

Study on the Positive Impact of ESG Performance of Manufacturing Enterprises in Liaoning

Xiaojie Wang*, Yuhong Li

University of Science and Technology Liaoning, Anshan, Liaoning, China

**Corresponding Author.*

Abstract: Against the backdrop of increasingly severe environmental issues, complex social demands, and challenges in corporate internal governance, the ESG concept has received widespread attention. The ESG performance of manufacturing enterprises in Liaoning is of great significance for their own development and the sustainable development of the region. This article comprehensively applies research methods such as literature research and case study, selects representative manufacturing enterprises in Liaoning, expounds on their ESG practices from the dimensions of environment, society, and governance, and analyzes the positive impacts in each dimension. The study finds that the ESG performance of manufacturing enterprises in Liaoning brings about positive impacts in multiple aspects. In the environmental dimension, it improves resource utilization efficiency and enhances the ecological environment; in the social dimension, it safeguards the development and welfare of employees and promotes social harmony; in the governance dimension, it improves the management level of enterprises and promotes innovation and development. In conclusion, the ESG practices of manufacturing enterprises in Liaoning have achieved certain results. In the future, it is necessary for the government, enterprises, and society to make concerted efforts to continuously enhance ESG performance and achieve sustainable development.

Keywords: Manufacturing Enterprises in Liaoning; ESG Performance; Positive Impacts; Sustainable Development; Collaborative Development

1. Introduction

At present, faced with increasingly severe

environmental problems, complex and changeable social demands, and challenges in corporate internal governance, the ESG (Environment, Social, Governance) concept emerged and quickly gained wide recognition globally. Liaoning Province is home to many powerful enterprises in manufacturing fields such as steel, machinery, and automobiles. The ESG performance of these enterprises is not only related to their own success or failure but also closely linked to the sustainable development of the Liaoning region. On the one hand, sound ESG practices can help manufacturing enterprises in Liaoning keep up with the trend of the times, enhance their international competitiveness, and break through the bottlenecks in traditional industrial development. On the other hand, their actions in energy conservation, emission reduction, protecting employees' rights and interests, and participating in social welfare can directly or indirectly promote ecological optimization, social harmony, and economic transformation in the Liaoning region. Therefore, it is of great practical urgency and theoretical research value to deeply explore the positive impact of the ESG performance of manufacturing enterprises in Liaoning.

2. Literature Review

In 2004, the ESG concept was first proposed in the research report *Who Cares Wins* initiated by United Nations Secretary-General Kofi Annan. This is not only a response to many social issues but also an integration and advancement of concepts such as "ethical investment", "socially responsible investment", and "sustainable development" from the 1950s to the 1990s [1]. The relevant research literature mainly focuses on three aspects:

2.1 The Connotation of ESG

The full name of ESG is Environmental, Social, and Governance. It is a sustainable

development concept that originated in the 1960s and a development approach that comprehensively considers environmental performance, social responsibility, and corporate governance [2]. ESG refers to the concept of incorporating environmental, social, and corporate governance factors into investment decisions and corporate operations. It serves as the basis for enterprises to supervise and regulate their own performance, and it is also an important standard for investors to measure and evaluate an enterprise's sustainable development ability and its fulfillment of social responsibilities [3].

2.2 ESG Information Disclosure and Rating

2.2.1 ESG information disclosure

Domestic research mainly includes two aspects: First, it is about the quality of information disclosure. Media attention can significantly promote the improvement of the quality of enterprises' ESG information disclosure, and actively disclosing ESG information can reduce corporate risks [4]. Second, it is the construction of the ESG information disclosure rule system. From policy-driven to regulation by law, continuously optimize the ESG information disclosure rule system. In April 2024, the three major stock exchanges issued the Guidelines for Sustainable Development Reports of Listed Companies (or ESG Report); In May 2024, the Ministry of Finance issued the Enterprise Sustainable Disclosure Standards-Basic Standards (Draft for Soliciting Opinions).

2.2.2 ESG rating

ESG rating is a way to comprehensively evaluate an enterprise's sustainable development ability from three dimensions: environment, society, and governance, and it has now become an important indicator for the international community to measure the level of an enterprise's green and sustainable development [5].

2.2.3 The relationship between ESG information disclosure and rating

The insufficient quality of ESG information disclosure can lead to different results among different rating agencies. High-quality ESG information disclosure helps to alleviate the differences in opinions among ESG rating agencies [6]. Christensen et al. (2022) believe that the more ESG information a company discloses, the greater the rating divergence.

When there are differences in an enterprise's ESG rating, it is difficult for the rating result to accurately reflect the enterprise's actual ESG performance [7].

2.3 The Impact of Enterprises' ESG Performance

2.3.1 The impact on corporate performance and corporate value

When foreign scholars study the impact of enterprises' ESG performance, they mainly analyze the impact of ESG performance on corporate value and performance [8,9]. Domestic scholars mainly analyze the positive influence path of ESG performance on corporate value from the perspective of ESG responsibility fulfillment [10].

2.3.2 The impact on corporate innovation

First, regarding the impact on green technology innovation, good ESG performance drives the enterprise's green technology innovation ability [11]. Second, regarding the impact on generalized technology innovation, good ESG performance has a linkage effect on innovative technology, R&D capabilities, and corporate performance [12].

2.3.3 The impact on investment and financing

ESG performance can reduce agency costs, improve corporate reputation, and alleviate corporate financing constraints [13]. ESG has innovated the traditional investment concept and pays attention to the impact of aspects such as corporate governance and environmental performance [14]. ESG advantages can significantly increase the possibility and scale of foreign investment by listed enterprises [15].

Looking at the existing research achievements as a whole, scholars at home and abroad have conducted a large number of studies on ESG disclosure, rating, and impact, laying a good foundation for this research. However, there are relatively few research achievements on the ESG performance at the enterprise level. Based on the existing research, this article clarifies the positive impact of enterprises' ESG performance and finally formulates relevant strategies.

3. The ESG Practice Situation of Manufacturing Enterprises in Liaoning

3.1 Policy Background

In recent years, at the national level, there has

been a high degree of emphasis on the green transformation and sustainable development of the manufacturing industry, and a series of policy documents such as Made in China 2025, Guiding Opinions on Accelerating the Establishment and Improvement of a Green, Low-Carbon and Circular Development Economic System, and Self-regulatory Guidelines for Listed Companies-Sustainable Development Report (or ESG Report) have been introduced, providing policy guidance for manufacturing enterprises to practice the ESG concept. Liaoning Province has actively responded and formulated and implemented a number of supporting policy measures in combination with local actual situations.

3.2 Enterprise Practice Situation

This paper selects representative manufacturing enterprises in Liaoning to elaborate on their ESG practice situations.

3.2.1 Environmental dimension

Dalian Heavy Industry, as one of the leading enterprises in the equipment manufacturing field in Liaoning, has achieved remarkable results in green manufacturing. By establishing a complete environmental management system, it ensures that all operations comply with national and international environmental protection standards. In the production process, through technological innovation and process improvement, it has effectively reduced energy and material consumption and, at the same time, reduced waste emissions. The company has invested in the construction of three major wind power technology upgrading and transformation projects to build a "smart, green, and efficient" modern factory in China; in addition, it has built a garden - style factory, and the internal ecological environment has been greatly improved.

Benxi Iron and Steel has made huge investments in waste gas treatment and vigorously promoted clean production and environmental protection work. By introducing international advanced equipment, it has carried out in-depth treatment of waste gas generated in the production processes such as sintering, ironmaking, and steelmaking, ensuring that various pollutant emission indicators meet or even exceed national standards. At the same time, the enterprise has optimized the water resource management system to achieve the recycling of industrial

water and improve the utilization rate of water resources.

3.2.2 Social dimension

BMW Brilliance has always placed employee development in an important position. In terms of employee training, it not only regularly organizes internal professional skills training courses but also cooperates with many domestic and foreign universities and vocational colleges to provide on - the - job degree education for employees. In terms of employee welfare protection, it provides competitive salary packages, comprehensive medical and health insurance, and comfortable employee dormitories and other welfare facilities.

Dandong Shuguang Automobile Group has long been committed to community public welfare undertakings. It invests a certain amount of funds every year in education poverty alleviation projects in local poor areas, sponsoring college students from poor families to complete their studies; and actively participates in community infrastructure construction, creating a good living environment for community residents.

3.2.3 Governance dimension

Shenyang Machine Tool has made solid progress in optimizing the corporate governance structure. By introducing the independent director system, it has enhanced the independence and professionalism of the board of directors' decision - making; at the same time, it has improved the internal audit and supervision mechanism, conducting regular audits and supervision of the enterprise's financial situation, business activities, and internal control, and promptly discovering and correcting potential problems. Siasun Robot has performed outstandingly in risk management. Based on the technical characteristics of the intelligent equipment industry, it has established a complete risk early - warning and response mechanism. In technology research and development, it has increased investment in cutting - edge technology research and development, and at the same time, closely cooperated with scientific research institutions and universities to achieve the sharing of technical resources and reduce the risk of technological research and development failure; in response to market risks, it has strengthened market research and customer demand analysis, laid out new

product research and development in advance, and effectively responded to the risks brought about by changes in market demand.

4. The Positive Impact of the ESG Performance of Manufacturing Enterprises in Liaoning

4.1 The Positive Impact in the Environmental Dimension

4.1.1 Improvement of resource utilization efficiency

Under the guidance of the ESG concept, manufacturing enterprises in Liaoning have actively explored energy-saving and emission-reduction technologies and process innovations, significantly improving resource utilization efficiency. For example, Dalian Heavy Industry has adopted advanced numerical control processing technology, reducing material waste, and at the same time, by optimizing the production process, it has reduced the energy consumption per unit of product. This improvement in resource utilization efficiency is directly translated into a reduction in the production costs of enterprises. Taking energy costs as an example, through energy - saving retrofits, the energy consumption per unit of output value of some enterprises has decreased. In terms of raw material procurement costs, due to reduced waste, a considerable amount of funds has also been saved. In the long run, this helps enterprises enhance their price competitiveness and maintain stable profitability in market fluctuations, providing a solid economic foundation for the sustainable development of enterprises.

4.1.2 Improvement of the ecological environment

Many manufacturing enterprises have increased their investment in environmental protection, which has had a profound impact on improving the ecological environment in the Liaoning region. For example, the achievements of Benxi Iron and Steel in waste gas treatment and water resource recycling have significantly improved the air quality in the surrounding areas and effectively curbed water pollution. This not only protects the physical health of local residents and improves their quality of life but also creates favorable conditions for the development of ecologically sensitive industries such as tourism in

Liaoning. In addition, a good ecological environment has also attracted more high - quality talents and high - tech enterprises to settle in Liaoning, injecting new vitality into the high - quality development of the regional economy and forming a virtuous cycle of ecological and economic development.

4.2 The Positive Impact in the Social Dimension

4.2.1 Employee development and welfare protection

BMW Brilliance focuses on employee training and welfare protection. Through rich training opportunities, employees' professional skills have been continuously improved, enabling them to better adapt to the requirements of enterprise production process upgrades and product innovations. In recent years, the promotion rate of BMW Brilliance employees has increased year by year, and the internal talent flow has become more reasonable. In the employee satisfaction survey, the satisfaction rate has reached more than 85%, and the employee turnover rate is significantly lower than the industry average, providing strong intellectual support for the continuous innovation and development of the enterprise.

4.2.2 Promoting social harmony and development

The community public welfare undertakings that Dandong Shuguang Automobile Group is engaged in have won a good social reputation. In terms of education poverty alleviation, some of the students who have benefited from the program return to the local area after graduation and contribute to the development of the enterprise or the community, forming a virtuous cycle of talent cultivation and feedback. Participating in community infrastructure construction has improved the living conditions of community residents, enhanced residents' sense of identity and favorability towards the enterprise, and created a harmonious and stable surrounding environment for the enterprise. These social contribution behaviors of enterprises help to ease social contradictions, enhance the social cohesion of the entire Liaoning region, and promote social harmony and development.

4.3 The Positive Impact in the Governance Dimension

4.3.1 Improving the management level of

enterprises

The practice of Shenyang Machine Tool in optimizing the corporate governance structure has significantly improved the enterprise's management level. The introduction of the independent director system enables the board of directors to fully listen to professional opinions on major matters such as strategic decision - making and senior management appointments, avoiding decision - making mistakes. The improvement of the internal audit and supervision mechanism has promptly discovered and solved problems such as financial management loopholes and procurement processes in the enterprise's operations. The enterprise's operational efficiency has been improved, and the decision - making error rate has been significantly reduced, providing a strong guarantee for the stable development of the enterprise.

4.3.2 Promoting the innovative development of enterprises

The risk early-warning and response mechanism established by Siasun Robot has effectively promoted the innovative development of the enterprise. In terms of technology research and development, cooperation with scientific research institutions and universities has accelerated the transformation of technological innovation achievements. The number of patents of the enterprise increases every year, and the speed of new product launches has accelerated, meeting the growing market demand for intelligent equipment. Driven by market risk response strategies, the enterprise has achieved remarkable results in the diversified expansion of sales channels, with a high proportion of international market sales, effectively enhancing the enterprise's market adaptability and global competitiveness.

5. Suggestions for Improving the ESG Performance of Manufacturing Enterprises in Liaoning

5.1 Government Level

Further improving the ESG related policy and regulatory system, refining the standards and assessment indicators for environmental protection, social responsibility, corporate governance, etc., so that enterprises have rules and standards to follow when practicing the ESG concept. Strengthen supervision and law-

enforcement efforts, establish a regular ESG special inspection mechanism, and severely punish enterprises that violate regulations in accordance with the law to form an effective external restraint mechanism. At the same time, increase financial support, set up more special support funds, and provide preferential policies for enterprises that actively practice the ESG concept and achieve remarkable results to stimulate the internal driving force of enterprises.

5.2 Enterprise Level

Enhance ESG awareness, deeply integrate the ESG concept into the enterprise's strategic planning, and conduct comprehensive ESG concept training from senior management to front - line employees to ensure that all employees recognize the importance of ESG practices. Increase investment in the three dimensions of environment, society, and governance, set up a special ESG project budget for environmental protection facility construction, employee development programs, corporate governance optimization, etc. Strengthen ESG information disclosure, regularly issue ESG reports in accordance with standards, and actively accept social supervision to improve the transparency of enterprises.

5.3 Social Level

All kinds of social organizations and industry associations should give full play to their bridging and linking roles, carry out various forms of ESG publicity and education activities, popularize ESG knowledge, and improve the public's awareness and recognition of the ESG concept. The media should increase positive reports on enterprises' ESG practices, set industry benchmarks, and create a good public opinion atmosphere. Investors should incorporate ESG factors into their investment decision - making considerations, guide capital to flow to enterprises with excellent ESG performance, and force enterprises to improve their ESG performance through market mechanisms.

6. Conclusion

Manufacturing enterprises in Liaoning have already taken solid steps on the road of ESG practice and have shown many positive impacts in the three dimensions of

environment, society, and governance. In the environmental dimension, through measures such as energy-saving and emission-reduction and improvement of resource utilization efficiency, they have improved the regional ecological environment and reduced enterprise costs; in the social dimension, by protecting employee rights and interests and engaging in public welfare undertakings, they have directly or indirectly promoted ecological optimization, social harmony, and economic transformation in the Liaoning region; the optimization in the governance dimension has improved the management level and innovation ability of enterprises. However, to achieve a higher level of ESG development, it still requires the coordinated efforts of the government, enterprises, and society to continue to improve ESG performance, achieve sustainable development, and make greater contributions to regional economic and social development.

Acknowledgments

This paper is supported by the social science planning fund project of Liaoning Province in 2024 (No. L24BJY025).

References

- [1] Li Zongze, Li Zhibin. A Study on the Peer Effect of Corporate ESG Information Disclosure. *Nankai Business Review*, 2023, 26(05): 126-136.
- [2] Feng Yuting, Guo Xuemeng, Zeng Xiaoliang. ESG Information Disclosure and ESG Rating Divergence: Consensus or Divergence? — Concurrent Discussion on the Institutional Norms of ESG in China. *Accounting Research*, 2024(01): 49-63.
- [3] Mao Qilin, Wang Yueqing. A Study on the Employment Effect of ESG: Evidence from Chinese Listed Companies. *Economic Research Journal*, 2023, 58(07): 86-103.
- [4] Jiang Yichi, Yao Shujie. ESG Information Disclosure, External Attention and Corporate Risk. *Journal of Systems & Management*, 2024, 33(1): 214-229.
- [5] BAKER E D, BOULTON T J, BRAGA-ALVES M V, et al. ESG Government Risk and International IPO Underpricing. *Journal of Corporate Finance*, 2021(67): 101913.
- [6] Zhou Zejiang, Gu Wenjing, San Ziyao. ESG Rating Divergence and the Accuracy of Analysts' Earnings Forecasts. *China Soft Science*, 2023(10): 164-176.
- [7] Reber B, Gold A, Gold S. ESG Disclosure and Idiosyncratic Risk in Initial Public Offerings. *Journal of Business Ethics*, 2022, 179(3): 867-886.
- [8] George H I, Daniela F, Ramona P, Ruxandra D V. The Impact of ESG Factors on the Market Value of Companies in the Travel and Tourism Industry. *Technological and Economic Development of Economy*, 2019, 25(5): 820-849.
- [9] Wong W C, Batten J A, Ahmad A H, Mohamed-Arshad S B, Adzis A A. Does ESG Certification Add Firm Value?. *Finance Research Letters*, 2021, 39: 101593.
- [10] Wang Bo, Yang Maojia. A Study on the Influence Mechanism of ESG Performance on Corporate Value: Empirical Evidence from China's A-share Listed Companies. *Soft Science*, 2022, 36(6): 78-84.
- [11] Da Tanfeng, He Xianhui. ESG Information Disclosure and Corporate Green Innovation. *Wuhan Finance*, 2024(2): 53-61+88.
- [12] Fang Xianming, Hu Ding. Corporate ESG Performance and Innovation—Evidence from A-share Listed Companies. *Economic Research Journal*, 2023, 58(2): 91-106.
- [13] ELIWAY, ABOUD A, SALEH A. ESG Practices and the Cost of Debt: Evidence from EU Countries. *Critical Perspectives on Accounting*, 2021, 79: 102097.
- [14] Xu Fengmin, Jing Kui, Li Xuepeng. Research on the Investment Portfolio Based on ESG Integration under the Background of the "Dual Carbon" Goal. *Journal of Financial Research*, 2023(8): 149-169.
- [15] Xie Hongjun, Lü Xue. Responsible International Investment: ESG and China's OFDI. *Economic Research Journal*, 2022, 3: 83-99.