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Review

Specialization in Environmental Justice and Enterprises' ESG: Evidence from the Environmental Courts in China

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Abstract

The environmental protection trial court, also known as the environmental resources trial court (henceforth referred to as the environmental court), is an institutional innovation in the field of environmental justice. To explore the influence of environmental judicial specialization on firms' ESG performance and its mechanism, this study uses a sample of publicly traded firms from 2009 to 2022. The results demonstrate that environmental courts have significantly improved enterprises' ESG performance. This conclusion remains valid following a series of robustness tests. From the three dimensions of ESG, environmental courts can significantly improve the performance of the corporate governance dimension in the current period. However, their impact on the environmental and social dimensions shows lagged effects. Environmental courts enhance enterprises' ESG by reinforcing external constraints and internal impetus. The external constraint mechanism lies in enhancing government attention to green affairs, while the internal impetus mechanism lies in driving the digital transformation of companies. Based on the heterogeneity analysis, the positive effects of environmental courts are more pronounced in state-owned enterprises, those whose chairmen lack environmental protection backgrounds, and those located in cities with stronger public channels. It is essential to continuously deepen the specialization in environmental justice and refine the external pressure and internal motivation mechanisms to enhance enterprises' ESG.

Keywords: specialization in environmental justice, environmental courts, ESG

Introduction

The main goal of developing a modern socialist country is to achieve high-quality development. It describes development that can meet people's ever-increasing needs for a higher quality of life. Innovation, green growth, cooperation, sharing, and openness are all unified in high-quality development. ESG aligns with the idea of high-quality development and serves as a gauge for evaluating the sustainable and superior development of businesses. As prominent micro-level entities within socio-economic activities, whether an enterprise's ESG can be enhanced holds substantial significance for facilitating high-quality economic development. However, in our country's rapid economic growth, some enterprises have shown

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a tendency to excessively pursue short-term economic benefits while neglecting environmental protection and social responsibility. It is a question worth exploring in depth how to improve an enterprise's ESG.

The Party Central Committee has emphasized "improving the legal system, driving ecological progress through legal governance mechanisms" while "consistently upholding rigorous institutions and laws to protect the environment" since the 18th CPC National Congress. Legal governance constitutes the cornerstone of environmental regulation [1]. Environmental legislation and environmental justice are two critical dimensions of ecological governance. Its status within the national constitutional framework has continued to rise since 1978, when environmental protection was first incorporated into the Constitution. China's framework of environmental laws has gradually matured, resulting in a set of laws to follow. Robust environmental justice is a vital safeguard for ensuring the effectiveness of environmental governance [2]. However, there are still various issues that constrain the effective functioning of environmental justice. China's specialization in environmental justice has progressively taken a path that reflects the characteristics of Chinese justice since the first specialized environmental court was created in 2007.

The environmental court is an institutional innovation for the professionalization of environmental justice, which has the characteristics of a centralized trial and cross-regional jurisdiction [3]. In 2007, Guiyang set up grass-roots and intermediate environmental courts, which have been continuously promoted nationwide since then. The specialization of environmental justice is growing rapidly. By the end of 2023, there were 2,813 specialized agencies (organizations) responsible for adjudicating environmental and resource cases. Environmental courts have gradually entered the research vision of scholars. Some literature has demonstrated the effectiveness of environmental courts in dealing with pollution [1]. Some literature has also sought to analyze the influence of environmental courts on business behavior (such as investment, innovation, transformation, etc.). However, the existing discussion on whether the environmental court can make enterprises undertake social and environmental responsibility is insufficient.

This work confirms the effect and mechanism of environmental courts on an enterprise's ESG on the basis of panel data of listed businesses from 2009 to 2022 and the quasi-natural experiment of establishing environmental courts in local intermediate courts. The innovation points include the following two points. (1) The validity of environmental justice specialization is confirmed in terms of corporate ESG. This widens the research perspective of environmental justice professionalization. (2) This article delves into how environmental courts influence an enterprise's ESG by examining external constraints and internal motivation. It enriches the understanding of how environmental justice specialization affects corporate performance.

Institutional Background, Literature Review, and Research Hypotheses

Institutional Background

With that opening and reform, China has also made considerable achievements in the area of environmental rule of law. Environmental legislation has increased from a small amount to a larger quantity, environmental law enforcement has strengthened from weak to strong, environmental justice has changed from passive to active, and environmental compliance has shifted from passive to active [4]. Environmental justice is a crucial component of environmental rule of law construction. Robust environmental justice ensures that environmental governance progresses from "having laws available" to "ensuring laws are strictly enforced". The specialization of environmental justice means establishing specialized judicial organs by the state or local governments, or setting up specialized judicial institutions or organizations within people's courts, to have jurisdiction over and hear environmental cases. In 2007, Guizhou Province established the Qingzhen Environmental Court, the first environmental protection judicial institution in China, which started the road to the professionalization of environmental justice in China. Thereafter, courts for environmental protection were set up in Wuxi, Kunming, and other regions to handle local environmental pollution problems. More than 150 environmental courts had been created nationwide as of the end of 2013, and in 2014, the Supreme People's Court created the Environmental Resources Tribunal to advance the specialization and professionalization of trials related to environmental resources. The professionalization of environmental justice has reached a phase of rapid development. A shift from bottom-up to top-down reforms in the professionalization of environmental justice was achieved. Initially, the environmental court conducted experiments at the local level. Until 2014, the environmental protection tribunals were promoted nationwide. A series of guiding documents have been promulgated by the Environmental Resources Tribunal of the Supreme People's Court to enhance the top-level design and provide policy guidance. At the same time, the standard of judgment will be unified, and typical cases will be published. However, the local environmental court is also encouraged to innovate in the trial and adjudication modes. Courts of environmental protection have been set up across the country to explore ways of specializing in environmental justice that suit their regions. There are environmental tribunals established at the provincial, intermediate, and grassroots levels. In view of data availability, this paper makes use of quasi-natural experiments generated by the creation of environmental tribunals in intermediate courts across the country. By the end of 2023, 2,813 specialized agencies or organizations for environmental and resource trials at all levels had been established nationwide. From 2021

to 2023, courts at all levels nationwide accepted 829,224 first-instance cases of environmental resources and concluded 743,235 cases, in accordance with the China Environmental Resources Trial.

The innovation in professionals, trial mode, jurisdiction mode, and other aspects by the environmental court contributes to the professionalization of environmental justice. (1) Most environmental courts try to adopt cross-administrative jurisdiction over environmental cases. Cross-regional jurisdiction gives the environmental court the power to deal with environmental problems across regions. It is conducive to breaking local protectionism and overcoming administrative intervention in the judiciary [3, 5]. (2) The majority of environmental courts employ a centralized model for hearing cases. Some environmental courts choose to integrate environmental criminal, civil, and administrative cases, which is known as the "combination of three types of trials". While some environmental courts incorporate case execution into it and propose the "combination of trial and execution", thus forming the "combination of four types of trials". On the one hand, centralized trials can enhance the effectiveness of receiving environmental cases. A centralized trial provides a potential judicial complaint channel for the injured party in environmental cases. It can effectively prevent the injured party from falling into the dilemma of not knowing how to sue. On the other hand, it can unify the trial standards and standardize judicial procedures, which helps promote the specialization of trials. The term "combination of trial and enforcement" indicates that the courts are responsible for the trial and enforcement. The integration of trial and enforcement enables the courts to provide adequate compensation for environmental damage and to pursue polluters to enhance the ecological environment [3]. The enforcement powers of environmental courts can minimize local government interference. It is conducive to enhancing the effectiveness of law enforcement in environmental cases. (3) The environmental court has a group of judges with legal knowledge and environmental knowledge. It will help to improve the professionalism of the trial.

Literature Review

The Efficacy of Environmental Courts

In the environmental justice specialized reform, the most representative measure is establishing environmental courts. Due to their diffusion, potential impacts, and diversity, environmental courts merit interdisciplinary academic attention [6]. In addition to exploring the legitimacy, jurisdiction, procedure, and improvement strategy of the environmental protection courts from a legal standpoint, their role has also garnered attention from scholars in economics, management, and other disciplines. The current literature explores the effect of environmental courts on the city and company levels. On the one hand, scholars have discussed the influence of environmental tribunals on urban pollution control, green growth, energy efficiency, carbon emissions, and other aspects [7-9]. On the other hand, enterprises, as significant participants in socio-economic activities, are also the focus of academic attention. The influence of environmental tribunals on business behavior, business decision-making, corporate governance, corporate growth, and other aspects has received extensive attention [10-12]. For example, some articles explore how environmental courts affect environmental disclosure quality, environmental protection expenditure, green innovation, green transformation, and pollution emissions of enterprises. Most studies recognize the positive impacts of environmental courts [13, 14]. Nevertheless, several studies have also identified negative impacts of environmental courts [15]. The effectiveness of environmental courts deserves to be explored in depth.

Determinants of Corporate ESG Performance

With the shift of China's economy from a phase of rapid growth to a phase of high-quality development, scholars are increasingly concerned about green development and sustainable development. A large body of literature has explored the influencing factors of sustainable development from both macro and meso perspectives. For instance, some research has confirmed that the digital economy can serve as a key force for regional carbon emission reduction by improving energy efficiency and promoting technological innovation [16]. Some literature, from a global perspective, reveals the complex impact of trade openness as an external economic environment on carbon emissions in emerging market countries [17]. As key participants in socio-economic activities, enterprises' sustainable development constitutes an indispensable aspect. Moreover, enterprises' strong performance in the environmental, social, and governance (ESG) dimensions serves as a key driver for the innovation of their sustainable business models [18]. ESG performance has emerged as a critical focus for both corporations and the academic community. Notably, understanding the drivers behind corporate ESG performance has emerged as a key research focus. Scholars have examined the drivers of corporate ESG performance from both external and internal perspectives. Research on internal factors has mainly concentrated on the digital level, enterprise behavior, corporate governance, and so on [19-21]. The external factors mainly discuss government behavior, environmental regulation, market function, public behavior, and so on [22-25]. For instance, exploring how the inclusiveness of foreign capital at the urban level affects corporate ESG [26]. With regard to environmental regulation, scholars have focused on how market-based and command-based environmental regulation, including carbon emissions trading systems, environmental protection laws,

and central environmental protection inspections, influence corporate ESG [27-29]. Some investigations have suggested that environmental regulations can raise the ESG of firms [30], while others have indicated that these regulations may harm the ESG of companies [31]. Furthermore, scholars have found that environmental regulations have varying impacts on the ESG of enterprises located in different regions and with distinct natures. For example, it was found that the pilot policy of carbon emissions trading can significantly improve the ESG of enterprises in the eastern region. However, it is not conducive to enhancing the ESG of enterprises in the western region [32]. There is a clear need for a deeper understanding of the factors driving corporate ESG performance.

Linking Environmental Courts to Corporate ESG

As a typical example of environmental judicial specialization, environmental courts have gradually attracted attention. Nevertheless, in contrast to investigating the effects of environmental courts on corporate ESG performance, the extant literature has paid greater attention to the role of environmental legislation. For instance, some studies examine the impact of environmental tax law or environmental protection law on corporate ESG [33-35], confirming that such legislation has a significant enhancing effect [36, 37]. Environmental law can only play its role when effectively enforced, and environmental enforcement is closely related to environmental justice [38]. Environmental justice is an indispensable part of the environmental rule of law. Although the literature directly examining the impact of environmental courts on corporate ESG is still limited, preliminary evidence has begun to validate their positive role. Furthermore, there is no consensus on the analysis of its mechanism of action. Some studies only focus on the internal perspective and have verified that environmental courts can improve corporate ESG performance by promoting environmental investment and green innovation [39]. In contrast, from an external perspective, other studies have explored how environmental courts achieve this by strengthening external environmental oversight [40, 41]. Elucidating the mechanism is crucial for an in-depth analysis of the impact of environmental courts on corporate ESG. Furthermore, inspired by Zhang et al. [42], the effects of environmental courts may depend on specific contextual configurations. For instance, whether the chairman has an environmental protection background and whether the city where the enterprise is located is a pilot city for government public data opening. Therefore, building on the existing research, this paper will further comprehensively examine the specific mechanisms through which environmental courts influence ESG from both internal and external perspectives. Meanwhile, this study will conduct heterogeneity analysis to further clarify the contextual boundaries of their effects.

Research Hypotheses

As an important attempt at environmental justice specialization in China, the environmental court has strong professionalism, independence, and execution [43]. It can effectively restrain the behavior of the government and enterprises while offering more convenient pathways for public participation. From the perspective of external supervision, on the one hand, the mandatory sentences of the environmental court underline the effect of the rule of law. It can successfully curb the actions motivated by official promotions and the demands of economic performance [43], thereby enhancing the environmental attention of local governments. The government's attention to environmental protection can serve as a soft constraint to shape the sustainable behavior of enterprises [44]. The increase in governments' attention to environmental protection helps to enhance corporate ESG [45]. On the other hand, the environmental court also provides a driving force and a convenient channel for the public to express green aspirations and participate in environmental protection [3, 38]. As an informal form of supervision, the improvement of public environmental awareness and environmental attention helps enhance corporate ESG [46]. From the perspective of internal governance, as a professional judicial institution, environmental courts can strengthen the enforcement of environmental laws and regulations as well as environmental management. This will not only influence corporate decision-making, but also regulate corporate behavior and strengthen its internal control [47]. For instance, environmental regulations can induce enterprises to invest in digitalization [48], and the digital transformation of enterprises can improve their ESG [49]. Based on the institutional background of environmental courts and the current state of research on their impact on corporate ESG, this study proposes the following hypotheses.

Hypothesis 1. Environmental courts can considerably enhance the ESG of an enterprise.

Hypothesis 2. Environmental courts boost an enterprise's ESG by raising the government's focus on green issues and increasing public environmental awareness.

Hypothesis 3. Environmental courts encourage the digital transformation of businesses, which improves an enterprise's ESG.

Materials and Methods

Data

This work adopts the initial data of A-share-listed companies from 2009 to 2022. The following is how the sample data are processed: The first is the exclusion of ST, *ST, and PT samples. Secondly, samples with grossly insufficient data are excluded. Finally,

1% and 99% winsorization is conducted on the data. The CSMAR database, listed companies' annual reports, and other sources are the sources of the data used in this paper.

Variables

ESG is the variable being explained. This study measures the ESG of the firm with the Sino-Securities index ESG rating. It is given a number between 1 and 9 and is separated into nine grades, ranging from inferior to excellent. In this paper, the mean of the annual ratings is used to characterize ESG performance.

The explanatory variable is specialization in environmental justice (Ecourt). In this paper, the specialization of environmental justice is indicated by setting up an environmental court in the prefecture-level city where the company is located. This variable is assigned a value of 1 if the prefecture-level city where the firm is located established an environmental court in the observation year; otherwise, it is assigned a value of 0.

Drawing on existing studies on the selection of control variables [28, 29, 50, 51], and to eliminate the confounding effect of potential interfering factors on the core relationship, this study also controls for a series of variables that reflect the firms' inherent characteristics. The control variables selected in this study are as follows:

Firm age (Age): The age of a company, to some extent, reflects its stage of development [29]. There may be differences in ESG management strategies among companies at different stages of development. In this paper, the year of listing is subtracted from the year of observation, and the natural logarithm of the result is then used to determine the corporate age.

Firm size (Size): For enterprises of different sizes, there may be differences in their willingness to manage ESG [52]. This paper measures the scale of a company using the logarithm of the total assets.

Asset-liability ratio (Alr): The asset-liability ratio reflects a company's dependence on debt financing. Enterprises with varying degrees of dependence may have different business strategies and risk preferences, which may result in varying ESG performance [29].

Chairman's shareholding ratio (Csr): The chairman's shareholding ratio reflects the intensity of their control over the company and their behavioral motivations. The difference in this ratio will affect the chairman's choice of corporate objectives [53].

Net profit margin on assets (Pma): The net profit margin on assets measures a company's profitability, which may impact its ESG performance [40].

Total operating income growth rate (Ogr): The total operating income growth rate can measure an enterprise's growth capacity, which may affect the enterprise's ability to fulfill its environmental and social responsibilities [29].

Proportion of independent directors (Idr): The proportion of independent directors is a key indicator for measuring the effectiveness of board supervision. A board with a relatively high proportion of independent directors may exert a positive impact on environmental and social performance [54].

In addition, referring to the research design of Zhang et al. [28] and Wei et al. [36], this study also controls for firm fixed effects and time fixed effects to exclude the influence of other factors. Table 1 displays the descriptive statistics of the primary variables.

Model

A multi-period double difference method that takes into account the varying establishment times of environmental courts in pilot cities was employed. According to Zhang et al. [28], the model is as follows.

$$ESG_{it} = \alpha + \beta Ecourt_{it} + \sum Controls + \lambda_i + \mu_t + \varepsilon_{it} \quad (1)$$

ESG_{it} represents the enterprise's ESG. Ecourt represents that the city in which the company is located has created an environmental tribunal. The value is 1; otherwise, it is 0. Controls denotes a set of control variables. λ_i stands for the firm fixed effects. μ_t denotes the fixed effect of time. ε_{it} indicates the random error term.

Results and Discussion

Baseline Result

Table 2 gives the benchmark regression outcomes. The first column displays the results taking into account only the core explanatory variables. It is discovered that, at the 5% significance level, the creation of environmental courts greatly enhances corporate ESG. Column 2 adds various control variables. The findings still reveal that environmental courts significantly and positively influence firms' ESG at the 5% level of significance. To put it differently, the existence of environmental courts greatly contributes to the ESG of firms. The third and fourth columns display the estimated outcomes of ESG performance characterized by the median of the annual ESG ratings. The findings show that, whether control variables are considered or not, the creation of environmental courts can significantly enhance the ESG of a firm. The baseline results are demonstrated to be reliable to a certain extent. Hypothesis 1 is validated.

Table 3 further explores the impact of environmental courts on the three dimensions of corporate ESG. Columns 1 to 3 show that the environmental court has no significant effect on the environmental (E) and social (S) dimensions. It has significantly improved corporate governance (G). The positive impact of environmental courts on corporate ESG mainly stems from the improvement of performance in the corporate governance dimension. This finding is similar to

Table 1. Descriptive statistics of main variables.

Variables	Obs	Mean	Std.	Min	Max
ESG	33,727	4.143	0.918	1.500	6
Ecourt	33,727	0.431	0.495	0	1
Age	31,569	1.973	0.940	0	3.296
Size	33,727	22.15	1.271	19.94	26.30
Alr	33,727	0.418	0.209	0.0503	0.920
Csr	32,013	9.358	14.40	0	55.49
Pma	33,727	0.0385	0.0607	-0.235	0.198
Ogr	33,727	0.169	0.382	-0.542	2.276
Idr	33,726	0.382	0.0722	0.250	0.600

Table 2. Baseline results.

	(1)	(2)	(3)	(4)
Variables	ESG	ESG	ESG	ESG
Ecourt	0.052**	0.042**	0.057**	0.044*
	(2.50)	(1.99)	(2.54)	(1.92)
Constant	4.121***	-0.789**	4.118***	-0.952**
	(458.22)	(-2.16)	(429.85)	(-2.49)
Observations	33,691	29,505	33,691	29,505
R-squared	0.551	0.585	0.506	0.536
Control variables	NO	YES	NO	YES
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table 3. The results of the three ESG dimensions.

	(1)	(2)	(3)	(4)	(5)
Variables	E	S	G	E	S
Ecourt	-0.003	0.023	0.060*	-0.033	-0.050**
	(-0.11)	(0.94)	(1.91)	(-1.40)	(-1.99)
Ecourt_1				0.045*	0.113***
				(1.67)	(4.09)
Constant	-1.064**	-0.994**	1.487***	-1.078**	-0.959**
	(-2.42)	(-2.29)	(2.85)	(-2.42)	(-2.21)
Observations	29,505	29,505	29,505	29,483	29,483
R-squared	0.580	0.527	0.502	0.580	0.528
Control variables	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

the research of Zhou et al. [32]. A possible reason is that the concepts of environmental protection and compliance conveyed by environmental courts prompt enterprises to incorporate sustainable development into their development strategies and enhance governance levels to respond to strict environmental regulations. Furthermore, the judicial deterrence of environmental courts can also reshape corporate behavior, urging enterprises to strengthen internal governance. Moreover, the impacts of environmental courts on environmental and social dimension performance are not significant, and a possible reason is the time lag in the influence of environmental courts. To test the lagged impact of environmental courts on environmental performance, this study incorporates the first-order lag term of environmental courts into the baseline model. This is primarily based on considerations of the following issues. First, it takes a certain amount of time for environmental courts to handle environmental cases. When faced with environmental courts, enterprises also need time to recognize their deterrent effect and optimize environmental governance. The expected effect of the environmental court will be delayed by one period. Second, including multiple lagged terms simultaneously may give rise to multicollinearity issues. Furthermore, when the second lag term is included, the coefficients for all periods are not significant, which actually blurs the existing effects. The fourth column shows that the coefficient of the current-period environmental court is not significant, while the coefficient of the one-period lag is significantly positive. It indicates that there is a lag period of about one year for the environmental court to improve environmental dimension performance. Column 5 shows that the coefficient of environmental courts of the current period is significantly negative, while the coefficient of the one-period lag term is significantly positive. One possible reason is that, in the current period, when environmental courts are established, enterprises prioritize corporate governance to respond to environmental judicial pressure. After one year of adaptation, enterprises begin to respond to institutional pressure from a strategic perspective and proactively fulfill social responsibilities to enhance their corporate image.

Parallel Trend Test

In order for the double-difference method to be effective, the ESG rating trends for both control and treatment groups must be consistent before the presence of the environmental courts. In other words, the parallel trend assumption must be met. Rather than the temporal trends of the differences between the two groups, the setting up of environmental courts is what has improved the ESG. According to the idea of Barrios [55], the parallel trend hypothesis is investigated in this section employing the event-study methodology. The following is the model.

$$ESG_{it} = \alpha + \beta_j \sum_{j=-5}^{5} Eourt_{it}^{j} + \sum Controls + \lambda_i + \mu_t + \varepsilon_{it} \quad (2)$$

t_0 denotes the temporal point of policy execution. Precisely, it refers to the time when the environmental court was set up locally. j constitutes the time interval in relation to the year of policy implementation ($j = t - t_0$). When $t = t_0 + j$, then $Eourt_{it}^{j} = 1$. The coefficient β_j delineates the dynamic effects of the policy extending from five years before its implementation to five years after it. The base period for this article is the year in which the environmental tribunal was created. At the 95% confidence level, the parallel trend graph of the environmental court pilot project is illustrated in Fig. 1. It demonstrates that, prior to the setting up of the environmental court, there was no discernible difference in firms' ESG between the pilot and non-pilot areas. The coefficient was noticeably higher following the creation of the environmental court. The parallel trend hypothesis has been successfully verified.

Placebo Test

Randomly Establish a Policy Pilot

To obviate the potential effect of unobservable factors upon the benchmark results, herein, we conduct a placebo test with the approach of Cai et al. [56]. The following are the specific steps. Firstly, 2920 enterprises were randomly sampled to serve as the treatment group. Secondly, the time when the policy occurs was identified randomly. Finally, virtual policy pilots were generated. Subsequently, the aforementioned sampling was replicated a thousandfold, and regression was executed in consonance with the benchmark model. Fig. 2 reveals the placebo test results graphically. The curve describes the probability distribution of regression coefficients. The vertical solid line on the right denotes the actual estimated regression coefficients. The horizontal dashed line serves as an indication of a p-value equivalent to 0.1. Fig. 2 discloses that the regression coefficients' distribution is preponderantly centered around zero. The regression coefficients deviate significantly from the true estimated coefficients. The majority of p-values are greater than 0.1, which suggests that the baseline results are not influenced by unobservable factors.

Advance the Implementation Time of the Policy

To further confirm that the benchmark results are not influenced by other unobservable factors, the policy implementation time has been advanced by one and two years in this section. Table 4 shows the outcomes. The first and second columns indicate the outcomes when the policy is implemented one year earlier. The creation of environmental courts has no

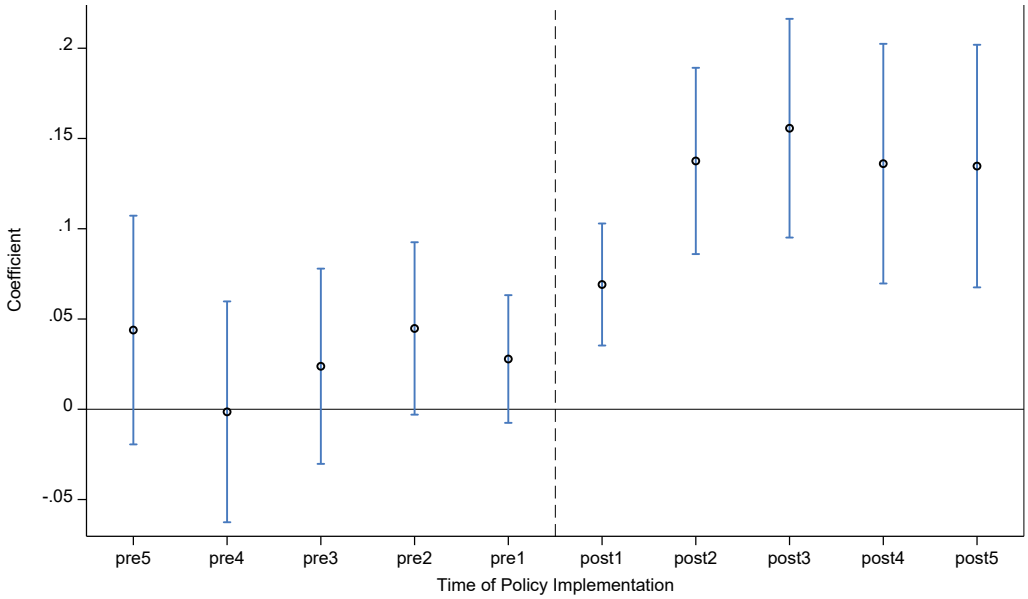

Fig. 1. Parallel Trend Test.

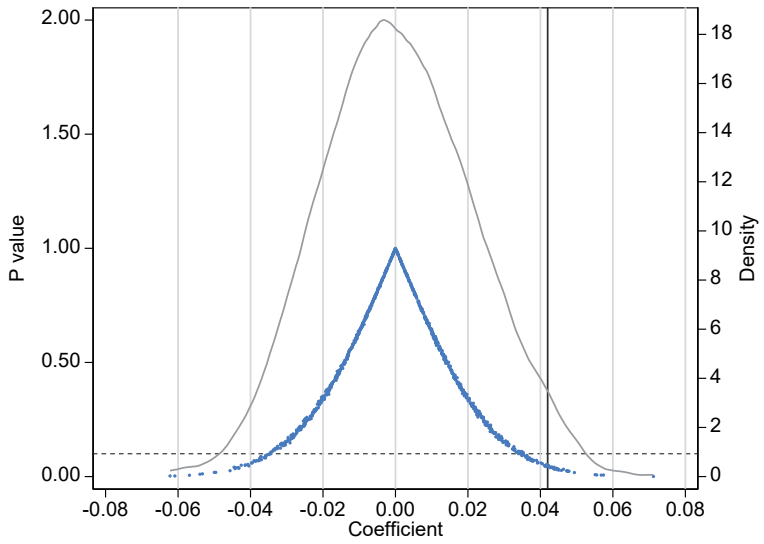

Fig. 2. Placebo test.

considerable influence on the enterprise's ESG, whether control variables are considered or not. Columns 3 and 4 depict the outcomes where the policy implementation time is advanced by two years. This still exhibits that the setting up of environmental courts does not have a major influence on the ESG of enterprises. It attests to the fact that other factors have no bearing on the benchmark results of this article.

Robustness Test

Eliminate the Interference from Other Policies

It has the potential to give rise to a deviation in the benchmark results if the enterprise's ESG during the sample period is influenced by other policies. Reviewing relevant documents, this paper considers three policies that may have influenced the enterprise's ESG during the sample period. They are the policies of new energy pilot cities, key air control areas, and low-carbon pilot cities. Dummy variables of the above policies are incorporated into the benchmark model to prevent their interference. The first column of Table 5 indicates that the estimated results after removing three kinds of policy interferences are similar to the outcomes of the benchmark regression. Environmental courts can still dramatically increase the ESG of a firm when other policy interferences are removed.

Table 4. The results of advancing the policy implementation period by one year and two years.

	(1)	(2)	(3)	(4)
Variables	ESG	ESG	ESG	ESG
Ecourt_1	0.024	0.020		
	(1.12)	(0.92)		
Ecourt_2			0.013	0.013
			(0.58)	(0.60)
Constant	4.132***	-0.782**	4.136***	-0.780**
	(404.54)	(-2.14)	(358.42)	(-2.14)
Observations	33,691	29,505	33,691	29,505
R-squared	0.551	0.584	0.551	0.584
Control variables	No	YES	No	YES
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Modify Fixed Effects

The baseline model controls for firm fixed effects and time fixed effects to address the interference from firm-specific inherent characteristics and time-varying common shocks. However, there may also be time-varying characteristics at the industry level, which can lead to estimation bias. To test the sensitivity of the baseline results to industry dynamic characteristics, this study further incorporates industry-time interactive fixed effects, following the approach of Fatica and Panzica [57]. The results are shown in the second column of Table 5. The coefficient of environmental courts decreases slightly compared with the baseline results, yet it remains significantly positive at the 10% level. This finding confirms that the baseline results do not suffer from severe bias, thus verifying the robustness of the conclusion that environmental courts play a positive role.

Modify The Composition of The Sample

In 2007, China's first court of environmental protection was set up in Guizhou. Since then, environmental courts have been proliferating quickly nationwide. The data scope of enterprises' ESG performance spans from 2009 to 2022. Given this, this paper excludes the cities that established environmental courts in 2007 and 2008. In Table 5, the third column displays the results. At a significance level of 10%, the setting up of environmental protection courts still has a positive effect on the enterprise's ESG.

Substitute The Explained Variable

In this section, a Bloomberg ESG score is utilized as the dependent variable. The fourth column of Table 5 displays the findings. At the 1% significance level, it is discovered that the setting up of environmental courts greatly improves the firm's ESG. It demonstrates the validity of the conclusion that environmental courts can greatly enhance an enterprise's ESG.

Mechanism Verification

According to the above research, the setting up of environmental courts will significantly improve the enterprise's ESG. This section will examine how environmental courts enhance the enterprise's ESG. This paper incorporates the approach of Baron and Kenny [58] to investigate the mechanism from the perspectives of government, society, and enterprises. The model is presented as follows:

$$\mathrm{ESG}_{it} = \alpha + \beta \mathrm{Ecourt}_{it} + \sum \mathrm{Controls} + \lambda_i + \mu_t + \varepsilon_{it} \quad (3)$$

$$\mathrm{M}_{it} = \beta_0 + \beta_1 \mathrm{Ecourt}_{it} + \sum \mathrm{Controls} + \lambda_i + \mu_t + \tau_{it} \quad (4)$$

$$\mathrm{ESG}_{it} = \gamma_0 + \gamma_1 \mathrm{Ecourt}_{it} + \gamma_2 \mathrm{M}_{it} + \sum \mathrm{Controls} + \lambda_i + \mu_t + \delta_{it} \quad (5)$$

The Governmental Perspective

Environmental courts cannot be established without the support of local governments. Simultaneously, the environmental courts have further highlighted the importance of environmental issues from a judicial perspective, intensifying the government's concentration on environmental issues. Government attention will likely influence its governance decisions, the resource allocation within policies, and the enforcement

Table 5. Robustness test.

	(1)	(2)	(3)	(4)
Variables	ESG	ESG	ESG	ESG
Ecourt	0.048**	0.036*	0.037*	0.689***
	(2.18)	(1.73)	(1.71)	(2.86)
Energy	0.078**			
	(2.52)			
Air	-0.019			
	(-0.93)			
Carbon	0.036			
	(1.32)			
Constant	-0.877**	-0.970**	-0.734**	2.496
	(-2.32)	(-2.54)	(-2.00)	(0.49)
Observations	28,433	29,420	28,617	8,843
R-squared	0.590	0.623	0.585	0.821
Control variables	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES
Ind*Year FE	No	YES	No	No
Year FE	YES	YES	YES	YES

Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

intensity of governance decisions [59]. Based on this, the paper first verifies whether the government's green attention is the pathway through which environmental courts affect an enterprise's ESG. In this study, the government's green attentiveness is represented through the proportion of green development-related vocabulary present in the government work report. The vocabularies associated with green development consist of pollution prevention and control, environmental governance, environmental penalties, environmental protection, and the like. In Table 6, columns 1 and 2 exhibit the findings. The government's emphasis on green development has been enhanced prominently since the creation of environmental courts, as the first column shows. The outcomes in the second column exhibit that the coefficient on green attention of the government is clearly positive at the 5% level of significance after the addition of the mediator. The coefficient on environmental courts is remarkably positive at the 1 % level of significance, revealing a remarkable mediating effect of the government's green attention. That is to state that environmental courts have augmented the enterprise's ESG through promoting the government's focus on green matters. The mechanism of the government perspective in hypothesis 2 is verified.

The Perspective of Society

As the consciousness of environmental protection continues to escalate, the social public has progressively emerged as a crucial participant within the social governance framework. The setting up of environmental courts is capable of strengthening the public's cognition of ecological problems and regulations. Concurrently, it additionally furnishes a judicial avenue for public participation in social governance. On this basis, this paper verifies whether environmental courts influence an enterprise's ESG through public attention for the environment. The public's degree of environmental attention is manifested via the Baidu Search Index featuring the key term "environmental pollution". The outcomes are exhibited in the third and fourth columns of Table 6. The third column reveals that the presence of environmental courts has markedly elevated the level of public attention for the environment. The findings in the fourth column indicate that the coefficient on environmental courts is statistically significantly positive at the 1% level. The impact of public environmental attention on corporate ESG is positive but not significant. It demonstrates that establishing environmental courts has truly enhanced public attention to the environment. However, public attention is devoid of enforceability and strong constraints, which are inadequate to enhance the enterprise's ESG. The mechanism of the public perspective in hypothesis 2 is not supported.

Table 6. Mechanism verification.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Gconcern	ESG	Pindex	ESG	Digital	ESG
Ecourt	0.076***	0.040***	0.019***	0.042***	0.059**	0.053***
	(12.43)	(2.66)	(11.00)	(2.74)	(2.14)	(3.10)
Gconcern		0.039**				
		(2.56)				
Pindex				0.068		
				(1.12)		
Digital						0.015***
						(3.28)
Constant	1.705***	-0.797***	4.230***	-1.074***	-6.154***	-0.583**
	(17.27)	(-3.37)	(136.71)	(-2.95)	(-11.64)	(-2.11)
Observations	29,294	29,294	27,501	27,501	23,018	23,018
R-squared	0.544	0.584	0.968	0.598	0.797	0.598
Control variables	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

In the benchmark analysis, it is found that environmental courts have no significant impact on the environmental and social dimensions of corporate ESG performance, but can significantly improve performance in the corporate governance dimension. This provides a key insight, to a certain extent, into understanding the insignificant effect of the public environmental attention mechanism. Even if public environmental attention is stimulated by environmental courts, its driving force is mainly concentrated in the environmental field. This may prevent it from becoming a strong mediator for driving the overall ESG performance of enterprises. This section further examines the role of public environmental attention in the impact of environmental courts on the performance of environmental, social, and corporate governance dimensions. The results are shown in columns 1 to 4 of Table 7. It can be seen that the mechanism effect of public environmental attention is not significant. This result indicates that the mechanism effect of current-period public environmental attention is not significant, whether for enterprises' overall ESG performance or for their performance in the environmental, social, and corporate governance sub-dimensions.

However, as an informal institutional pressure, public environmental attention may require a certain amount of time for its impact on corporate behavior to be transmitted. Thus, this study incorporates both its current-period value and one-period lagged value into the model to precisely identify the dynamic impact of public environmental attention. This specification enables the distinction between the immediate and delayed effects of public environmental attention, while ensuring that the estimation of the lagged-term coefficient represents a "clean" estimate after controlling for contemporaneous influences. Column 1 of Table 7 shows that environmental courts significantly increase public environmental attention. However, column 5 reveals that the coefficient of current-period public environmental attention is insignificant. The coefficient of the one-period lag term of public environmental attention is significantly positive. This indicates that the mechanism through which environmental courts influence corporate ESG by increasing public environmental attention has a one-period lag. Current-period public environmental attention cannot be converted into effective pressure. The one-period lag term of public environmental attention can prompt enterprises to improve ESG. That is, environmental courts exert a significant mediating effect on corporate ESG in the next period by enhancing public environmental attention in the current period.

The Perspective of Enterprise

The advancement of corporate ESG performance remains contingent upon being driven by internal mechanisms. As the digital economy undergoes continuous evolution, leveraging digital transformation to drive high-quality development has gradually become an essential strategic decision for enterprises.

Table 7. Further verification results of public environmental attention.

	(1)	(2)	(3)	(4)	(5)
Variables	Pindex	E	S	G	ESG
Ecourt	0.019***	0.003	0.036*	0.046*	0.037**
	(11.00)	(0.15)	(1.87)	(1.82)	(2.35)
Pindex		-0.027	-0.004	0.054	0.068
		(-0.37)	(-0.06)	(0.56)	(0.91)
Pindex_1					0.128*
					(1.94)
Constant	4.230***	-1.085**	-1.173***	1.043*	-1.573***
	(136.71)	(-2.41)	(-2.61)	(1.77)	(-3.91)
Observations	27,501	27,501	27,501	27,501	26,078
R-squared	0.968	0.593	0.564	0.508	0.608
Control variables	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Following this foundation, this paper explores whether the creation of an environmental tribunal can promote a firm's digital transformation and correspondingly strengthen the ESG. This paper adopts the logarithm of firms' intangible digital assets to gauge the extent of firms' digital transformation, which follows the research methodology of Li et al. [60]. In Table 6, the outcomes are shown in the fifth and sixth columns. The fifth column reveals that, at the 5% level, the environmental court has a significantly positive impact on businesses' digital transformation. The findings in the sixth column indicate that the coefficient of digital transformation is considerably positive at the 1% level. The coefficient of environmental court is evidently positive at the 1% level, displaying a significant mediating effect of corporate digital transformation. That is to state that environmental courts have augmented the enterprise's ESG through promoting the enterprises' digital transformation. Hypothesis 3 is proved.

Further Analysis

The above research shows that the enterprise's ESG has been improved significantly with the creation of an environmental protection court. However, the impact of environmental courts may vary due to differences in enterprises' internal characteristics and external environments. Specifically, such differences are likely to manifest in the following dimensions. The first are the differences in enterprises' ownership type and the environmental background of the chairman. The second are the differences in the timing of the establishment of environmental courts, that is, whether they are established during the national rollout phase or the local pilot phase. The third are the differences in the capacity of public channels. To further address the aforementioned questions, this section explores the heterogeneity in the effects of environmental courts, focusing on factors including enterprise ownership, the chairman's environmental background, the establishment timing of environmental courts, and the national Information to Benefit the People pilot and the Government Public Data Opening pilot. The paper analyzes the heterogeneity by adding interactive items. The specific model is presented as follows:

$$ESG_{it} = \alpha + \beta_1 Ecourt_{it} + \beta_2 HET_{it} + \beta_3 Ecourt_{it} * HET_{it} + \sum Controls + \lambda_i + \mu_t + \varepsilon_{it} \quad (6)$$

HET is a grouping variable employed to examine heterogeneity. The analysis centers on A, the coefficient of the interaction term. Table 8 displays the outcomes.

Heterogeneity Analysis Based on Ownership Type

In the first column, SOE indicates whether the enterprise is a state-owned business. If the firm is an SOE, the SOE is 1. Otherwise, the SOE is 0. The distinctions between the effects of environmental courts on the ESG of state-owned and non-state-owned businesses are examined via the interaction term Ecourt*SOE. The first column displays that the estimated coefficient is significantly positive. It demonstrates that courts of environmental protection have a more favorable effect

Table 8. Further analysis.

	(1)	(2)	(3)	(4)	(5)
Variables	ESG	ESG	ESG	ESG	ESG
Ecourt*SOE	0.110***				
	(2.97)				
Ecourt*CME		-0.110**			
		(-2.01)			
Ecourt*MODE			0.058		
			(0.90)		
Ecourt*IPW				0.058*	
				(1.83)	
Ecourt*PDATA					0.054*
					(1.74)
Observations	26,236	28,548	29,505	29,445	29,505
R-squared	0.609	0.593	0.585	0.585	0.585
Control variables	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

on the ESG of SOEs. The following is one possible explanation. The influence of environmental courts might be enhanced due to the connection between the governments and SOEs. It needs to be improved in time to avoid more serious consequences under the pressure of environmental justice.

Heterogeneity Analysis Based on the Chairman's Environmental Protection Background

In the second column, the variable CME denotes whether the chairman has a background in environmental protection. The CME is 1 if the chairman has a background in environmental protection. Otherwise, it is 0. The disparities between the influence of environmental courts on the ESG of companies whose chairmen have an environmental protection background and those without are verified through the interaction terms Ecourt*CME. The estimated coefficient is significantly negative, as the second column demonstrates. This suggests that environmental courts have a more obvious role to play in promoting the ESG of companies whose chairman has no environmental protection background. The possible reason is as follows. The chairman's experience will, to a certain extent, affect his decision. The environmental background of the chairman means that he has high green awareness, and his decisions may also focus on the environment and other issues. The environmental court has no noticeable promotional effect on the enterprise's ESG.

Heterogeneity Analysis Based on the Timing of Environmental Court Establishment

In the third column, MODE indicates whether the environmental court was established during the national rollout stage, i.e., in or after 2014. In 2014, the Supreme People's Court established the Environmental Resources Trial Division. It marks the stage of China's environmental judicial reform from local pilot practice to national rollout. The MODE is 1 if the environmental court was established in 2014 or later. Otherwise, it is 0. The interaction term between environmental courts and MODE was used to verify whether there are differences in the impact of environmental courts on corporate ESG across different periods of their establishment. As shown in the third column, the coefficient of Ecourt*MODE is not significant. This indicates that there is no difference in the impact of environmental courts on corporate ESG, whether they were established during the local pilot period or the nationwide rollout period. It indicates that the effectiveness of environmental courts mainly stems from their inherent characteristics as a judicial system.

Heterogeneity Analysis Based on the Status of Being a National Information to Benefit the People Pilot

This section utilizes the quasi-natural experiment of the national Information to Benefit the People pilot policy to identify the capacity of the public channel. This policy aims to promote interconnectivity

and information sharing across various government departments in cities, and to explore new models for the allocation of public information resources, as well as for innovating social governance and public service delivery. In the fourth column, the variable IPW is a dummy variable that indicates whether the city was designated as an Information to Benefit the People pilot city in a given observation year. It equals 1 if the city was designated as an Information to Benefit the People pilot city in the observation year, and 0 otherwise. The differential impact of environmental courts on firms located within versus outside Information to Benefit the People pilot cities is examined via the interaction term Ecourt*IPW. The result in the fourth column shows a significant positive coefficient. This finding indicates that the enhancing effect of environmental courts on corporate ESG is more pronounced in cities designated as Information to Benefit the People pilots. This can be attributed to the fact that the national Information to Benefit the People pilot has enhanced the openness of government data and the capacity of public information services, thereby reducing the information acquisition and monitoring costs for the public and environmental regulators. The enhanced external oversight environment converges with the judicial deterrence of environmental courts, jointly raising the opportunity cost of corporate violations and thereby more effectively promoting corporate ESG.

Heterogeneity Analysis Based on the Status of Being a Government Public Data Opening Pilot

To conduct a robust and in-depth examination of the heterogeneity in the capacity of public channels, this section additionally incorporates the Government Public Data Opening pilot as a quasi-natural experiment to identify the capacity of such channels. This pilot program aims to establish an official platform to centrally and standardizedly release various types of public data held by the government to the public. Such platform-based openness helps reduce the time and economic costs as well as the technical threshold associated with information acquisition and processing. In the fifth column, the variable PDATA is a dummy variable that indicates whether the city had established a public data opening platform in the observation year. This variable takes the value of 1 if the city established such a platform; otherwise, it is 0. The differential impact of environmental courts on the ESG performance of enterprises located in cities with established public data opening platforms versus those in cities without such platforms is examined via the interaction term Ecourt*PDATA. The fifth column shows that the coefficient of the interaction term is significantly positive. This indicates that the enhancing effect of environmental courts on corporate ESG is more pronounced in pilot cities with public data opening platforms compared to non-pilot cities. This may be attributed to the fact that public data opening provides the conditions for high-quality, low-cost supervision by the public and social organizations. This facilitates the transformation of public opinion pressure into targeted accountability, thereby enhancing the effectiveness of social pressure. In pilot cities, the deterrent effect of environmental courts (characterized by strict accountability for all violations) and data-driven supervision (ensuring full disclosure of violations through public data opening) jointly drive the improvement of corporate ESG.

Conclusions

Main Findings

This study employs the quasi-natural experiment created by establishing an environmental court in the court of local intermediate people to explore the influence and mechanism of environmental judicial specialization on the ESG of the enterprise. According to the study, the enterprise's ESG improved with the setting up of the environmental court. From the three dimensions of ESG, environmental courts can significantly improve the performance of the corporate governance dimension in the current period. However, their impact on the performance of the environmental and social dimensions exhibits lagged effects. In accordance with the mechanism analysis, the environmental court mainly raises government awareness of environmental issues and encourages corporate digital transformation to enhance the ESG. The mechanism through which environmental courts influence corporate ESG by increasing public environmental attention has a one-period lag. The heterogeneity analysis results show that the ESG of SOEs, enterprises whose chairmen lack environmental protection backgrounds, and those located in cities with stronger public channels, benefit more from the environmental court. There is no difference in the impact of environmental courts on corporate ESG, whether they were established during the local pilot period or the nationwide rollout period.

The implications of this study are as follows. The reform of environmental justice specialization should continue to deepen. Actively enhance the coverage and professionalism of environmental courts. Meanwhile, the mechanism is optimized from the two levels of external constraints and internal dynamics to support the environmental protection court's impact. Enterprises should convert external pressure into opportunities to advance their sustainable development. When facing environmental courts, they should fundamentally optimize management strategies to achieve green development, rather than passively pursuing compliance.

Limitations and Future Research Direction

While this article provides evidence that environmental courts enhance corporate ESG

performance, it also acknowledges several limitations that point to directions for future research.

Firstly, a key limitation of this article is its treatment of environmental courts as a binary variable (i.e., whether it is established or not). This approach is clear and facilitates identification. It simplifies a more complex reality by implicitly assuming all environmental courts are homogeneous. However, there are potential variations in the quality and efficiency of environmental courts. For instance, differences may exist in aspects such as the environmental protection expertise of judges in different environmental courts, their experience in handling relevant cases, and the courts' trial cycles. Future research could collect data such as the number of cases accepted, the enforcement of environmental courts, and the background of judges to assess judicial quality or judicial efficiency and further explore its impacts on corporate ESG.

Secondly, the non-exhaustive nature of the mechanisms. This study centers on the examination of three mechanisms, namely government environmental attention, public environmental attention, and corporate digital transformation. However, the impact pathways of environmental courts may be diverse. For example, environmental courts may also influence ESG through channels such as increasing the cost of corporate environmental violations and influencing corporate financing. These potential mechanisms that have not been incorporated are also important components in understanding the role of environmental courts. The mechanism examined in this article is a part rather than the entirety. Additionally, future research can further validate channels such as environmental violation costs and corporate financing.

Thirdly, the unobserved micro-level mechanism, such as environmental litigation. The theoretical core of this study lies in verifying the role of environmental judicial specialization as a macro-level institution in shaping corporate behavior. In the research design, the establishment of environmental courts is treated as an institutional signal to examine its impact on the overall ESG performance of enterprises within a region. Based on the above research orientation, aside from the incompleteness of the broader mechanisms examined, this study does not unpack the black box of the micro-level transmission of institutional signals. The most intuitive causal pathway, where a firm is directly sued in an environmental court and consequently improves its ESG performance, remains a black box. Future research can match enterprises with their environmental litigation cases to further identify the micro-level mechanisms underlying the macro-level effects.

Finally, this study has limitations in exploring potential moderating factors. A complete moderating effect analysis should provide sufficient theoretical explanations and empirical tests regarding how and why the moderator variable alters the core relationship. In the further analysis section of this study, interaction terms between variables such as firm ownership and environmental courts are introduced. The purpose of this analysis is more focused on exploring the heterogeneity in the role of environmental courts rather than fully testing a moderating effect theory. Future research can conduct an in-depth analysis of the theoretical logic behind moderator variables and carry out empirical tests. For example, it can examine how and why factors such as firms' political connections and regional rule of law levels influence the functioning of environmental courts.

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Conflict of Interest

The author declares no conflict of interest.

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