

# The impact of executive environmental background on corporate environmental information disclosure

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**Abstract.** With the rapid development of the economy, environmental problems are becoming increasingly serious, and the importance of environmental information disclosure is particularly prominent. Environmental information disclosure, as a direct channel for investors, is deeply influenced by board secretaries or investor relations liaison officers. This article analyzes the mechanism by which the environmental background of the executive secretary affects the quality of corporate environmental information disclosure, as well as the moderating effect of external supervision such as environmental regulations and media attention, and proposes corresponding hypotheses. This article selects A-share listed companies from 2008 to 2022 as samples to empirically test the research hypothesis. The main conclusion of this article is as follows: there is a significant positive correlation between the environmental background of the board secretary and the quality of corporate environmental information disclosure. Based on the conclusions drawn, this article proposes corresponding policies and management recommendations, analyzes the limitations and shortcomings of the research, and looks forward to future research directions.

**Keywords:** Environmental information disclosure; Environmental background.

## 1. Introduction

This article aims to explore the impact of the environmental background of the board secretary on the quality of corporate environmental information disclosure. With the increasingly serious environmental problems, corporate environmental information disclosure has become an important means of government environmental governance. However, there is a significant difference in the quality of environmental information disclosure among Chinese listed companies, and there is little research on the impact of the background characteristics of board secretaries on this. This article is based on senior management and signal transmission theory, using A-share listed companies as samples, to analyze the impact of the environmental background of board secretaries on the quality of corporate environmental information disclosure. It provides practical guidance for enterprises to build a reasonable management team structure and improve the level of environmental information disclosure.

## 2. Literature References

### 2.1. Research on Enterprise Environmental Information Disclosure

The scope and focus of corporate environmental information disclosure are constantly changing with the deepening development of environmental issues. The evaluation system established by Wiseman and Joanne in the early days mainly focused on post pollution remediation issues [1]. LiZ used content analysis method and referred to the scoring criteria and measurement ideas provided by previous scholars to establish an evaluation index system that includes enterprise environmental technology development, environmental protection concepts and goals, etc., and calculated the EDI index accordingly [2]. Tang Dynasty selected 20 evaluation indicators to evaluate the quality of EDI based on the "Guidelines for Sustainable Development Reporting" published by the Global Reporting Initiative (GRI) and the "Guidelines for Corporate Social Responsibility Reporting in China"



published by the Chinese Academy of Social Sciences. With the gradual introduction of relevant environmental information disclosure regulations and guidelines in China, scholars have also incorporated these environmental policy factors into the construction process of environmental indicators in their research. Wang Wanqing conducted multidimensional and comprehensive measurements of the adequacy, significance, reliability, and other aspects of the quality of environmental information disclosure by companies.

In the research on the internal influencing factors of environmental accounting information disclosure, most literature explores them from the perspectives of company characteristics and corporate governance. The company's characteristic factors mainly include company size, profitability, financial leverage, etc. Empirical research by most scholars both domestically and internationally has found that larger companies experience greater external pressure from various stakeholders, and tend to have higher levels of voluntary environmental information disclosure to improve public relations [3]. In terms of corporate governance, there are mainly perspectives such as equity structure, board size, and executive characteristics. The adjustment of the company's internal governance structure is conducive to the implementation of environmental information disclosure. Cai Haijing and Jin Jiahui found that the longer the tenure of the board secretary, the higher the quality of environmental information disclosure; The overseas background of executives can enhance the quality of corporate social responsibility information disclosure, and the realization of this effect is due to the enhanced attention allocation of corporate social responsibility by executive teams with overseas backgrounds.

## **2.2. Research on Enterprise Environmental Information Disclosure**

Previous studies have found that the background characteristics of the board secretary are an important factor affecting corporate behavior, which is related to the efficiency of the capital market and has multiple economic consequences. The board of directors encourages executives to release more earnings forecasts, especially for bad news. The financial background of the board secretary not only significantly reduces the probability, frequency, and word count of annual report inquiry letters received by listed companies, but also significantly reduces the probability of delayed response letters. And the more frequent the change of the secretary of the board, the negative impact it will have on the quality of information disclosure. Investor relations management is another important responsibility of the board secretary. As a company executive, the Secretary of the Board is directly responsible for investor relations management of listed companies, playing a dual role of releasing company information and receiving external feedback. The more times the board secretary receives investor research, the better the accuracy of analyst forecasts can be improved.

The environmental background of managers in the past can affect the environmental expenditures of enterprises, mainly based on the "high-level echelon theory". The professional experience of executives has a profound impact on internal decision-making within a company. Based on the theory of top echelons, numerous scholars have found that the professional experience of executives has a significant impact on the innovation level, risk-taking, and economic performance of enterprises from the perspectives of executive tenure, political background, financial background, research and development background, and overseas background. The personal environmental traits of executives also affect the company by influencing investors. With the continuous deepening of the concept of green development, more and more investors are considering the sustainable development ability of companies in their investment decisions. Institutional investors often tend to invest in companies with good credit, high social responsibility, and the green bond market.

## **3. Theoretical basis**

### **3.1. High Ladder Team Theory**

Environmental management, as an indispensable part of corporate social responsibility, depends to some extent on the management's perception of internal and external pressures [4]. The higher-order theory was first proposed in 1984 by Hambrick and Mason. The Upper Echelons Theory suggests

that the background characteristics of top managers influence their cognitive preferences and information processing methods, ultimately shaping their strategic choices.

According to the theory of senior management hierarchy, as a senior executive of a listed company, the main responsibility of the board secretary is to fulfill the obligation of information disclosure. Previous studies have found that the background characteristics of board secretaries are important factors affecting corporate behavior and are related to the efficiency of the capital market [5]. Therefore, their work ability, work style, and work results are more or less influenced by multiple dimensions such as their background characteristics. When the secretary of the board fails to diligently fulfill their disclosure obligations, they will face pressure from various sources, such as criticism from regulatory agencies, accusations from shareholders, and blame from investors; Environmental experience inevitably affects the personality traits of individuals and subsequently influences environmental decisions such as green transformation of enterprises [6]. Therefore, according to the theory of the high ladder team, special personal characteristics such as environmental background may to some extent prompt the secretary of the board to be more diligent and responsible in fulfilling information disclosure obligations.

### **3.2. Signal Transmission Theory**

Michael Spence first proposed signal theory, which mainly includes signal discrimination and signal transmission. He believes that in situations of information asymmetry, intentional communication of positive information can send a signal to the other party, helping to convey their organizational attributes. From the perspective of signal theory, due to the obvious problem of information asymmetry in the market, companies usually release certain signals to various stakeholders in order to demonstrate that they are more trustworthy than their competitors during the operation process [7]. The transmission of signals requires a certain cost. As a senior management personnel responsible for information disclosure and investor communication within a listed company, the secretary of the board of directors is usually responsible for organizing performance briefings, analyst meetings, roadshows, and accepting investor research. They are the information disseminators of listed companies.

## **4. Theoretical analysis and hypothesis formulation**

According to the theory of senior management hierarchy, as the direct person in charge of information disclosure of listed companies, whether the secretary of the board has environmental related background and experience will directly affect the company's disclosure decisions in environmental information. Secretaries with environmental backgrounds, due to their relevant experiences, are well aware of the importance of environmental protection [8]. The "green imprint" makes them have a stronger willingness to protect the environment. Compared to secretaries without environmental backgrounds, they are more inclined to care about the environmental protection issues of the enterprise, increase the disclosure of environmental information to the outside world, and even affect the environmental decisions of the enterprise such as green transformation.

At the same time, the environmental background of the board secretary can also send signals to the outside world that the company actively fulfills its social responsibility, attract green investors to enter, and force the company to improve its environmental information disclosure performance. As a senior management personnel responsible for information disclosure and investor communication within a listed company, the secretary of the board of directors is usually responsible for organizing performance briefings, analyst meetings, roadshows, and accepting investor research. They are the information disseminators of the listed company [9]. It plays an important role in alleviating information asymmetry between companies and the market. Executives with greater power tend to show a more dominant position in decision-making, and the Secretary of the Board, as a specialized executive responsible for information disclosure, will have greater decision-making power in environmental information disclosure issues.

Therefore, from the perspective of signal transmission theory, hiring a secretary with an environmental background can convey the message that the company focuses on green environmental performance. When participating in decision-making related to the company's environmental strategy, they will actively contribute their opinions and suggestions, thereby promoting the company to fulfill its environmental responsibilities. Disclosing environmental information as a way for companies to fulfill their social responsibilities is not only beneficial for reducing the level of information asymmetry between stakeholders and the company, increasing its value, but also helps the company establish an environmentally friendly image in the market and enhance its competitiveness. Its environmental background can better communicate and spread with investors, promote the concept of socially responsible investment, and make the company's environmentally friendly image deeply rooted in people's hearts. It can also attract green investors to enter, and under its supervisory role, force the improvement of corporate environmental performance, increase the willingness of corporate environmental information disclosure, and improve the quality of environmental information disclosure [10].

Based on this, this article proposes the following hypothesis:

H1: Secretary's environmental background can promote corporate environmental information disclosure

## 5. Research Design

This article uses A-share listed companies from 2008 to 2022 as research samples to examine the relationship between the environmental background characteristics of board secretaries and corporate environmental information disclosure. The data on corporate environmental information disclosure in this article is sourced from the Guotai An Environmental Research Database and has been filtered and excluded to meet research needs. After screening, 33776 sample data were finally obtained.

(1) Explained variable. The dependent variable of this article is EDI for corporate environmental information disclosure. This article refers to the research of Kong Dongmin to construct an environmental information disclosure evaluation system, using the environmental research database in CSMAR database to measure the environmental information disclosure of enterprises from five dimensions. Among them, the indicators in environmental liability disclosure and environmental performance and governance disclosure belong to monetized information; The indicators in environmental management disclosure, environmental certification disclosure, and environmental information disclosure carriers belong to non monetary information. For monetized projects, both quantitative and qualitative disclosures are assigned a value of 2, only qualitative disclosures are assigned a value of 1, and undisclosed disclosures are assigned a value of 0; For non monetary projects, if the enterprise has made relevant disclosures, it is assigned a value of 2, and if no relevant disclosures have been made, it is assigned a value of 0. By adding 1 to the score of these projects and taking the logarithm, EDI is obtained, which comprehensively reflects the overall quality of environmental information disclosure of the enterprise. The higher the score, the higher the level of environmental information disclosure. The specific content is as follows. At the same time, this article refers to the research of Yao Sheng and divides environmental information into two categories: soft information EDI\_Soft and hard information EDI\_mard. Soft information disclosure represents that the information has no substantive content and is easily imitated; Hard information disclosure objectively reflects environmental performance and is not easily imitated or manipulated. Dividing the quality of environmental information disclosure into two dimensions, soft and hard, can more comprehensively measure the true information disclosure situation of enterprises and improve research accuracy.

(2) Explanatory variables. The explanatory variable of this article is the background of the environmental protection background of the board secretary. Based on the personal resume information of executives published on Sina Finance website, select the resume information of the board secretary. If a sample of keywords such as "environment", "environmental protection", "new energy", "clean energy", "ecology", "low-carbon", "sustainable", "energy conservation", and "green"

are included in the personal resume of the Secretary of the Board, and a manual screening is conducted on this basis to ensure that there are no situations that do not meet the environmental background criteria, then the Secretary of the Board is recognized as having an environmental background. When the company secretary has an environmental background, the value is 1, otherwise it is 0.

(3) Control variables. Drawing on previous research on corporate environmental information disclosure, this article selects the following control variables: company size (Size), asset liability ratio (Lev), revenue growth rate (Growth), net profit margin on total assets (ROA), board size (Board), supervisory board size (Visory), dual role (Dual), years of establishment (FirmAge), shareholding ratio of the largest shareholder (Top1), and property rights nature (SOE).

## 6. Theoretical analysis and hypothesis formulation

### 6.1. Environmental Background and Disclosure of Environmental Information

The descriptive statistical results of this article are shown in the table below.

**Table 1.** Descriptive Statistics

Numble	N	Mean	Std	Min	Max
Background	35667	0.033	0.179	0.000	1.000
EDI	35667	2.323	0.739	1.099	3.738
EDI hard	35667	1.621	0.794	0.000	2.944
EDI soft	35667	1.725	0.667	1.099	3.178
Size	35667	22.100	1.260	19.910	26.060
Lev	35667	0.403	0.201	0.050	0.866
Growth	35667	0.152	0.345	-0.491	2.022
ROA	35667	0.040	0.062	-0.194	0.227
Board	35667	2.124	0.198	1.609	2.708
Visory	35667	1.486	0.188	1.386	2.079
Dual	35667	0.296	0.456	0.000	1.000
FirmAge	35667	2.870	0.354	1.792	3.526
Top1	35667	34.280	14.780	8.735	73.970
SOE	35667	0.345	0.475	0.000	1.000

### 6.2. Environmental Background and Disclosure of Environmental Information

In order to verify the hypothesis proposed earlier, this article conducted regression analysis, and the results of the data regression are shown in Table 2. The three coefficients are significantly positively correlated at the 1% level. When a company has a secretary with an environmental background, the quality of its environmental information disclosure will improve accordingly. This is reflected not only in the quantitative disclosure of environmental information with more substantial content, but also in the disclosure of qualitative environmental information. Assumption 1 has been validated.

**Table 2.** Regression Results

Numble	EDI	EDI_hard	EDI_soft
Background	0.126*** (0.014)	0.136*** (0.017)	0.103*** (0.013)
Size	0.133*** (0.006)	0.122*** (0.008)	0.100*** (0.006)
Lev	-0.044* (0.025)	0.001 (0.031)	-0.079*** (0.025)
Growth	-0.036*** (0.007)	-0.034*** (0.009)	-0.018** (0.007)
ROA	0.300*** (0.051)	0.276*** (0.063)	0.259*** (0.050)
Board	-0.057** (0.022)	-0.053* (0.027)	-0.047** (0.022)
Visory	0.235*** (0.020)	0.599*** (0.024)	-0.071*** (0.019)
Dual	-0.024*** (0.008)	-0.021** (0.010)	-0.019** (0.008)
FirmAge	0.025 (0.040)	0.081 (0.049)	-0.009 (0.039)
Top1	-0.001*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)
SOE	0.011 (0.016)	0.034* (0.020)	-0.017 (0.016)
_cons	-0.855*** (0.176)	-2.052*** (0.215)	-0.194 (0.170)
N	35667	35667	35667
Year	YES	YES	YES
Industry	YES	YES	YES
R <sup>2</sup>	0.704	0.615	0.658

Note: \*\*\*, \*\*, \* respectively indicate significance at the 1%, 5%, and 10% levels, with standard errors in parentheses

### 6.3. Robustness test

In order to avoid the impact of variable measurement on the results, this article selects the content evaluation score (C value) from the "Blue Book of Social Responsibility Reports for A-share Listed Companies" published by Runling International Public Welfare Consulting Co., Ltd. to construct EDI2. Runling International adopts the MCTI social responsibility report evaluation system, which combines the actual situation in China and references the mainstream international report evaluation system, and has high applicability in China; And the design of its indicator system avoids the influence of industry categories on the evaluation score as much as possible, making the C values related to environmental information for each sample in this article comparable. The regression results are shown in Table 3.

From the regression results, it can be seen that the environmental background coefficient of the Secretary of the Board is 1.745, which is significantly positively correlated at the 1% level. This indicates that when a company has a secretary with an environmental background, the quality of its environmental information disclosure will improve accordingly. The results are consistent with the previous hypothesis analysis, indicating the robustness of this conclusion.

**Table 3.** Change the measurement method for environmental information disclosure

Numble	ESG_G
Background	1.745*** (0.289)
Size	0.217* (0.129)
Lev	-1.081** (0.524)
Growth	0.000 (0.000)
ROA	-0.615 (0.838)
Board	-0.378 (0.460)
Visory	-1.437*** (0.389)
Dual	-0.437*** (0.169)
FirmAge	0.188 (0.663)
Top1	0.017** (0.007)
SOE	0.041 (0.349)
_cons	0.657 (3.364)
N	35667
Year	YES
Industry	YES
R <sup>2</sup>	0.061

Note: \*\*\*, \*\*, \* respectively indicate significance at the 1%, 5%, and 10% levels, with standard errors in parentheses

## 7. Conclusion and Prospect

### 7.1. Research Conclusion

In recent years, the country has attached increasing importance to environmental pollution issues. Since the official implementation of the new Environmental Protection Law and the promulgation of a series of related laws and regulations, the environmental protection awareness of people from all walks of life has been continuously strengthened, the concept of ecological civilization has begun to be established, and the requirements of various stakeholders for the quality of environmental information disclosure by enterprises are gradually increasing. As the liaison officer for corporate investor relations, the secretary of the board is the main decision-maker for the company's external information disclosure. The level of corporate environmental information disclosure, as a decision on corporate environmental behavior, is inevitably influenced by the secretary's environmental background. Therefore, this article takes A-share listed companies from 2008 to 2022 as a sample to empirically study the relationship between the environmental background of board secretaries and the quality of corporate environmental information disclosure. This article reviews the current literature on the impact of corporate environmental information disclosure, personal characteristics of board secretaries, and the background of board secretaries on corporate information disclosure. Based on the high ladder team theory and signal theory, research hypotheses are proposed and validated through multiple regression analysis. The research conclusions obtained in this article are

as follows: the environmental background of board secretaries is significantly positively correlated with the quality of corporate environmental information disclosure.

## 7.2. Policies and Suggestions

Corporate environmental information disclosure is an important manifestation of corporate social responsibility. The release and implementation of laws and regulations related to environmental protection, the inherent requirements of sustainable development models for environmental resources, and the awakening of people's demand for a good living environment rooted in traditional Chinese culture, from any perspective, research and governance of environmental issues cannot be ignored. Environmental information disclosure represents whether a company has made environmentally friendly decisions and is the key to environmental governance. This article proposes the following suggestions to improve the level of corporate environmental information disclosure:

(1) Improve the talent introduction system of listed companies, actively guide enterprises to establish management teams with environmental backgrounds, especially by hiring board secretaries with environmental backgrounds. Encourage enterprises to introduce more executives with environmental backgrounds to join the executive team, and leverage the role of executives' environmental backgrounds in improving the level of environmental information disclosure in enterprises.

(2) The government should refine the standards for environmental accounting information disclosure, improve policy feasibility, and perfect the system for environmental accounting information disclosure. At present, China's environmental information disclosure system has relatively rough regulations on specific disclosure standards. Although the "New Environmental Protection Law" introduced in 2015 effectively clarified the specific requirements for environmental accounting information disclosure, especially regarding the disclosure of pollutant emissions, enterprises still have strong selectivity in the format and content details of environmental information disclosure. Relevant departments should improve specific norms and standards as soon as possible, enhance the applicability and feasibility of policies, increase the efficiency and intensity of policy implementation, and improve corresponding punishment mechanisms.

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