	196	207	460	333

3.2. Variable Definition

The dependent variable of this article was firm performance. Drawing on the research of Duque-Grisales and Aguilera-Caracuel, Aouadi and Marsat, and Cek and Eypoglu [12,44,55], we selected Tobin Q as the substitute variable for firm performance. Tobin Q reflects expected future profits of enterprises and includes automatic adjustments to risks, which can reflect enterprise future growth prospects well and can objectively and truly reflect the actual performance of listed companies, so has been widely used in research.

The independent variable of this article was ESG rating. When companies engage in ESG activities and disclose ESG information, the final results are reflected in ESG ratings. Therefore, we selected ESG rating as the substitute variable for ESG activities. At present, the best ESG ratings for Chinese listed companies are established by SynTao Green Finance, MSCI, and Bloomberg. However, considering the availability of data and the amount of data, this article finally selected the SynTao Green Finance ESG rating as the substitute variable for ESG activities. This indicator contains four grades and 10 levels (A+, A, A−, B+, B, B−, C+, C, C−, D). Through assignment in turn, we assigned A+ to 1, A to 2, A− to 3, B+ to 4, B to 5, B− to 6, C+ to 7, C to 8, C− to 9, and D to 10. As the SynTao Green Finance ESG rating indicator has been widely used in the research of Chinese ESG issues [30,56], the use of this indicator also ensured the comparability of the conclusions of this article.

As for control variables, referring to the research of Friede et al., Brooks and Oikonomou, and Deng and Cheng et al. [18,25,56], this paper controlled the following variables in the model: firm size (Size), financial leverage (Lev), sales growth rate (Growth), market value to book ratio (Mb), whether audited by the big four (Big4), R&D investment (R&D), firm age (Age), and the largest shareholder's shareholding proportion (Top1). Meanwhile, this article also added annual dummy variables and industry dummy variables to the model to control the annual and industry fixed effects, respectively. The specific variable definitions are shown in Table 2.

Table 2. The variable definitions.

Name	Abbreviation	Description
Firm performance	Tobin Q	Dependent variable Corporate market value/Asset replacement cost
ESG activities	ESG	Independent variable SynTao Green Finance ESG rating
Firm size	Size	Control variable Natural logarithm of total assets of enterprises
Financial leverage	Lev	Total liabilities/Total assets
Sales growth rate	Growth	(Current year operating income − Last year operating income)/Last year operating income
Market to book value	Mb	(Market price per share × Tradable share number + Net assets per share × Non-tradable share number)/Net book value of equity
Whether the big four	Big4	If audited by the big four in the year, the value is 1, otherwise the value is 0
R&D investment	R&D	R&D investment/Operating income
Firm age	Age	(Year of obtaining data − Year of establishing firm) + 1
Largest shareholding proportion	Top1	Number of shares of the largest shareholder/Number of total shares

3.3. Model Design

This article used the following model to test hypotheses H1a and H1b, and the specific model design is shown in Formula (1). In the formula, Tobin Q is used to indicate the performance of the company in the t period, and ESG indicates the rating of the company at the end of the t period. Since the ESG rating of a company may change many times during a year, in order to maintain the consistency of all indicator periods, we used the ESG rating data on 31 December as the annual data. YR and Ind are the annual and industry dummy variables, respectively. According to hypothesis H1a, coefficient α_1 of ESG_t should

be significantly negative. According to hypothesis H1b, coefficient α_1 of ESG_t should be significantly positive.

$$TobinQ_{i,t} = \alpha_0 + \alpha_1 ESG_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 Lev_{i,t} + \alpha_4 Growth_{i,t} + \alpha_5 Mb_{i,t} + \alpha_6 Big4_{i,t} + \alpha_7 R\&D_{i,t} + \alpha_8 Age_{i,t} + \alpha_9 Top1_{i,t} + YR + Ind + \varepsilon_{i,t} \quad (1)$$

4. Empirical Results

4.1. Descriptive Statistical Analysis

Table 3 shows the descriptive statistical results of each main variable. It can be seen from Table 3 that for the Tobin Q of sample listed companies, the mean value was 1.715, the median was 1.244, the minimum was 0.806, and the maximum was 8.464. The mean value of the Tobin Q of sample listed companies was obviously higher than the median, and the gap between the minimum and maximum values was large and the standard deviation was large, indicating that on the whole the Tobin Q of sample companies was distributed to the right, and a few sample firms had larger firm value. In addition, it can be seen from the table that the average ESG rating of Chinese listed companies at this stage was between B and B−; the median was B−, the highest level was only A−, and the lowest level was C. All this shows that the ESG performance of Chinese listed companies was not outstanding at this stage, and the ESG ratings of most companies was still at a low-middle level. This was mainly due to the fact that China is still in the early stage of ESG development, where relevant regulatory requirements and information disclosure requirements are not perfect, so ESG has not attracted the attention of the majority of listed companies. The distribution of other related variables was also within a reasonable range.

Table 3. Descriptive statistical analysis.

Symbol	Number	Mean	Std. Dev.	Min	Median	Max
Tobin Q	1372	1.715	1.285	0.806	1.244	8.464
ESG	1372	5.87	1.031	3	6	8
Size	1372	24.212	1.260	21.702	24.069	27.572
Lev	1372	0.500	0.184	0.077	0.520	0.859
Growth	1372	0.277	0.593	−0.687	0.128	3.260
Mb	1372	0.752	0.277	0.118	0.804	1.240
Big4	1372	0.24	0.427	0	0	1
R&D	1372	3.053	3.723	0.010	2.005	21.980
Age	1372	20.89	5.380	0	21	1
Top1	1372	40.990	16.531	8.200	40.980	77.380

4.2. Univariate Analysis

Before regression, this paper divided listed companies into a high ESG rating group and a low ESG rating group according to whether the ESG rating of listed companies was higher than the industry and annual median and conducted a grouping difference test on the main variables. Table 4 illustrates the univariate analysis results of the main variables. The results show that in the high ESG rating group, the mean and median of Tobin Q were smaller than those of the low ESG rating group, which preliminarily verified hypothesis H1b of this article. From Table 4, it can also be found that other factors that affected firm value also showed significant differences between groups. Therefore, this article further controlled the impact of other factors on firm value through regression analysis to better verify research hypothesis H1b of this article.

Table 4. Univariate analysis.

	Number	High		Number	Low		T Testing	Z Testing
		Mean	Median		Mean	Median		
TobinQ	424	1.516	1.141	948	1.804	1.302	−4.455 ***	4.60 ***
Size	424	24.717	24.677	948	23.986	23.840	9.906 ***	−10.046 ***
Lev	424	0.523	0.546	948	0.490	0.506	3.109 ***	−3.239 ***
Growth	424	0.228	0.087	948	0.298	0.145	−2.175 **	2.099 **
Mb	424	0.801	0.876	948	0.730	0.768	4.433 ***	−4.595 ***
Big4	424	0.39	0	948	0.17	0	7.970 ***	−8.525 ***
R&D	424	2.862	1.960	948	3.138	2.060	−1.268	0.685
Age	424	21.37	21	948	20.67	21	2.239 **	−1.939 *
Top1	424	43.270	42.455	948	39.969	39.730	3.431 ***	−3.186 ***

Note: *, **, *** indicate a notable level of significance at respectively 10%, 5%, and 1%.

4.3. Regression Analysis

Table 5 reports the regression results of ordinary least square (OLS). In regression (1), only the annual and industry effects were controlled, and other variables were not controlled. The coefficient of ESG was found to be 0.059, which was significant at the statistical level of 10%. Regression (2) further controlled other variables that affected firm performance, and the coefficient of ESG was reduced to 0.045 and was significant at the statistical level of 5%. The results verified research hypothesis H1b of this article. For the regression results in Table 5, from the economic perspective overall, every time the ESG rating of listed companies increased by one level (the higher the rating, the lower the assignment), the firm performance level dropped significantly by 4.3% (5.9%). In addition, from the perspective of the control variables, Size and R&D were significantly positively correlated with firm performance, whereas Lev, Growth, and Mb were significantly negatively correlated with firm performance, which was basically consistent with existing research [57,58].

Table 5. Regression analysis on firm performance and ESG ratings.

	(1)	(2)
ESG	0.059 * (1.83)	0.043 ** (2.14)
Size		0.140 *** (5.45)
Lev		−0.913 *** (−6.54)
Growth		−0.048 (−1.32)
Mb		−3.819 *** (−38.26)
Big4		−0.079 (−1.55)
R&D		0.041 *** (6.64)
Age		0.003 (0.74)
Top1		0.001 (0.75)
Constant	1.912 *** (4.71)	0.727 (1.13)
Year	YES	YES
Ind	YES	YES
Observation	1372	1372
Adj-R²	0.141	0.699

Note: *, **, *** indicate a notable level of significance at respectively 10%, 5%, and 1%, and the values in parentheses are robust standard errors.

4.4. Robustness Test

First, according to whether the ESG rating of a listed company was greater than the industry or annual median, this article transformed the ESG rating data of a listed company into a variable of 0 or 1. If the ESG rating of the year was greater than the industry or annual median, the value was 1. Otherwise, the value was 0. The OLS regression results using Model (2) are shown in Table 6. It can be seen from Table 6 that after changing the

form of ESG rating data, ESG ratings and corporate performance still showed a significant negative correlation, which further validated research hypothesis H1b of this article.

$$TobinQ_{i,t} = \alpha_0 + \alpha_1 ESG_{i,t}(0,1) + \alpha_2 Size_{i,t} + \alpha_3 Lev_{i,t} + \alpha_4 Growth_{i,t} + \alpha_5 Mb_{i,t} + \alpha_6 Big4_{i,t} + \alpha_7 R\&D_{i,t} + \alpha_8 Age_{i,t} + \alpha_9 Top1_{i,t} + YR + Ind + \varepsilon_{i,t} \quad (2)$$

Table 6. Regression analysis on firm performance and ESG rating (0, 1 variable).

	(1)	(2)
ESG	−0.194 *** (−2.71)	−0.093 ** (−2.06)
Size		0.143 *** (5.50)
Lev		−0.922 *** (−6.60)
Growth		−0.050 (−1.38)
Mb		−3.817 *** (−38.25)
Big4		−0.081 (−1.60)
R&D		0.041 *** (6.63)
Age		0.003 (0.79)
Top1		0.001 (0.71)
Constant	2.283 *** (6.47)	0.924 (1.5)
Year	YES	YES
Ind	YES	YES
Observation	1372	1372
Adj-R ²	0.143	0.699

Note: **, *** indicate a notable level of significance at respectively 5% and 1%, and the values in parentheses are robust standard errors.

Second, using return on assets (ROA) as a substitute variable for firm performance, the regression results using Model (3) are shown in Table 7. It can be seen that there was still a significant negative correlation between ESG ratings and firm performance. On the whole, every time the ESG rating of listed companies increased by one level (the higher the rating, the lower the assignment), the firm performance level dropped significantly by 0.3% (5.9%).

$$ROA_{i,t} = \alpha_0 + \alpha_1 ESG_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 Lev_{i,t} + \alpha_4 Growth_{i,t} + \alpha_5 Mb_{i,t} + \alpha_6 Big4_{i,t} + \alpha_7 R\&D_{i,t} + \alpha_8 Age_{i,t} + \alpha_9 Top1_{i,t} + YR + Ind + \varepsilon_{i,t} \quad (3)$$

Table 7. Regression analysis of ROA and ESG ratings.

	(1)	(2)
ESG	0.001 (0.84)	0.003 ** (2.35)
Size		0.140 *** (9.76)
Lev		−0.148 *** (−18.51)
Growth		−0.003 (−1.45)
Mb		−0.098 *** (−17.11)
Big4		0.005 (1.62)
R&D		−0.001 *** (−3.93)
Age		0.000 (1.33)
Top1		0.000 *** (4.30)
Constant	0.011 (0.64)	−0.249 *** (−6.75)
Year	YES	YES
Ind	YES	YES
Observation	1372	1372
Adj-R ²	0.060	0.446

Note: **, *** indicate a notable level of significance at respectively 5% and 1%, and the values in parentheses are robust standard errors.

5. Additional Tests

Previous studies showed that the enterprise nature and different industry attributes may affect the relationship between ESG and firm performance [59]. Especially based on the large sample research of China's capital market, these two types of issues have to

be considered separately. In order to assess the impact of different influential factors on the conclusions of this article, this study divided the sample group into a state-owned enterprise group and non-state-owned enterprise group, and an environmentally sensitive industry group and non-environmentally sensitive industry group and performed group regressions. The results are shown in Table 8. Among them, environmentally sensitive companies were standardized by the heavy pollution industries identified in China's "Guidelines for Environmental Information Disclosure of Listed Companies" in 2010.

Table 8. Group regression results.

	State-Owned Enterprises	Non-State-Owned Enterprises	Environmentally Sensitive	Non-Environmentally Sensitive
ESG	0.014 (0.73)	0.092 * (1.96)	0.011 (1.02)	0.047 ** (2.01)
Size	0.104 *** (4.21)	0.132 ** (2.11)	−0.002 (−0.13)	0.158 *** (5.19)
Lev	−0.662 *** (−4.75)	−1.289 *** (−4.09)	−0.009 (−0.11)	−1.056 *** (−6.52)
Growth	−0.003 (−0.08)	−0.037 (−0.40)	−0.047 ** (−2.27)	−0.055 (−1.34)
Mb	−3.392 *** (−33.02)	−4.633 *** (−21.72)	−1.958 *** (−28.91)	−4.003 *** (−35.56)
Big4	−0.095 * (−1.94)	−0.116 (−0.97)	0.006 (0.22)	−0.096 (−1.62)
R&D	0.007 (1.04)	0.063 *** (5.27)	−0.009 (−0.93)	0.041 *** (6.12)
Age	0.001 (0.29)	0.014 (1.51)	0.005 * (1.80)	0.001 (0.25)
Top1	0.001 (0.99)	−0.004 (−1.31)	0.002 *** (2.68)	0.001 (0.34)
Constant	1.420 ** (2.33)	1.121 (0.66)	2.708 *** (8.58)	0.513 (0.68)
Year	YES	YES	YES	YES
Ind	YES	YES	YES	YES
Observation	928	444	214	1158
Adj-R ²	0.708	0.707	0.868	0.704

Note: *, **, *** indicate a notable level of significance at respectively 10%, 5%, and 1%, and the values in parentheses are robust standard errors.

From the regression results in Table 8, in the state-owned enterprise group, the relationship between ESG rating, and firm performance were negatively correlated, but not significant. In the non-state-owned enterprise group, ESG rating was significantly negatively correlated with firm performance (at the 10% level). Every time the ESG rating of listed companies increased by one level (the higher the rating, the lower the assignment), the firm performance level significantly decreased by 9.2%. It can be clearly seen that compared with the full-sample regression results, the decline in ESG ratings in the non-state-owned enterprise group had a greater impact on firm performance (9.2% vs. 4.3%). This shows that compared with state-owned enterprises, non-state-owned enterprises undertake greater cost pressure on ESG activities, which in turn leads to a greater extent of reduction in firm performance. In the environmentally sensitive company group, the relationship between ESG rating and firm performance was negatively correlated, but not significant. In non-environmentally sensitive companies, the ESG rating had a significant negative correlation with firm performance (at the 5% level). Every time the ESG rating of listed companies increased by one level (the higher the rating, the lower the assignment), the firm performance level significantly dropped by 4.7%. Compared with the full-sample regression results, the decline extent of the two was basically the same (4.7% vs. 4.3%). This result shows that non-environmentally sensitive companies face heavier cost pressures when engaging in ESG activities. This may be because environmentally sensitive companies have always paid more attention to cost investment in environmental protection (regardless of whether such investment is active or passive), and have formed a relatively benign cost management system, whereas non-environmentally sensitive companies often easily ignore investment in this area and may be confronted with a greater external environmental risk, which in turn leads to a reduction in firm performance.

6. Discussion

Using the relevant data of China's A-share non-financial listed companies from 2015 to 2019, and on the basis of controlling the unobservable heterogeneous variables, including

the year and industry variables, our research found that the ESG ratings of Chinese listed companies have a significantly negative correlation with firm performance. On the basis of a series of robustness tests such as replacing key variables and replacing measurement methods of core variables, this conclusion is still tenable. In particular, we also found that under the background that China's regulatory authorities are gradually advancing and strengthening ESG information disclosure at this stage, ESG activities may bring non-state-owned enterprises and non-environmentally sensitive enterprises greater cost burdens. Especially in the initial stage of ESG activities, the performance of non-state-owned enterprises and non-environmentally sensitive enterprises may decline to varying degrees.

According to the empirical conclusions of this article, we can assume that in emerging market countries where ESG activities are not active, the ESG information disclosure requirements for listed companies may evolve into a serious cost burden for these companies, thereby leading to a significant negative correlation between ESG ratings and firm performance. According to the traditional neoclassical approach, investing in corporate ESG activities incurs additional cost burdens [60–63] that affect firm performance. For example, enterprises are confronted with high cost burdens due to the requirements for energy saving and emission reduction of enterprises and the conversion from obsolete technology to clean technology [64,65]. In addition, because the institutional environment of emerging market countries is generally weak and the protection degree for investors is relatively low [66], in order to establish a good degree of trust with investors, it is necessary for enterprises to invest more in corporate governance mechanisms in the short term (such as hiring external auditors, adding independent directors, strengthening information disclosure, etc.), and all of these affect firm performance in the short term [67]. Duque-Grisales and Aguilera-Caracuel's research provides evidence for this. They used 104 multinational companies in emerging markets (Brazil, Chile, Colombia, Mexico, and Peru) as examples and proved that there is a significant negative correlation between ESG scores and corporate financial performance. In their tests on environmental, social, and governance dimensions, the conclusions are still negative [43]. In our research process, we selected China, the most representative emerging market country, as an example, then further expanded the sample size of the study, selecting more representative firm performance indicators, using a variety of statistical analysis methods, and finally verifying the negative correlation between ESG activities and firm performance. Different from the research of Duque-Grisales and Aguilera-Caracuel and further from the perspective of micro-enterprises, this article investigated the impact of enterprise nature and industry diversity on the relationship between the two.

The controversy of the impact of ESG activities on firm performance seems to be mainly influenced by two important factors, information asymmetry and input costs [43]. As we all know, as an important part of China's capital market, state-owned enterprises are often subject to stricter supervision by the government, and they are also required to actively assume corporate social responsibilities [68,69]. Therefore, usually state-owned enterprises conduct ESG activities at an earlier stage, whose quality of ESG information disclosure is higher and effects of signal mechanism are better, meaning that their ESG activities are more likely to promote the gradual improvement of firm performance [70,71]. In addition, in recent years, Chinese regulatory authorities have conducted increasingly stricter supervision over corporate environmental information disclosure. In particular, the release of China's "Guidelines for Listed Company Environmental Information Disclosure" in 2010 brought the governance of environmental problems in heavily polluting industries to a new level. On the other hand, the environmental information disclosure of non-heavy pollution industries appear to be slightly more moderate. However, as China increasingly highlights ESG issues, the requirements for environmentally sensitive companies and non-environmentally sensitive companies in terms of ESG activities are gradually becoming equal. At this time, the advantages of environmentally sensitive companies gradually appear due to their upfront cost inputs and the strict information disclosure re-

quirements [69,72]. This analysis is also consistent with the empirical research conclusions of this article.

Certainly, the research conclusions of this article are also different from those of some scholars. For example, Friede et al. combined about 2200 results from more than 3700 studies on the impact of ESG on financial performance by extracting all the primary and secondary data from 60 literature reviews prior to 2015 and found that about 90% of the studies confirmed that ESG has a positive correlation with financial performance [18]. Only about 10% of studies believed that there is a significant negative correlation between ESG activities and firm performance [13,14,35,42]. We believe that the primary reason for this difference was the variance of the research background (the variance in the level of capital market development). The studies of Yu et al. and Park and Balatbat were all focused on developed countries [10,58,73]. In these countries, ESG activities were carried out earlier, so that the negative externality stage of the impact of ESG activities on enterprises had passed, and the information effects of ESG activities had been fully brought into play. However, ESG activities in emerging market countries are in their infancy, and companies face strong negative externalities, which makes their performance vulnerable to damage. Secondly, there is a certain degree of difference in the evaluation standards of ESG activities among different scholars. Currently, different ESG evaluation standards lack convergence [74], and most of them are qualitative standards rather than quantitative standards. Due to the absence of quantitative, reliable, objective, and comparable data, it is inevitable to reach different research conclusions.

Our research enriches the literature on the impact of ESG activities on firm performance [43] and provides the latest research results on ESG activities in China. In particular, we suggest that more attention be paid to the ESG performance of non-state-owned enterprises and non-environmentally sensitive enterprises. Based on the theoretical derivation and empirical test of this article, we predict that as these two types of companies continue to invest in ESG activities, the impact of ESG on firm performance may gradually turn from negative to positive and may bring higher investing premiums for corporate investors.

7. Conclusions

As important content that modern enterprises must carry out, ESG activities are of great significance to enterprise risk-taking, firm performance, and even the healthy development of China's capital market. Therefore, the relevant regulatory authorities in China have begun to gradually promote the normalization and institutionalization of ESG information disclosure, and academic and practical circles have gradually increased their research on ESG issues. In the existing literature on the relationship between ESG and firm performance, no clear answers have been made on the relationship between the two, and there is a lack of large sample studies based on the Chinese background. Therefore, this article took the study of the relationship between the two as the starting point, selected the ESG ratings and financial data of the Shanghai and Shenzhen A-share non-financial listed companies from 2015 to 2019, and used univariate analysis and OLS regression to study the impact of ESG ratings on firm performance.

The research results show that there is a significant negative correlation between corporate ESG activities and firm performance. Overall, each time the ESG rating of listed companies increased by one level (the higher the rating, the lower the assignment), the firm performance level dropped significantly by 4.3%. This relationship remained unchanged after multiple-group robustness tests, including replacing measures of the main variables. Further regression analysis showed that, compared with state-owned enterprises, non-state-owned enterprises undertake greater cost pressure on ESG activities, which in turn leads to a greater reduction in firm performance. Compared with environmentally sensitive companies, non-environmentally sensitive companies undertake more significant cost pressures on ESG activities, and the decline in firm performance is more obvious.

The research conclusions of this article show that in terms of ESG activities, listed companies in China are still facing relatively high cost pressures at this stage, and the

impact of ESG ratings also presents different relationship forms with the discrepancy of enterprise nature and industry characteristics. Combining the requirements of relevant Chinese regulatory authorities and the situation of the capital market, we believe that this negative correlation may continue to exist for a period of time in the future, and the large amount of early cost investment will inevitably lead to a certain decline in firm performance. However, it can also be expected that over time, the cost effect of ESG activities will gradually weaken, and the positive effects of ESG activities will continue to appear. Some research conclusions based on the capital markets of developed countries proved the correctness of this inference [17,33,35]. Therefore, at this stage, confidence in promoting ESG activities should be strengthened to promote the continuous improvement of the ESG level of Chinese listed companies.

Combining the research of the existing literature, we suppose that the limitation of this article is that as ESG activities are promoted in China for a relatively short time, the true effect of ESG activities on firm performance needs further observation and analysis. Meanwhile, in the current stage there are many relevant institutions and methods for ESG ratings of Chinese listed companies, and consistent conclusions have not been reached. The theoretical basis and statistical methods of various methods are also important reasons for the inconsistent research conclusions at this stage. In view of these reasons, we believe that with the gradual advancement of ESG activities of Chinese companies, it is necessary for us to promote the unification and internationalization of ESG evaluations from the government level and consider distinctive perspectives to examine the impact of ESG activities on firm performance from both long-term and short-term perspectives.

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