

Original Paper

Research on Quality Evaluation of Climate Information Disclosure in Cement Industry

Yue Ma¹

¹ Lanzhou University of Technology, Lanzhou City, Gansu Province, China

Received: September 09, 2024 Accepted: October 11, 2024 Online Published: October 30, 2024
doi:10.22158/ibes.v6n5p181 URL: <http://dx.doi.org/10.22158/ibes.v6n5p181>

Abstract

This paper discusses the current situation and framework of climate information disclosure through the review of domestic and foreign literature. Based on relevant international guidelines and Chinese policies and regulations, the evaluation system is constructed from four dimensions of governance, strategy, risk management, index and target report by using analytic hierarchy process (AHP) and content analysis method. Taking the content of climate-related information disclosure of Tianshan Stock in 2023 as an example, this paper studies the gap between domestic cement enterprises in their climate information disclosure and the global benchmark, and puts forward relevant countermeasures and suggestions to promote the improvement of the quality of climate information disclosure of listed companies in the cement industry.

Keywords

Climate Information Disclosure, IFRS S2, Quality Evaluation System

1. Introduction

Climate change has become the most serious challenge to global sustainable development. Faced with the huge risks brought by climate change, enterprises should strengthen the disclosure of climate information and make investors understand their measures in dealing with climate change. In order to regulate the disclosure of climate information, domestic and foreign regulators have formulated corresponding standard frameworks. With the US Securities and Exchange Commission (SEC) officially releasing the final version of the climate-related disclosure rules in March 2024, the international climate-related disclosure has presented a three-way situation between the EU, the US and the International Sustainable Development Standards Board (ISSB). In May 2024, China's Ministry of Finance issued the "Guidelines on Sustainable Disclosure for Enterprises - Basic Guidelines (Draft for Comment)", proposing to develop sustainable disclosure guidelines in line with China's national

conditions. Cement is an important basic raw material for national economic construction. Due to its production process and technological characteristics, the total carbon emission and carbon emission intensity are very large. With the promulgation of the "Carbon Peak Implementation Plan for Building Materials Industry", climate-related information disclosure, including carbon emission information disclosure, will be the focus of long-term policy attention, and adequate climate information disclosure will help promote low-carbon transformation and green development of enterprises. Therefore, listed companies in the cement industry should do a detailed and proactive job of climate information disclosure, and actively implement the requirements of carbon peak and carbon neutrality.

2. Climate Information Disclosure Quality Evaluation System Construction

The issuance of international sustainable disclosure standards promotes the disclosure of climate information by enterprises. However, due to the lack of unified climate information disclosure standards, the disclosure of climate information among listed companies in the cement industry is uneven and cannot be compared. On the basis of sorting out the existing achievements and combining the characteristics of the industry, this paper constructs the quality evaluation system of climate information disclosure of listed companies in the cement industry.

2.1 Basis and Method of Index Selection

Based on the International Standard for Sustainable Disclosure in Financial Reporting No. 2 -- Climate-Related Disclosure (IFRS S2) issued by the International Sustainable Standards Board (ISSB) and combined with the current production and operation characteristics of the cement industry, this paper preliminarily selected the indicators of the quality evaluation system for climate-related information disclosure of listed companies in the cement industry. Then Delphi method and analytic hierarchy process are used to collect and organize the data, and finally the evaluation index system of this paper is obtained.

2.2 Establishment of Evaluation Index System for Climate Information Disclosure

The evaluation system of this paper is divided into three levels. The first level takes the quality evaluation of climate information disclosure of listed companies in cement industry as the general target level. The second layer is the criterion layer, which contains four dimensions: "governance", "development strategy", "risk management" and "indicators and objectives". The third layer is the index layer, including a number of evaluation indicators that can reflect the climate information disclosure performance of listed companies in the cement industry.

Table 1. Content Framework of Climate Information Disclosure

Criterion level	Primary index	Secondary index	Nature	Index interpretation
Govern		Governance structure	qualitative	An organization or person responsible for

Governance structure	monitoring climate-related risks and opportunities				
	Member's professional background	qualitative	Members possess appropriate skills and knowledge		
	Accountability of governance institutions	qualitative	Reflect responsibility for climate-related risks and opportunities		
	Organizational procedure	qualitative	How and how often agencies communicate climate-related risks and opportunities		
	Management role	qualitative	Whether management roles are delegated to specific management positions		
Strategy	Risk opportunity	Correlation definition description	qualitative	Rationalize climate-related risks and opportunities	
	Business model	Impact on the business model	quantify/qualitative	Describe the current and expected impacts of climate-related risks on a company's business model	
	Strategic decision	Climate response information	quantify/qualitative	Current and expected direct and indirect mitigation and adaptation efforts; Any climate-related transition plans that the entity has developed	
	Financial impact	Financial implications of climate-related risks and opportunities	quantify	The impact of climate-related risks and opportunities on the company's financial position and financial performance in the short, medium and long term	
	Climate adaptability	Assessment of climate resilience	qualitative	The ability of companies to adapt their strategies and business models to climate change; Whether climate-related scenario analysis was used	
Risk management ent	Identification and evaluation	Climate risk identification		qualitative	Identify climate-related risks
		Climate risk assessment		qualitative	How can the nature and magnitude of these risks be assessed
		prioritize		qualitative	How to prioritize climate-related risks
		Risk management process		qualitative	Processes for monitoring climate-related risks and opportunities
Greenhouse gas emission	Total emission	quantify		Includes: Scope 1, Scope 2, Scope 3 greenhouse gas emissions	
		qualitative		Disclose its methods for measuring	

Index and goal	Impact on business activities	greenhouse gas emissions		
		Emission management	reduction qualitative	Corresponding measures to reduce greenhouse gas emissions
		Impacts of climate change on business activities	quantify	The number and percentage of assets or business activities vulnerable to climate-related risks and opportunities
	Capital deployment	Climate-related allocation Incentive policy	quantify/ qualitative	The amount of capital expenditures, financing or investments made to address climate change ; Explain if and how the company applies the carbon price
	Executive compensation	Incentive policy	quantify	Whether climate-related considerations are incorporated into executive compensation
		Set goal	qualitative	Indicators used to monitor progress towards goals
	Climate-related objectives	The scope of application of the target	qualitative	Any modifications to the objectives and an explanation of those modifications
		Status of performance	qualitative	Emission plan, reduction target and related performance analysis

2.3 Evaluation System Index Weight Determination

In this paper, a questionnaire was designed to select the indicators of the climate information disclosure quality evaluation system of listed companies in the cement industry, and the questionnaires were sent to ten experts, and then the collected questionnaires were sorted out to obtain the judgment matrix. Secondly, the consistency test analysis is carried out to ensure the harmony and consistency of the indicators as a whole. If the consistency test passes, it is valid data; otherwise, the judgment matrix needs to be repaired. Finally, the analytic hierarchy process is used to calculate the index weights, and the weight table of the cement industry climate information disclosure quality evaluation system is finally obtained, as shown in Table 2:

Table 2. Weight Table of Indicators of Climate-Related Information Disclosure Quality Evaluation System

Criterion level	Weight	Primary index	Weight	Secondary index	Weight	Comprehensive weight
Govern	22.04%	Governance	100%	Governance structure	13.64%	3.01%

structure			Member's professional background			11.67%	2.57%
			Accountability of governance institutions			19.14%	4.22%
			Organizational procedure			35.77%	7.88%
			Management role			19.78%	4.36%
Strategy	28.29%	Risk opportunity	24.26%	Correlation definition description	24.26%	6.86%	
		Business model	5.75%	Impact on the business model	5.75%	1.63%	
		Strategic decision	12.70%	Climate response information	12.70%	3.59%	
		Financial impact	31.52%	Financial implications of climate-related risks and opportunities	31.52%	8.92%	
		Climate adaptability	25.78%	Assessment of climate resilience	25.78%	7.29%	
Risk manage ment	12.63%	Identification and evaluation	100%	Climate risk identification	25.40%	3.21%	
				Climate risk assessment	51.07%	6.45%	
				prioritize	9.68%	1.22%	
				Risk management process	13.85%	1.75%	
Index and	37.05%	Greenhouse gas emission	18.10%	Total emission	41.79%	2.80%	
				Measurement method	32.91%	2.21%	
				Emission reduction management	25.30%	1.70%	
		Impact on business	6.50%	Impacts of climate change on business	6.50%	2.41%	

goal	activities		activities		
	Capital deployment	11.74%	Climate-related capital allocation	11.74%	4.35%
			Incentive policy		
	Executive compensation	16.67%	Incentive policy	16.67%	6.18%
			Set goal	18.43%	3.21%
	Climate-related objectives	47.00%	The scope of application of the target	25.53%	4.45%
			Status of performance	56.04%	9.76%

3. Application of Climate Information Disclosure Quality Evaluation Index System

3.1 Company Profile and Grading Criteria

On the basis of calculating the comprehensive weight, Tianshan Stock, a representative enterprise in cement industry with perfect climate information disclosure and leading industry ranking, was selected to conduct a comprehensive evaluation on the quality of its climate information disclosure. Tianshan was listed on Shenzhen Stock Exchange in 1999 (stock code: 000877). Its business scope covers the manufacturing and sales of cement, clinker and aggregate, and it is the largest cement company in China with complete industrial chain and nationwide layout. This paper adopts "content analysis method" to analyze the 2023 ESG report of Tianshan Stock, extracts the disclosure contents of each indicator, assigns corresponding values to the indicators containing qualitative disclosure, and obtains the initial total sample. The specific scoring standard is shown in Table 3. Finally, the scores and weights of the four dimensions of governance, strategy, risk management, indicators and objectives were multiplied and then added to obtain the comprehensive scores of climate information disclosure quality of Tianshan Stock and assign its evaluation level.

Table 3. Scoring Standards

Mark	Grading scale	Scoring basis	Corresponding score
4	outstanding	The disclosure is detailed	100
3	good	Only simple description	85
2	normal	Only relevant indicators are mentioned	70
1	range	No relevant information was disclosed	55

3.2 Climate Information Disclosure Quality Evaluation Results of Tianshan Stock

By collecting the specific situation of climate information disclosure of Tianshan Stock in 2023, the quality evaluation system constructed in this paper is used to score the quality of its climate information disclosure, and the results are shown in Table 4.

Table 4. Final Score of Climate Information Disclosure Quality of Tianshan Stock in 2023

Criterion level	Primary index	Secondary index	Corresponding score	Weight	Final score
Govern	Governance structure	Governance structure	100	3.01%	3.01
		Member's professional background	55	2.57%	1.41
		Accountability of governance institutions	100	4.22%	4.22
		Organizational procedure	55	7.88%	4.33
		Management role	85	4.36%	3.71
Strategy	Risk opportunity	Correlation definition description	85	6.86%	5.83
		Business model	85	1.63%	1.39
	Strategic decision	Climate response information	70	3.59%	2.51
		Financial implications of climate-related risks and opportunities	70	8.92%	6.24
		Climate adaptability	55	7.29%	4.01
Risk management	Identification and evaluation	Climate risk identification	70	3.21%	2.25
		Climate risk assessment	55	6.45%	3.55
		prioritize	55	1.22%	0.67
		Risk management process	85	1.75%	1.49
	Greenhouse gas emission	Total emission	70	2.80%	1.96
		Measurement method	55	2.21%	1.22
		Emission reduction management	85	1.70%	1.45

Index and goal	Impact on business activities	Impacts of climate change on business activities	55	2.41%	1.33
	Capital deployment	Climate-related capital allocation	70	4.35%	3.05
	Executive compensation	Incentive policy			
		Incentive policy	55	6.18%	3.40
		Set goal	100	3.21%	3.21
	Climate-related objectives	The scope of application of the target	55	4.45%	2.45
		Status of performance	100	9.76%	9.76
Total		/	100%	72.42	

According to the evaluation grade table, the evaluation grade of climate information disclosure quality of Tianshan Stock in 2023 is "good".

4. Conclusions and Suggestions

4.1 Conclusion

First, the analysis of specific indicators is lacking. From the above analysis, it can be found that there are deficiencies in the specific indicators of climate information disclosure of Tianshan Stock, such as the professional background of the members of the governance body and the operation procedure of the governance body that are not disclosed in the governance dimension, the climate-related scenario analysis in the strategic dimension, the identification and evaluation of the risk management dimension, and the indicators and objectives dimension. Failure to incorporate climate-related considerations into executive compensation.

Second, there is a lack of attention to financial implications in the disclosures. While Tianshan has identified climate-related risks and opportunities in accordance with the TCFD framework, there is a lack of data in the disclosure process that specifically supports the financial impact of climate change. The report provides only examples of individual subsidiaries' investments in climate change projects and does not disclose in detail the expected impact of climate-related risks and opportunities on their financial position, performance and cash flows in the short, medium and long term.

4.2 Suggestions

First, improve the framework for climate information disclosure. Tianshan should improve the framework of climate information disclosure as soon as possible and provide more comprehensive and

specific disclosure index information. ISSB is a comprehensive framework of international climate information disclosure, which is further optimized on the basis of TCFD. Therefore, this paper suggests that Tianshan adopt IFRS S2 issued by ISSB as the disclosure framework and improve specific disclosure indicators such as "climate-related scenario analysis".

Second, strengthen the focus on the financial implications of climate information. Assessing the financial impact of climate-related risks and opportunities remains subject to unclear and unquantifiable risk attribution. However, if most companies continue to assess and disclose these impacts in a qualitative manner, the effectiveness of this information, especially its value to stakeholders, will be greatly reduced. In order to overcome this dilemma, companies should adhere to the principle of cost-effectiveness, refer to the ISSB standards for potential financial impact assessment methods, while taking full account of their own skills, capabilities, and decide whether to use quantitative or qualitative analysis.

Although the evaluation results of this paper only take the data of Tianshan Stock in 2023 as the sample, it does not affect the wide use of the climate information disclosure quality evaluation system established in this paper. It is expected that the research in this paper can help listed companies in the cement industry to improve the quality of climate information disclosure and accelerate the realization of green transformation and high-quality development.

References

- EFRA. (2023). ESRS E1 Climate Change. Retrieved from <http://www.efrag.org>
- ISSB. (2023). *IFRS S2 Climate-related Disclosures*. Retrieved from <http://www.ifrs.org>, 2023
- SEC. (2024). *The Enhancement and Standardization of Climate-Related Disclosures for Investors*. Retrieved from <http://www.sec.gov>