

Research on the Evaluation of ESG Practice Effectiveness of Shanxi J Company

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Abstract: Shanxi, as a major coal province, has been actively exploring the path of resource transformation and energy development. With the introduction of ESG concepts and increasing attention from listed companies in various countries and regions, Shanxi J Company began disclosing ESG information in 2024. Since the release of its second ESG report in 2025, it has further improved its sustainable disclosure work. This article uses the entropy mutation series method to study the ESG practice effectiveness of Shanxi J Company. The study found that Shanxi J Company has great potential in ESG and should continue to strengthen sustainable information disclosure in the future. According to relevant work requirements, the company's ESG practice level should be effectively improved.

Keywords: Shanxi J Company; ESG; Entropy Value-mutation Series Method

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1. Introduction

1.1 research background

Energy, as the key material cornerstone of the national economy, its future development will depend on the control of energy. In 2004, the United Nations Global Compact put forward the concept of ESG, which emphasizes the combination of environment, society and corporate governance, and is committed to promoting the sustainable development of enterprises. Today, after 40 years of development, the concept of sustainable development and ESG has increasingly become a topic of concern for enterprises. Shanxi, as a province rich in energy and resources, has always shouldered important responsibilities. In July 2025, he came here again to inspect the work and stressed the following point of view: "building a national energy conversion and comprehensive cooperation reform experimental area has been given an important strategic mission by the central government to Shanxi Province. We need to continue to deepen our understanding, adhere to our determination, and promote the process of transformation and development in an orderly manner." in the process of energy transformation and development, ESG concept will bring more opportunities for enterprises in Shanxi energy industry, and help Shanxi build a new energy system and realize transformation and development.

1.2 research significance

At present, Shanxi is in the critical period of the transformation and development of resource-based economy and energy. How to achieve sustainable development has become an increasingly important topic, and the ESG concept theoretically provides the possibility for the transformation and development of Shanxi. The research of this paper has both theoretical

and practical significance: on the one hand, it is based on the theoretical construction of the evaluation of the effect of ESG practice of Shanxi J company, which lays the foundation for the in-depth study of its ESG performance; On the other hand, with the transformation of the coal industry and the practice of ESG, the coking industry also keeps pace, and the relevant theoretical and practical research should also be carried out simultaneously. It is necessary to combine theory with practice to better grasp how the ESG concept can promote the transformation and upgrading of Shanxi J Company.

1.3 literature review

At present, the research on ESG at home and abroad is very rich, which also reflects the continuous improvement of enterprises' attention to sustainable development. The research on ESG performance, enterprise value and impact path is very rich, and the research is mainly carried out by case study method, entropy mutation progression and other comprehensive evaluation methods, reflecting the academic concern about the impact of enterprise ESG performance on enterprise value.

1.3.1 domestic literature review

The concept of ESG started late in China, so there are few initial studies. In recent years, with the new development concept, China's emphasis on environment and ecology and the "double carbon" goal, the topic of ESG has become a hot topic of research. Starting from the concept of ESG, it has become the "door" to open the research. Liu Xiao and other scholars' research shows that domestic scholars' research on ESG is divided into three categories: ESG investment and enterprise value, ESG information disclosure and social responsibility, green innovation and environmental governance^[1]. And the research system with these three categories as the core has been built in China. Closely related to ESG is CSR, that is, social responsibility. Realizing the collaborative preparation and value maximization of CSR report and ESG report has become an important topic in the current management practice of state-owned enterprises^[2]. The main reference for ESG research is also from the report. In addition, many domestic Master of accounting theses also focus on enterprise ESG performance. The research content covers the relationship between enterprise ESG performance and enterprise value, influence path and enterprise financial disclosure data. Comprehensive evaluation methods are often selected, such as AHP, grey relational analysis, fuzzy evaluation method, expert scoring method, etc^[3]. These methods are also frequently used in modern management.

Generally speaking, domestic scholars' research on ESG covers both qualitative and conceptual theoretical exploration, as well as quantitative analysis taking enterprises as cases. There are also research on ESG performance in combination with hot topics such as new quality productivity and digital economy. The main driving force for domestic enterprises to practice ESG is the regulatory compliance requirements. Although the number of ESG reports disclosed by Chinese enterprises has increased significantly, the quality of disclosure needs to be improved^[4]. The research related to ESG also needs to further improve the quality, link the concept of ESG with all aspects of economic life, form an organic whole, so as to grasp its connotation more comprehensively. Relevant research has also paid attention to the relationship between regional economy and ESG.

1.3.2 foreign literature review

The concept of ESG originated abroad, so the time and maturity of relevant research abroad will be higher than that in China. ESG related concepts have emerged since the 1970s, that is, corporate social responsibility (CSR). In 2004, the United Nations Global Compact officially put forward the ESG concept and formed a series of international industry sustainable information disclosure standards. In 2010, the global reporting initiative advocated enterprises to integrate and disclose financial information and ESG information. Many international institutions such as Dow Jones, Thomson Reuters and FTSE Russell have put forward their own evaluation systems^[5]. With this trend, scholars began to study related issues in depth. Early scholars mainly focused on the study of environmental responsibility, and they only analyzed it from the perspective of compliance with laws and regulations and self-discipline. Bansal and Roth put forward a view that enterprises will make corresponding changes in order to reduce the damage to the ecological environment^[6]. With the in-depth study, scholars have combined corporate environmental responsibility with stakeholder theory and 3P principle. Typical examples of this are Henriques and Sadosky, who proposed that environmental responsibility is a process in which enterprises have a positive impact on society through open and transparent relationship management with stakeholders^[7]. With the development of the

times, the theory is also constantly enriched. The question of traditional neoclassical environmental economics forms the “Porter Hypothesis Theory”, which believes that appropriate environmental regulation can encourage enterprises to make more innovation attempts. With the continuous deepening of the concept of green and sustainable development, the behavior of corporate social responsibility and environmental protection awareness have also attracted more and more attention from the management, resulting in the phenomenon of “greening”. However, the research shows that the actual performance of environmental responsibility can promote the steady development of enterprises and bring long-term benefits to enterprises. From corporate environmental responsibility to its social responsibility and corporate governance theory, it covers three aspects of ESG research, and is also the different direction of ESG research abroad. On the whole, both domestic and foreign studies tend to pay more attention to issues related to corporate financial performance, corporate value, and the environment, social responsibility and corporate governance, showing a thinking process from multiple perspectives and different aspects, including theoretical discussion and quantitative analysis. Future related research will also be more in-depth, which will have different degrees of impact on the development of enterprises and the performance of social responsibility.

2. Case enterprise introduction

The predecessor of Shanxi J Co., Ltd. was the Preparatory Office of Shanxi fertilizer plant, which was founded in 1969. The first old coke oven was built in 1979. In 1996, it was reorganized into Shanxi Coking Group Co., Ltd. and listed on the Shanghai Stock Exchange on August 8 of the same year. In 2004, it restructured with Shanxi Coking Coal Group and became one of the wholly-owned subsidiaries of Shanxi coking coal. Shanxi coking is a comprehensive coal utilization enterprise that retorts coal, produces coke, and recycles and deep processes coking by-products. It is one of the 82 pilot enterprises of circular economy in China, a “green factory” recognized by the Ministry of industry and information technology of the people’s Republic of China, and an advantageous enterprise for key development in Shanxi Province. It is a listed company in the coking industry established by raising funds with the approval of the people’s Government of Shanxi Province. It was listed on the Shanghai Stock Exchange on August 8th, 1996^[8].

At present, Shanxi J company has 6 JN60 coke ovens with a design capacity of 3.546 million tons/year, supporting 300000 tons/year coal tar processing, 350000 tons/year methanol, 100000 tons/year benzene refining, 80000 tons/year carbon black, and mainly produces 45 kinds of products such as coke, ammonium sulfate, industrial naphthalene, asphalt, anthracene oil, wash oil, phenols, carbon black, methanol, benzene^[9]. Among them, the leading product metallurgical coke was rated as “China’s top quality product” and “Shanxi’s landmark brand product”, and coking benzene, ammonium sulfate, industrial naphthalene and industrial methanol were rated as “Shanxi’s brand products”. The company has 8 production plants and 5 auxiliary production units including coking plant, coal reserve plant, chemical product recovery plant, public auxiliary plant, tar processing plant, benzene refining plant, methanol plant and carbon black plant^[10]. The company holds 75.03% of the shares of Shanxi Coking Coal Feihong Chemical Co., Ltd. and 40% of the shares of Shanxi delixin Electronic Technology Co., Ltd; 49% shares of China Coal Huajin Group Co., Ltd.^[10]

Its core subsidiary, Shanxi J Co., Ltd., was established in 1996 and has been deeply engaged in the field of coal chemical industry. At the initial stage, due to the market demand of the state and Shanxi for coal and related products, certain business achievements were made. However, with the development of the times and the increasingly obvious disadvantages of coal pollution, the state’s increasingly strict management and mining of Shanxi’s coal, coupled with the price changes in the international energy market and the influence of various complex factors, in recent years, the business situation of Shanxi J company has become increasingly severe. On July 14, when Shanxi J company released the 2025 semi annual performance forecast, the market was not surprised to see a deficit. The coking giant with a history of nearly 60 years estimated that the net profit loss attributable to the owner of the parent company in the first half of the year was 72.7692 million yuan to 87.2692 million yuan, in sharp contrast to the profit of 184million yuan in the same period of the previous year. The company has an annual capacity of 3.6 million tons of coke, with more than 5500 employees, and the actual controller is the state owned assets supervision and Administration Commission of Shanxi Province. Despite the halo of “key protected and advantageous enterprises in Shanxi Province”, it has been hard to escape the impact of the downward cycle of the industry in recent years. On the one hand, due to the continuous decline of upstream and downstream prices, the coke market demand is insufficient,

which is unfavorable to the development of enterprises; On the other hand, investment income, operating performance and other indicators continued to decline, unable to make up for cost losses. The realistic pressure and situation faced by Shanxi J company makes the enterprise have to seek transformation and development. Under the background of “double carbon” policy, as a coking enterprise, the pursuit of green operation and low-carbon transformation has become increasingly required by the enterprise.

From the main business income and proportion in 2024 listed in the table below ^[11], Shanxi J company mainly operates in 20 main product categories, including coke, coking toluene, pure benzene and heavy benzene, as well as raw materials, production products and additional products related to the coking industry, such as methanol, carbon black, pure benzene and heavy benzene. The main business income of coking products accounted for 99.44%, and coke as the main product accounted for more than 50%.

Table 2-1 Main Business Income and Proportion of Shanxi J Company in 2024

Main business category	Amount (in billions of yuan)	proportion
coking	74.65	99.44%
coke	51.54	76.65%
methanol	4.55	6.06%
Coking toluene	0.72	0.95%
carbon black	3.79	5.05%
Coking xylene	0.24	0.32%
Pure benzene	4.74	6.32%

Source: Annual Report of Shanxi J Company in 2024

Table 2-2 Main Product Categories of Shanxi Coking

category	Main products
Coking industry products	Coke, methanol, carbon black, pure benzene, modified solid pitch, industrial naphthalene liquid, modified liquid pitch, coking toluene, methylnaphthalene oil, heavy benzene, ammonium sulfate, dephenolized phenol oil, coking xylene, non-aromatic hydrocarbons, wash oil, light oil, neutral phenolic salt, sulfur, molten sulfur, anthracene oil

Source: Shanxi Coking Annual Report 2024

According to a report by Shanxi Evening News on August 31, in the first half of 2025, 41 A-share listed companies in Shanxi achieved a total operating revenue of 257.09 billion yuan, a decrease of 22.86 billion yuan or 8.17% compared to the same period last year ^[11]. The coal industry suffered a performance decline due to the drop in coal prices, and Shanxi Coking was also impacted, with operating revenue and profits declining.

Through analyzing the operating conditions of Shanxi J Company, it can be seen that Shanxi Coking is currently at a critical juncture, which is related to the overall downward trend in the performance of Shanxi’s coal industry. Even so, Shanxi Coking is actively making changes, attempting to help the company out of the predicament by transforming its development mode and exploring sustainable development paths, and the ESG concept will play a very important “role” in this process.

3. Evaluation of ESG Practice Effectiveness of Shanxi J Company

3.1 Entropy-catastrophe progression method for measuring ESG performance

3.1.1 Indicator selection and data preprocessing

3.1.1.1 Selection of indicators

When using the catastrophe progression method, we must select appropriate metrics to evaluate ESG performance. These metrics can be divided into three layers: the first layer includes environment, society, and corporate governance (abbreviated as E, S, G); the second layer is further refined into four subcategories, namely financial performance, business outcomes, development capability, and management innovation; the third layer is at a more specific micro-level, such as specific

corporate behaviors. The indicators selected in this study are mainly based on two points: firstly, the importance of ESG issues in Shanxi J Company; secondly, the significance of Shanxi J Company's performance in these issues and its specific action plans.

In this study, it was found that the relevant information disclosed by Shanxi J Company on its issues is quite limited, thus necessitating the selection of other sustainable information disclosures. The table below presents the significant ESG issues disclosed by Shanxi J Company.

Table 3-1 Important Topics of Shanxi J Company

	Environmental Issues	Social responsibility issues	Corporate governance issues
2023-2024	Addressing climate change, environmental compliance management, energy utilization, pollutant emissions, waste disposal, ecosystem and biodiversity conservation, water resource utilization, and circular economy	Safe production and operation, safeguarding employee rights and interests, promoting employee growth, ensuring the safety and quality of products and services, rural revitalization, social contribution, supply chain security, treating small and medium-sized enterprises equally, data security, and customer privacy protection	Compliance management, corporate governance, anti-commercial bribery and anti-corruption, due diligence, anti-unfair competition, and technology ethics

(1) Environmental indicators

From the ESG report of Shanxi J Company, it can be seen that the enterprise places greater emphasis on environmental compliance management and addressing climate change. Based on this, this article categorizes environmental indicators into two major categories: addressing climate change and emissions, and environmental compliance management and energy utilization. The specific indicators are listed in the table below:

Table 3-2 Environmental Indicators

First-level indicator	Secondary indicator	Third-level indicator	Indicator type
Environment	Addressing climate change and emissions	Total greenhouse gas emissions	Negative indicator
		total exhaust emissions	Negative indicator
	Environmental compliance management and energy utilization	Total volume of industrial wastewater	Negative indicator
		Amount of environmental administrative penalties during the reporting period	Negative indicator
		Comprehensive energy consumption	Negative indicator

(2) Social responsibility indicators

Based on the issues of importance and ESG strategy, the main focus of Shanxi J Company's ESG practice in 2024 is product and service safety and quality. Referring to the actual practices of Shanxi Coking in social responsibility, the indicators are selected as follows:

Table 3-3 Social Responsibility Indicators

First-level indicator	Secondary indicator	Third-level indicator	Indicator type
Social responsibility	Product and service safety and quality	Number of product violation incidents	Negative indicator
		Employee training pass rate	Positive indicator
	Employee rights and growth	Annual training expenditure amount	Positive indicator
		Labor contract signing rate	Positive indicator
	Supply Chain and Innovation	Full-process electronic bidding and procurement coverage rate	Positive indicator
		R&D expenses	Positive indicator

(3) Corporate governance indicators

In the corporate governance issues disclosed by Shanxi Coking, the main focus is on compliance management and internal

integrity supervision. The classification of this indicator is also based on this, as shown in the table below:

Table 3-4 Corporate Governance Indicators

First-level indicator	Secondary indicator	Third-level indicator	Indicator type
Corporate governance	Compliance Management	Identify contract management risks	Negative indicator
		Formulate risk prevention and control measures	Positive indicator
	Integrity and Investor Relations	Number of regulatory training sessions	Positive indicator
		Customer and investor response rate	Positive indicator

3.1.1.2 Data sources

Based on the data disclosed in the Environmental, Social, and Corporate Governance (ESG) report of Shanxi J Company from 2023 to 2024, the ESG evaluation index data of Shanxi J Company is summarized as follows:

Table 3-5 Environmental Indicators

Secondary indicator	Third-level indicator	2023	2024
Addressing climate change and emissions E ₁	Total greenhouse gas emissions E ₁₁	206.89	197.59
	Total exhaust emissions E ₁₂	332.85	334.47
	Total volume of industrial wastewater E ₁₃	3987974	1234800
Environmental compliance management and energy utilization E ₂	Amount of environmental administrative penalties during the reporting period E ₂₁	0	0
	Comprehensive energy consumption E ₂₂	120.8	112.68

Table 3-6 Social Responsibility Indicators

Secondary indicator	Third-level indicator	2023	2024
Product and service safety and quality S ₁	Number of product violation incidents S ₁₁	0	0
	Pass rate of employee safety education and training S ₂₁	100%	100%
Employee rights and growth S ₂	Annual training expenditure amount S ₂₂	603.79	646
	Labor contract signing rate S ₂₃	100%	100%
Supply chain and innovation S ₃	Full-process electronic bidding and procurement coverage rate S ₃₁	100%	100%
	R&D expenses (10,000 yuan) S ₃₂	9528	9670.9

Table 3-7 Corporate Governance Indicators

Secondary indicator	Third-level indicator	2023	2024
Compliance Management G ₁	Identify contract management risks G ₁₁	30	34
	Formulate risk prevention and control measures G ₁₂	60	82
Integrity and Investor Relations G ₂	Number of regulatory training sessions G ₂₁	16	4
	Customer and investor response rate G ₂₂	100%	100%

3.1.1.3 Data preprocessing

Due to the different units and characteristics of ESG indicators, which encompass both qualitative and quantitative, positive and negative indicators, normalization is necessary to facilitate calculation and avoid bias^[12].

If it is a positive indicator, the normalization formula is:

$$X_i = \frac{x_i - x_{min}}{x_{max} - x_{min}} \quad (4-1)$$

If it is a negative indicator, the normalization formula is:

$$X_i = \frac{x_{max} - x_i}{x_{max} - x_{min}} \quad (4-2)$$

The resulting dimensionless results are presented in the table below:

Table 3-8 Non-dimensionalized Data

After determining the weights, it is necessary to select the corresponding mutation model based on the number of indicators. Given the unique characteristics of ESG evaluation indicators, the mutation level values in this paper are calculated using the average value^[12].

The mutation model corresponding to the ESG evaluation index system of Shanxi J Company is shown in the table below:

Table 3-8 Non-dimensionalized Data

Third-level indicator	2023	2024
Total greenhouse gas emissions E ₁₁	0.00	1.00
Total exhaust emissions E ₁₂	1.00	0.00
Total volume of industrial wastewater E ₁₃	0.00	1.00
Amount of environmental administrative penalties during the reporting period E ₂₁	0.00	1.00
Comprehensive energy consumption E ₂₂	0.00	1.00
Number of product violation incidents S ₁₁	0.00	0.00
Pass rate of employee safety education and training S ₂₁	0.00	0.00
Annual training expenditure amount S ₂₂	0.00	14.30
Labor contract signing rate S ₂₃	0.00	0.00
Full-process electronic bidding and procurement coverage rate S ₃₁	0.00	0.00
R&D expenses (10,000 yuan) S ₃₂	0.00	66.68
Identify contract management risks G ₁₁	1.00	0.00
Formulate risk prevention and control measures G ₁₂	0.00	2.73
Number of regulatory training sessions G ₂₁	1.00	1.25
Customer and investor response rate G ₂₂	0.00	0.00

3.2 Determining weights using the entropy method

The principle of determining weights using the entropy method is based on the dispersion degree of indicators. Assuming there are m samples and n indicators in the sample, then X_{ij} represents the j -th indicator of the i -th sample ($i=1,2,3, \dots, m$; $j=1,2,3 \dots, n$)^[12].

Based on this, the data matrix of indicators is derived, and the weights are finally calculated through four steps: normalization of the dataset, calculation of the proportion of the i -th sample under the j -th indicator, calculation of the entropy value of the j -th indicator, and calculation of the information difference coefficient of the j -th indicator^[12]:

$$W_j = \frac{d_j}{\sum_{j=1}^m d_j} \quad (4-3)$$

The weights of the ESG evaluation indicators calculated in this article are shown in the table below:

Table 3-9 Weight calculation results using the entropy method

Evaluation index	Information entropy value e	Information utility value d	Weight (%)
Pass rate of employee safety education and training S ₂₁	0	1	6.667
Annual training expenditure amount S ₂₂	0	1	6.667
Labor contract signing rate S ₂₃	0	1	6.667
Full-process electronic bidding and procurement coverage rate S ₃₁	0	1	6.667
R&D expenses (10,000 yuan) S ₃₂	0	1	6.667
Formulate risk prevention and control measures G ₁₂	0	1	6.667
Number of regulatory training sessions G ₂₁	0	1	6.667
Customer and investor response rate G ₂₂	0	1	6.667
Total greenhouse gas emissions E ₁₁	0	1	6.667
Total exhaust emissions E ₁₂	0	1	6.667
Total volume of industrial wastewater E ₁₃	0	1	6.667
Amount of environmental administrative penalties during the reporting period E ₂₁	0	1	6.667
Comprehensive energy consumption E ₂₂	0	1	6.667
Number of product violation incidents S ₁₁	0	1	6.667
Identify contract management risks G ₁₁	0	1	6.667

Based on the results in the table above, the weights of secondary and primary indicators can be derived from tertiary indicators through stepwise aggregation. The final weight results of the indicator system are presented in the table below:

Table 3-10 Weightings of Indicators in the ESG Evaluation System

Primary indicator weight (%)	Secondary indicator weight (%)	Tertiary indicator weight (%)
Environment	Addressing climate change and emissions E ₁	Total greenhouse gas emissions E ₁₁ 6.667
		Total exhaust emissions E ₁₂ 6.667
		Total volume of industrial wastewater E ₁₃ 6.667
	Environmental compliance management and energy utilization E ₂	Amount of environmental administrative penalties during the reporting period E ₂₁ 6.667
		Comprehensive energy consumption E ₂₂ 6.667
33.335	13.334	

Primary indicator weight (%)		Secondary indicator weight (%)		Tertiary indicator weight (%)			
Social responsibility	40.002	Product and service safety and quality S_1	6.667	Number of product violation incidents S_{11}	6.667		
				Pass rate of employee safety education and training S_{21}	6.667		
		Employee rights and growth S_2	20.001	Annual training expenditure amount S_{22}	6.667	Labor contract signing rate S_{23}	6.667
		Supply chain and innovation S_3	13.334	R&D expenses (10,000 yuan) S_{32}	6.667	Identify contract management risks G_{11}	6.667
Corporate governance	26.668	Compliance Management G_1	13.334	Number of regulatory training sessions G_{21}	6.667		
						Integrity and Investor Relations G_2	13.334

3.3 Catastrophe-level numerical calculation process

After determining the weights, it is necessary to select the corresponding mutation model based on the number of indicators. According to the unique characteristics of ESG evaluation indicators, the mutation level values in this paper are calculated using the average value^[12].

The mutation model corresponding to the ESG evaluation index system of Shanxi J Company is shown in the table below:

Table 3-11 Corresponding mutation models for evaluation indicators

Evaluation index	Number of control variables	Catastrophe model
Addressing climate change and emissions E_1	3	Swallow-tailed
Environmental compliance management and energy utilization E_2	2	Cusp
Product and service safety and quality S_1	1	Foldable
Employee rights and growth S_2	3	Swallow-tailed
Supply chain and innovation S_3	2	Cusp
Compliance Management G_1	2	Cusp
Integrity and Investor Relations G_2	2	Cusp
Environment	2	Cusp
Social responsibility	3	Swallow-tailed
Corporate governance	2	Cusp
Overall ESG performance	3	Swallow-tailed

Based on the induction of the aforementioned mutation model, the mutation level values are calculated according to the normalization formula and indicator weights, with separate calculations for primary and secondary indicators.

3.4 ESG Practice Evaluation Results of Shanxi J Company

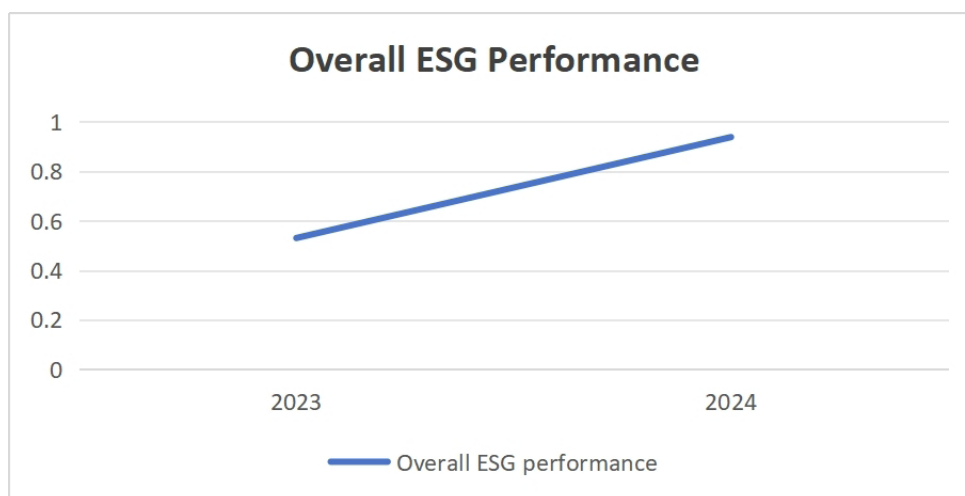
Based on the results mentioned in the previous text, the mutation level values of each primary and secondary indicator for 2023 and 2024 were calculated in sequence, and finally, the overall ESG performance was calculated. The calculation results are shown in the table below:

Table 3-12 Numerical results of mutation levels for ESG secondary indicators

Indicator	2023	2024
Addressing climate change and emissions E_1	0.3333	0.6667
Environmental compliance management and energy utilization E_2	0.0000	1.0000
Product and service safety and quality S_1	0.0000	0.0000
Employee rights and growth S_2	0.0000	0.8090
Supply chain and innovation S_3	0.0000	2.2075
Compliance Management G_1	0.5000	0.6988
Integrity and Investor Relations G_2	0.5000	1.2801

Table 3-13 Results of mutation level values for ESG primary indicators

Indicator	2023	2024
Environment	0.2886	0.9082
Social responsibility	0.0000	0.7338
Corporate governance	0.7504	0.9608
Overall ESG performance	0.5305	0.9383



From the overall ESG score of Shanxi J company in 2023 and 2024, it shows a trend of listing. From 0.5 to 0.9, the most obvious increase is in social responsibility. From 0 to 0.7, the increase in environment and corporate governance is slightly lower. On the whole, in the two years of ESG practice in Shanxi J company, great progress and achievements have been made in all aspects, and the overall performance of ESG shows an upward trend.

In 2024, Shanxi J company released the environmental, social and corporate governance report for the first time. Due to the lack of relevant data and insufficient indicators, the score of social responsibility was low. In the disclosure in 2025, relevant information has been improved and the disclosure at the environmental level has been listed separately. Although the sustainable information disclosed by Shanxi J company is relatively limited and the time dimension is relatively short, the enterprise has shown its strong strength in ESG, and all aspects have improved in a short year, and the enterprise has paid

more and more attention to ESG work.

4. research conclusions and suggestions

4.1 research conclusion

According to the evaluation data of entropy catastrophe progression method, the ESG performance of Shanxi J company from 2023 to 2024 showed a certain level. In particular, it achieved a significant increase in 2024, and the overall score showed an upward trend, especially in the field of corporate governance, which showed that enterprises attached importance to corporate governance. In addition, Shanxi J company has also taken corresponding governance measures at all levels, and environmental and social responsibility are also being improved and put forward. In the evaluation system, social responsibility is regarded as the core concern of Shanxi J company, accounting for the largest proportion. Especially in terms of product services and supply chain management, they have played a vital role in the operation of Shanxi J company, and have become the ESG topics of most concern to stakeholders.

4.2 suggestions for enterprise development

The achievements of Shanxi J company in ESG practice also need to be strengthened and improved in terms of ESG information transparency, sustainable information disclosure completeness and strengthening the digital level of enterprises. For this, the following development suggestions are made:

(1) Improve transparency and completeness of sustainable disclosure

Although the sustainable information disclosure time of Shanxi J company is relatively short, it still shows its potential in sustainable development. Especially since 2024, it shows great potential in the performance of enterprise ESG and the development of digital economy. Current research shows that there is an important link between enterprise ESG performance, digital economy and new quality productivity, which is also an interdisciplinary and multi-dimensional display of ESG. In this context, Shanxi J company should continue to improve its initiatives in related fields, especially in the field of digitalization, take the initiative to strengthen completeness, better meet the needs of investors and stakeholders, and show its corporate image.

(2) Strengthen the construction of enterprise culture

Corporate culture is the unique image of corporate values. As the guide of employee behavior norms, it permeates in all aspects, it has a subtle guiding role^[13]. Shanxi J company adheres to the core values of “taking the striver as the foundation and working hard for a long time”, overcomes difficulties, forge ahead, and is committed to high-quality and sustainable development of the enterprise. In the future, Shanxi J company should take ESG as a part of corporate culture, actively practice the concept of sustainable development, and effectively improve the level of ESG disclosure.

(3) Strengthen the coordinated development of environment, society and corporate governance

From the ESG practice results of Shanxi J company, it can be seen that there are differences in the scores of environment, society and corporate governance in the process of sustainable development of the company, and the difference is large. This shows that enterprises do not pay much attention to the collaborative development of dimensions in the process of ESG practice. As a system, ESG should think in an overall and systematic way, strengthen the collaborative development level of enterprise environment, society and corporate governance, and better promote the sustainable development of enterprises.

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