

The Environmental Background of Senior Executives, Green Investors and Corporate Environmental Performance

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Abstract: Using data from listed companies in China's A-share market from 2014 to 2023, this paper examines the influence of senior management with an environmental background on corporate environmental performance, considering green investors as a mediating factor. The research shows that senior management with environmental backgrounds significantly and positively enhances corporate environmental performance, specifically manifested in the company's environmental philosophy, environmental target setting and environmental management systems. Furthermore, green investors play a crucial mediating role between the environmental background of senior management and corporate environmental performance, suggesting that the environmental expertise of senior management further enhances corporate environmental performance by attracting green investors. The study also finds that this positive effect is particularly pronounced in non-state owned firms and non-polluting industries. Finally, the paper suggests strategies such as strengthening cooperation with the green investment community and promoting technological innovation in environmental protection to continuously improve corporate environmental performance.

Keywords: Executive environmental background, enterprise environmental performance, green investors, sustainable development

1. Introduction

With the acceleration of global industrialization, ecological and environmental problems have become increasingly prominent. Global warming, environmental pollution, resource shortage and other phenomena pose serious challenges to human survival and development. At the same time, in the context of implementing the "14th Five-Year Plan" ecological and environmental protection policy, sustainable development has become a consensus concept, and the environmental performance of business as a mainstay of economic activity has received unprecedented attention.

Corporate environmental performance is an important index to measure the degree of corporate environmental impact, and it is also the key embodiment of corporate social responsibility and sustainable development. There is a large amount of literature studies the impact of green [1] and environmental protection[2] on corporate environmental performance[3], but most of them stay in a macro and excessive perspective, such as the impact of environmental regulations on corporate environmental performance, as well as the insufficient analysis of corporate environmental performance at the micro level.

Based on the environmental background data of executives, green investors and corporate environmental performance data of China A-share listed companies from 2014 to 2023, this paper

tries to explore and analyze the relationship between whether executives have ecological context and the final environmental performance of enterprises. The possible innovations of this paper are as follows: First, from the micro-perspective of the environmental background of executives, to study the impact on corporate environmental performance; Second, the measurement of enterprise environmental performance has been changed from a single environmental performance in the traditional ESG [4] to a multi-dimensional measurement of whether an enterprise has environmental conservation concepts, environmental conservation objectives, and management systems of environmental conservation. Third, this paper introduces green investors as an intermediary variable, aiming to change the perspective and analyze the impact of green investors' involvement beyond the enterprise's own level.

2. Theoretical analysis and research hypothesis

2.1. Environmental background of senior executives and corporate environmental performance

According to the senior echelon theory, the existing cognitive frameworks and value systems of managers dictate their ability to interpret relevant information.. In other words, the characteristics of managers influence their strategic choices, which in turn influence the behavior of the firm. [5] As a result, executives with an environmental background often have a deep understanding of a company's environmental responsibility and are more likely to incorporate environmental expertise or experience into their corporate decisions [6]. Helping companies identify and address environmental risks can also open up opportunities for green transformation. [7]

Senior managers with an environmental background often have a deep understanding of sustainability and are able to integrate environmental goals into their long-term strategy. [8] They promote the adoption of environmentally friendly solutions in product development, production processes and supply chain management by establishing clear environmental policies; Environmental background Senior management infiltrates environmental awareness into the organizational culture through training, incentive and system construction; Decisions made by executives with an environmental background can enhance a company's green image and attract green investors who focus on ESG (environmental, social and governance) standards. Environmental background Synergies between executives and green investors can amplify environmental performance improvements. Executives drive green practices through strategy development and technological innovation, while green investors provide ongoing incentives through financial support and external oversight. [9] This interaction encourages enterprises to balance economic and ecological benefits to achieve long-term sustainable development goals.

The environmental - related background of top - level executives exerts a substantial positive influence on a company's environmental performance through multi-dimensional mechanisms such as strategic leadership, technological innovation, culture shaping and resource integration. Research shows that such executives are not only the core enablers of environmental decisions, but also the key bridge between internal management and external resources. Therefore, when selecting senior managers, enterprises should attach importance to the candidates' environmental background and concept in order to cope with the increasingly severe environmental challenges and seize the opportunities for sustainable development [10]

Based on the above analysis of multi-dimensional mechanisms such as strategic leadership, technological innovation, culture shaping and resource integration, this study proposes hypothesis H1: The environmental background of executives can positively promote corporate environmental performance.

2.2. Intermediary role of green investors

2.2.1. Environmental background of executives and green investors

Hiring senior executives who have environmental protection backgrounds by listed companies sends a positive signal in the capital market and helps attract interest from green investors who value sustainability and environmental responsibility. Such investors tend to back companies that demonstrate strong environmental awareness and practical action. As the quantity of executives having environmental - related backgrounds rises, these companies become more attractive to the green investor community. These professionals not only carry deep environmental protection knowledge and practical experience, can help companies design and implement more scientific and reasonable environmental protection strategies, but also their environmental protection concepts and management methods are more likely to win the recognition and support of green investors. In particular, when these executives enjoy a higher degree of decision-making freedom within the organization, [11] they can more effectively use their professional skills and experience to encourage greater exploration and innovation in the area of environmental conservation, thus having a more positive impact on green investors. This phenomenon is especially conspicuous in non - state - owned enterprises as well as industries related to clean energy, as companies in these fields generally attach more importance to environmental impact and social responsibility [12], and are therefore more likely to be favored by green capital markets.

2.2.2. Green investors and corporate environmental performance

Top management with environmental background is not only symbolic for attracting green investors, but also can bring actual green benefits to the company. Such investors often master cutting-edge environmental protection technologies and concepts, and can provide professional environmental protection advice and technical assistance to enterprises, thereby enhancing the ability and level of enterprises in green technology innovation. At the same time, the introduction of green capital is also conducive to improving the ESG (environmental, social and governance) performance of enterprises [13], thus increasing their social influence and brand value. Together, these factors help enterprises to hold a leading position in the highly competitive market environment, gain greater market share and consumer trust. In addition, green investment also promotes the growth of long-term economic benefits of enterprises. [14] By encouraging companies to adopt more environmentally friendly and innovative practices, green investors can help reduce operating costs, enhance resource efficiency, reduce environmental pollution, and ultimately achieve a harmonious coexistence between economic development and ecological protection. This win-win outcome is beneficial not only to the sustainable development of enterprises, promote the environmental performance of enterprises, but also in line with the vision of society to pursue sustainable development.

Based on the above analysis, this study proposes hypothesis H2: green investors play an intermediary role in the environmental background of executives and corporate environmental performance.

3. Research design

3.1. Sample selection and data

In this study, the data of A-share listed enterprises from 2014 to 2023 were selected for empirical analysis, and the data were routinely processed: first, the samples of financial class, ST enterprises and missing data were removed; The second is the tailing treatment of 1% above and below continuous variables.

The environmental background data of senior executives in this study came from the personal resume data published on Sina Financial website. The other data, such as corporate green investors and corporate environmental performance, were collected from the CSMAR database. A total of 32,631 sample data of 5076 enterprises were collected and analyzed by Stata18 software.

3.2. Model Setting

Investigating whether the environmental background of senior executives can enhance the environmental performance of enterprises is essentially exploring the influence of the environmental background of senior executives on the environmental performance of enterprises. With reference to relevant literature on corporate environmental performance and corporate environmental performance (EP) data as the explained variable, this study builds the following model:

$$EP_{i,t} = \alpha_0 + \alpha_1 Epd_{i,t} + \alpha_i Controls_{i,t} + \varepsilon + \sigma + u_{i,t}$$

Among them, the explained variable $EP_{i,t}$ represents the corporate environmental performance of enterprise i in year t ; the core explanatory variable is $Epd_{i,t}$, which represents the proxy variable of the environmental protection background of executives of enterprise i in year t ; Epd is the abbreviation of the English initials of environmental protection background; $Controls$ represents the set of control variables. ε is the time fixed effect, σ is the firm fixed effect, $u_{i,t}$ is the random disturbance term.

3.3. Variable Description

Explained variable: Corporate Environmental Performance (EP)

Referring to previous studies, this paper uses CSMAR's ENV database and adopts comprehensive scoring method to construct enterprise environmental performance (EP) indicators. The environmental performance index consists of the following parts: (1) whether the enterprise has the concept of environmental protection; (2) whether there are environmental protection objectives; (3) whether the environmental protection management system has been adopted; (4) Whether environmental protection education and training have been conducted; (5) whether there is a special act of environmental protection; (6) Whether to adopt an emergency response mechanism for environmental events; (7) Whether the enterprise has a "three simultaneous" system; (8) Whether it has obtained honors or awards related to environmental protection; (9) Whether the enterprise has passed ISO14001 certification. Each enterprise that meets the above items will get 1 point, and none will get 0 points. The total score will be used as the proxy variable of enterprise environmental performance.

Core explanatory Variable: Executive Environmental Background (Epd)

This paper adopts the degree of hiring senior executives with environmental background (Epd) as the core explanatory variable, and the former is a dummy variable. If the degree of hiring senior executives with environmental background is used, the number of senior executives with environmental background hired by the enterprise in the year is logarithmic by adding 1.

Mediating variable: Corporate Green Investor Entry (GI)

Refer to existing research practices, if a green investment fund is included in an enterprise's investment structure, it is considered that there are green investors in the enterprise. In this paper, the number of green investors (GI) was used. The natural logarithm is taken after adding up the number of green investors in the enterprise.

Other controlled variables: Company Size (Size), Age (Age), asset-liability ratio (Lev), number of directors (Board), proportion of independent directors (Indep), shareholding ratio of the largest shareholder (Top1), Dual and whether state-owned enterprise (SOE) will have an impact on enterprise

performance. The above variables were taken as the control variables of this study. The period is from 2014 to 2023.

Table 1: Definition and description of variables

Variable name	Variable Meaning	Calculation method
EP	Corporate environmental performance	See Variable Definitions for details
Epd	The environmental background of Epd executives	See Variable Definitions for details
GI	Green investors	Add 1 to the number of green investors to take the natural logarithm
Size	Company size	Lnasset
Age	Company age	$\ln(\text{year of the year} - \text{year of company establishment} + 1)$
Lev	Asset-liability ratio	$\text{gen Lev} = \text{Total liabilities} / \text{Total assets}$
Indep	Independent directors Ratio	Independent directors divided by the number of directors
Board	Board of Directors Size	Take the natural logarithm of the number of board members
Top1	The proportion of the largest shareholder	Proportion of shares held by the largest shareholder
Dual	Dual function	Given that if the chairman is identical to the general manager, the value is 1; if not, the value is 0.
SOE	Equity nature	State-owned enterprise or not

4. Empirical analysis and results

4.1. Descriptive Statistics

Table 2 presents descriptive statistics for the main variables. It can be seen that the mean value of enterprise environmental performance EP is 2.040, the minimum value is 0, and the maximum value is 9, indicating that there are certain differences in the environmental performance of enterprises. The mean value of the background Epd of the senior management team is 0.280, the minimum value is 0, and the maximum value is 1.950, indicating that the environmental background of the senior management of different enterprises is different. The median GI of green investors is 0, the average shared work experience is 0.470, the maximum value is 4.290, and the minimum value is 0. There is a gap between the minimum and maximum GI of green investors, indicating that different enterprises attract different green investors.

Table 2: Descriptive statistics

Variable	N	Mean	SD	Min	p50	Max
EP	32631	2.040	2.150	0	1	9
Epd	32631	0.280	0.490	0	0	1.950
GI	32631	0.470	0.740	0	0	4.290
Dig	32631	0.660	0.650	0	0.480	2.770
Size	32631	22.27	1.310	19.64	22.07	26.44

Table 2: (continued).

Age	32631	2.980	0.310	0	3	3.640
Lev	32631	0.410	0.200	0.0500	0.400	0.920
Indep	32631	37.79	5.400	0	36.36	60
Board	32631	2.100	0.200	0	2.200	2.710
Top1	32631	0.330	0.150	0.0800	0.310	0.760
Dual	32631	0.310	0.460	0	0	1
Soe	32631	0.330	0.470	0	0	1

4.2. Regression results of environmental background of executives and corporate environmental performance

Table 3: Regression results

	(1)
	EP
Epd	0.120***
	(0.0218)
Size	0.653***
	(0.00978)
Age	-0.000445
	(0.0353)
Lev	-0.483***
	(0.0593)
Indep	0.00326
	(0.00221)
Board	0.458***
	(0.0644)
Top1	0.586***
	(0.0711)
Dual	-0.0892***
	(0.0223)
Soe	0.355***
	(0.0248)
Year	Yes
indcode	Yes

Table 3 Epd shows the regression results. The regression coefficient of Epd of top executives' environmental protection background is 0.120, which is significant at 1% level, indicating that there is a significant positive correlation between top executives' environmental protection background and corporate environmental performance. Hypothesis H1 is verified.

4.3. Intermediary effect of green investors

Table 4: Testing the intermediary effect of green investors

	(1)	(2)
	GI	EP
Epd	0.0708*** (0.00830)	0.108*** (0.0218)
Size	0.273*** (0.00373)	0.608*** (0.0105)
Age	-0.265*** (0.0134)	0.0437 (0.0354)
Lev	-0.627*** (0.0226)	-0.379*** (0.0599)
Indep	0.000822 (0.000843)	0.00312 (0.00221)
Board	0.0263 (0.0245)	0.454*** (0.0643)
Top1	-0.0693** (0.0271)	0.597*** (0.0710)
Dual	0.0734*** (0.00852)	-0.101*** (0.0223)
Soe	-0.117*** (0.00945)	0.374*** (0.0248)
Year	Yes	
indcode	Yes	
GI		0.167*** (0.0145)
_cons	-4.757*** (0.115)	-14.54*** (0.309)
N	32631	32631
R2	0.208	0.354
adj. R2	0.205	0.352

Table 4 shows that the environmental protection background Epd (0.108***) of top executives in column (2) exerts a substantial and beneficial influence on the environmental performance EP of enterprises at 1% level; Column (1) shows that Epd (0.0708***) has a significant and positive impact on GI of green investors at 1%. In column (2), the GI coefficient of green investors is 0.167***, indicating that the GI of green investors Exerts a substantial and beneficial influence on the environmental performance EP of enterprises at 1% level.

5. Research conclusions and countermeasures

Based on 32,631 samples of listed companies from 2014 to 2023, this study empirically tested the impact of executives' environmental background on corporate environmental performance.

The results show that: First, whether the executives have environmental protection background makes a notable difference to the environmental performance of enterprises; Increasing the number of environmentally conscious senior executives can help improve a company's environmental

performance. Second, this positive effect is especially conspicuous in non - state - owned enterprises and enterprises that are not part of heavy polluting industries. Finally, an environmental background in the executive team can also attract more green investment, which further encourages companies to improve their environmental performance.

On the basis of the analysis mentioned above, this study puts forward the following suggestions: (1) Strengthen the cooperation and communication with the green investment community. Enterprises should actively demonstrate their specific measures and results in environmental protection to those investors who value sustainable development, so as to gain their recognition and support. At the same time, they should work with these investors to jointly develop innovative environmental solutions, so as to promote continuous progress in environmental responsibility. (2) Promote the innovation and advancement of environmental protection technologies. Enterprises need to increase investment in the investigation and evolution of environmental protection technologies, constantly seek and implement more advanced environmental protection strategies and technologies [15], improve resource utilization while reducing costs, and reduce the burden on the environment, so as to improve the overall environmental accomplishments of enterprises.

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