Research on the Relationship between ESG and Financial Indicators in the New Energy Vehicle Industry

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Abstract. In recent years, sustainable development is an important issue for human social progress, which has become a key focus of attention in the capital market. Therefore, the importance of ESG concepts is becoming increasingly prominent in this context. More and more manufacturing firms seeking development which beginning to incorporate ESG concepts into their plans, and the impact of ESG performance on financial indicators is receiving widespread attention. research adopts a case study method, taking different enterprises in the automotive industry as research objects, and elaborates on their impact on profitability, operational ability, and development ability. Research has found that the good environmental performance of ESG is positively correlated with the excellence of financial indicators in automotive companies, providing financial support for the sustainable development of subsequent enterprises. It can be used as one of the indicators for the investing decision. Finally, research provides relevant recommendations from the perspectives of investors, managers, and future development.

Keywords: ESG performance, financial indicators, Sustainable development.

1. Introduction

In today's world, companies that have been seeking economic development are no longer able to handle the pressure brought about by public relations and environmental protection, especially for the manufacturing industry. Many managers tend to focus only on immediate benefits while neglecting environmental protection and social responsibility. Therefore, incorporating ESG performance into enterprise development has become particularly important, linking ESG scores to financial performance, and balancing the comprehensive development of the enterprise through two-way supervision and observation.

Since the beginning of the 21st century, more policies and regulations have been introduced to guide ESG performance in corporate management, such as the Shanghai Stock Exchange Science and Technology Innovation Board Listing Rules issued in December 2020, which require companies to report and disclose their social responsibility and environmental protection. For the automotive manufacturing industry, more and more investors will choose companies with excellent ESG performance. Among them, Geely Automobile released a sustainable development report in 2022, disclosing its green development concept and taking a series of measures in the hope of achieving carbon neutrality. This indirectly confirms that in the era of the explosion of new energy vehicles, promoting ESG development has become an essential link. The positive public impact, greater investment opportunities, and alignment with national policies brought by excellent ESG performance will have a huge impact on enterprise development, especially on financial indicators.

Based on this, the research selects relevant data from the new energy vehicle manufacturing industry to study the relationship between ESG performance and corporate financial indicators.

Ma integrated the speeches of different leaders in the publication, emphasizing the importance of sustainable development of automotive manufacturing enterprises and ESG development in the new era. He hoped to promote the integration of ESG elements into every link of the supply chain, indicating that these three dimensions of ESG are playing an increasingly decisive role in practice [1]. Xu used a case study method to analyze Y Company's sustainable development report and financial-related indicators, pointing out the relationship between the company's ESG performance and financial performance impact. Finally, research explained that good ESG performance can reduce

costs and increase efficiency, improve brand image, and ultimately improve financial performance [2]. After understanding the financial data of multiple listed companies in the information technology industry, Li used factor analysis to analyze key indicators and panel data regression models to analyze E, S, and G from three aspects. After extensive financial indicator verification, research finally concluded that the performance of the three dimensions of ESG is positively correlated with financial performance [3]. Gao et al. selected BYD as the research object for the impact of ESG performance on corporate value in this research. By constructing an EVA model and incorporating an ESG value factor evaluation model, the comprehensive value of new energy vehicle enterprises after ESG factors were divided. It was found that after considering ESG factors, the results calculated by the EVA model were more in line with reality, indirectly proving the necessity of ESG factors [4]. Li selected financial performance data from the Taian database as the sample for analysis. Through multiple regression analysis and systematic discussions on six aspects related to ESG, it proposed that ESG plays a significant mediating role between digital transformation and enterprise performance [5]. Zhang and Ruan used principal component analysis to observe 38 A-share listed banks, analyzing the relationship between their ESG performance and financial performance. Research ultimately concluded that ESG responsibility has a positive impact on the corporate governance of commercial banks in terms of market financial performance and accounting financial performance [6]. In summary, some scholars believe that ESG performance will improve financial performance.

However, some scholars also argue that certain ESG activities may hurt certain financial indicators and have a counterproductive effect, or be influenced by other factors.

Chams et al. analyzed the relationship between FIN and ESG performance, using factual evidence and idle resource theory to argue. research collected information from many different industries in different countries to analyze and propose a regression model for cash production efficiency. The conclusion is that better ESG performance is closely linked to companies with abundant capital [7]. Zhou mainly studies the relationship between ESG performance, financial performance, and company market value. The innovation of research lies in the introduction of the mediation effect model, starting from the basic financial indicators indicating the impact of financial performance on ESG performance. Using A-share listed companies as data sources for analysis, it is concluded that good ESG performance can improve the company's market value but does not significantly increase profitability [8]. Jia mainly used the case analysis method to analyze the medical manufacturing enterprise of Tianshi Pharmaceutical Group, selecting financial performance and EAG reports from recent years. Finally, through the regression model, it was found that for the environmental aspect, the environment is positively correlated with financial performance, while the other two aspects of ESG are negatively correlated [9]. Zhang et al. first constructed hypotheses and research models, measured the model through descriptive analysis and regression analysis, and studied the relationship between financial performance and ESG performance in the paper industry. the research found that there is a mutually reinforcing relationship between paper enterprise capital institutions and ESG performance, but for other financial indicators like solvency and operational capacity, there is a reverse change relationship [10].

This research used three different new energy vehicle companies as samples and selected some profit and operational capacity indicators for analysis. Conduct a correlation analysis between the changes in financial indicators and ESG environmental investment activities of these automotive companies in recent years.

2. The Impact of ESG Definition on Enterprise Development

2.1. Cultivation of Corporate Image and Public Relations

Excellent ESG performance will bring a better reputation, brand image, and good public relations. ESG rating is an important indicator for measuring the sustainable development of enterprises. More and more companies have delved into this field, such as the sustainability report issued by Geely Automobile in 2022. In recent years, more and more companies have also paid a lot of attention to

these indicators and taken corresponding measures, not just for their responsibility for ecological governance.

This also indirectly reminds us of the importance of maintaining the environment and paying attention to ESG performance. Excellent ESG performance can bring a positive social effect, this will give the enterprise a good brand image and make it easier to gain support from the public. Not only will most people pursue the products of these enterprises and become loyal customers, but it will also bring practical benefits to the enterprise. For example, the enterprise can greatly reduce financing barriers and costs, and gain the trust and support of others more quickly; Generating fewer commercial disputes, especially complaints about ecological governance will decrease. It will bring an improvement to the overall value of the enterprise.

2.2. The Improvement of The Corporate Governance Structure

A higher ESG performance represents a higher competitive advantage in sustainable development, social responsibility, and governance. Continuously focusing on ESG activities will drive innovative transformation in corporate governance. However, the introduction of ESG scoring into corporate governance presents difficulties. Most domestic enterprises have not yet widely applied ESG concepts to their enterprises. These concepts, led by senior management but difficult to implement, have undergone difficult internal coordination before completing a small part. For example, the disclosure of negative information, which is linked to enterprise value, is not highly desirable for enterprise managers to disclose. This poses great uncertainty for corporate governance, but it also brings greater opportunities for improvement. The introduction of external supervision requires legislative assistance, and it is a development trend to approach the handling measures of European and American countries more and more. This is a transformation in wage structure governance that ontology enterprises will face after the deepening development of ESG in the future.

2.3. Profit and Sustainable Development Improvement

ESG rating measurement is a good starting point for planning and limiting the vicious cycle of development of certain enterprises. An enterprise is an organization that seeks economic benefits, and all measures that benefit its development will be implemented within a certain period.

In the current situation where ESG investment concepts are very popular and new energy manufacturing vehicles are also experiencing a boom, incorporating ESG performance into enterprise development will be a huge breakthrough point for the overall valuation and efficiency of the company in the future. However, simply pursuing profits is no longer enough to survive in this ever-changing market. What companies can do is diversify their ESG investment activities. Only by diversifying profits as one of the objectives can they enhance the value of the enterprise. Whether it is decision-making or investment, ESG needs to be integrated into it. Only by truly integrating ESG concepts with enterprise value can sustainable development be truly achieved.

3. Relationship between ESG and Finance in the New Energy Vehicle Industry

3.1. Cost and Profit Analysis

To explore the relationship between ESG and the profitability of new energy car enterprises, this study selected indicators such as net profit and operating costs for analysis. This research selected the profit and loss statements and balance sheets of BYD, Xiaopeng Automobile, and Geely Automobile as samples.

Firstly, the analysis focuses on the operating costs of BYD. By comparing the data from the past three years, it was found that research and development expenses and sales expenses accounted for the largest proportion of the entire operating costs, increasing by 133% and 112% respectively in 2022 and 2023. And the proportion has gradually increased in the past three years. Not only has BYD launched a series of disruptive technologies, such as blade batteries and DM-i super hybrid, but in recent years, it has also made significant contributions to green procurement and circular development.

It has gradually transitioned from price procurement to value procurement, with important parts relying entirely on top suppliers. Among them, all material manufacturers provided to BYD have passed quality system certification. The following Fig.1 shows the proportion of expenses in operating costs.

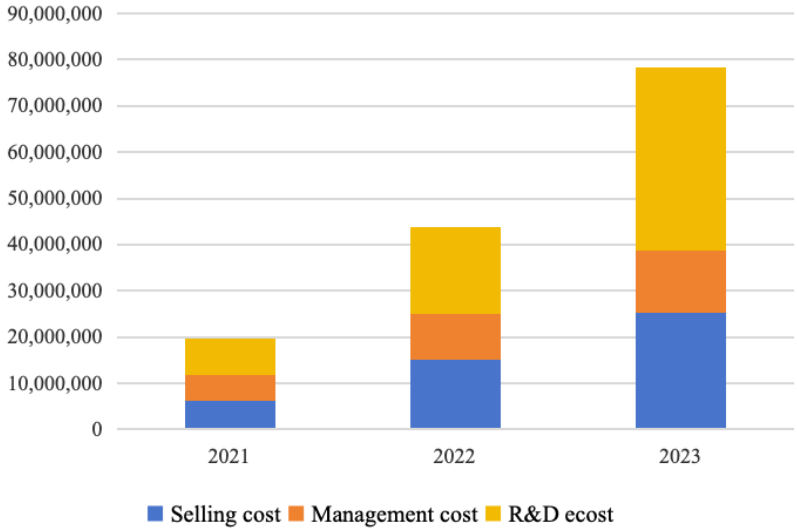


Figure 1. Proportion of cost

The selection of raw materials is also more environmentally friendly. From BYD's 2023 Social Responsibility Report (Fig. 2), it was found that BYD is pursuing a larger scale of popularization of environmentally friendly materials, and the material of car floor mats is gradually switching to TPE. TPE floor mats do not contain formaldehyde, etc. In terms of sales, BYD is also committed to using fruit green packaging and actively promoting circular logistics packaging materials. In the supply chain, it converts packaging boxes originally made of paper and wood into reusable blister panels. These measures have also led to a gradual increase in ESG environmental ratings in recent years.

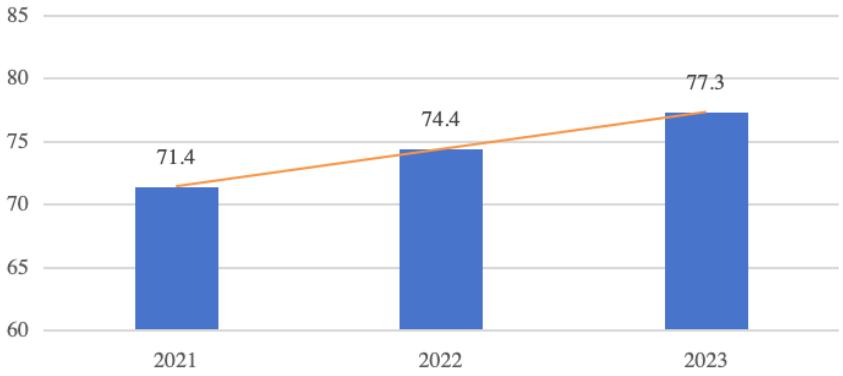


Figure 2. Average ESG environmental rating

These ESG investment activities will temporarily increase operating costs, but for BYD, they have gained greater brand value and effects. By analyzing the net profit from Table 1, the study found that it increased by 346% in 2023 compared to last year, and this number may be expected to continue to increase in the future (Table 1). Meanwhile, through a simple correlation analysis, the study found that the correlation between BYD's profit, R&D expenses, and ESG environmental rating was close to 1, showing a positive correlation.

Table 1. Development of profit indicators (Unit: Thousand yuan)

Year / Index	2021	2022	2023	YOY%	
				2022	2023
Net profit	3,967,266	17,713,104	31,344,070	346%	77%
Operating profit	4,631,992	21,541,819	38,103,095	365%	77%

3.2. Solvency and ESG

The first thing to analyze is the changes in fixed assets, including changes in factory buildings, equipment, etc. This is also the largest proportion of non-current assets, with growth of 16% and 4% in 2021 and 2022 compared to last year, respectively. According to the analysis of Geely Automobile's 2022 Sustainable Development Report, the world's first 100000 tons green methanol factory has been officially put into operation in Anyang, Henan. In addition, Geely Automobile's Xi'an factory has become the first zero-carbon factory of a domestic vehicle enterprise, committed to creating a green methanol ecosystem including green methanol preparation, methanol vehicle research and development, methanol vehicle operation, and methanol refueling. This is an important manifestation of environmental responsibility. Not only tangible assets but also a lot of intangible assets have been accumulated in the process of continuous investment in ESG activities, including 21444 patent applications. The proportion of intangible assets is also constantly increasing, indicating that Geely Automobile's financial excellence is reflected in various aspects.

From Table 2, the correlation analysis between the sum of fixed assets and intangible assets and ESG environmental rating is close to 1, showing a significant positive correlation.

Table 2. Development of assets (Unit: Thousand yuan)

Year / Index	2020	2021	2022
Fixed assets	26,574,279	30,858,504	32,201,419
intangible assets	18,610,115	20,901,178	22,547,705
Average ESG environmental rating	76.2	80.1	81.8

High-quality financial indicators also need to analyze their short-term solvency, so it is necessary to introduce a quick ratio for analysis. Geely's quick assets can be simply divided into current assets minus inventory, and from Fig. 3 below, it can be concluded that Geely's quick ratio has remained around 1:1 in the past three years. This is a very reasonable number. Even if all current liabilities are required to be repaid within a certain period, the company will have enough assets to maintain normal business activities. From the quick ratio of the past three years, it can also be seen that Geely's strategy is steadily advancing, and the steady environmental rating in ESG in recent years can also indirectly prove this. In summary, Geely's good financial performance in recent years is closely related to many ESG investment activities.

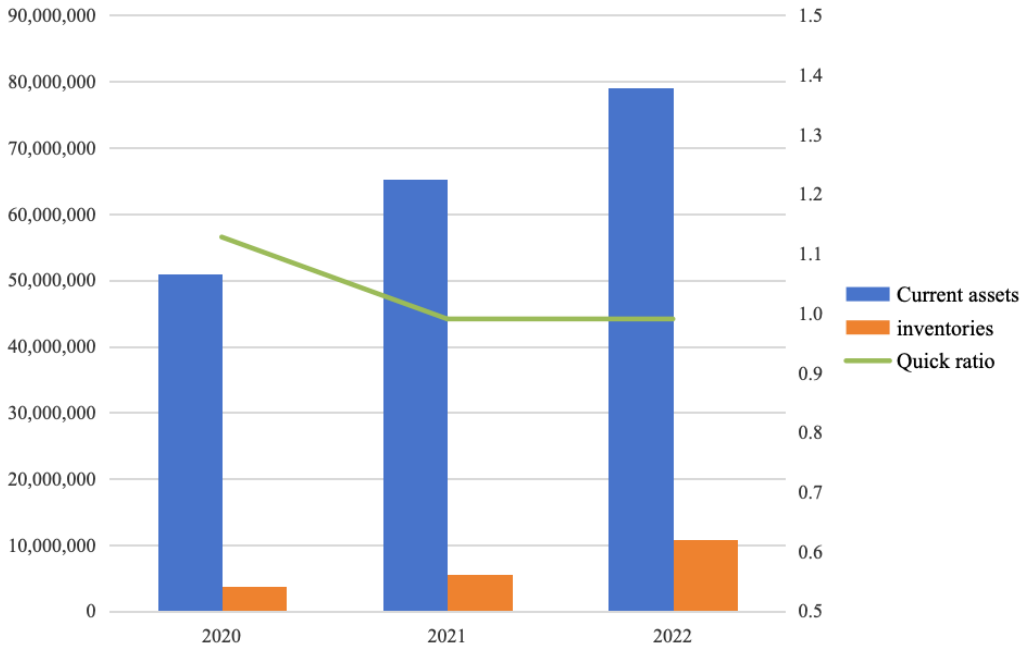


Figure 3. Short-term solvency (Unit: Thousand yuan)

3.3. Profitability and ESG

This research also involved a study on the impact of ESG activities on Xiaopeng Motors' profits over the past three years. Two financial indicators, gross profit and total operating expense ratio, were selected to analyze the extent (Table 3).

Table 3. Gross profit and total operating expense ratio (Unit: Thousand yuan)

Year / Index	2020	2021	2022
Gross margin	2,65,989	2,622,555	3,088,391
Total operating expense ratio	80%	45%	44%
Average ESG environmental rating	-	73.5	77.3

Firstly, the analysis of gross profit margin shows that Xiaopeng Motors experienced explosive growth in 2021, with a 886% increase in gross profit margin compared to last year, mainly due to a decrease in material costs, optimization of product portfolio, and overall economies of scale. This research suggests that the explosive growth is also related to Xiaopeng's extensive ESG investment in the previous year. According to calculations from professional third-party organizations, compared to traditional fuel vehicles, the smart cars delivered by Xiaopeng Motors in 2020 reduced carbon emissions by a total of 5520 tons, and advanced pre-treatment film technology reduced the production of waste paint residue by 94%, reducing energy consumption by nearly 25%, and the average ESG environmental rating has also significantly improved in the past three years (Fig.4). This not only demonstrates the strength of Xiaopeng Motors in terms of technology but also provides an additional benefit for actively exploring sustainable development.

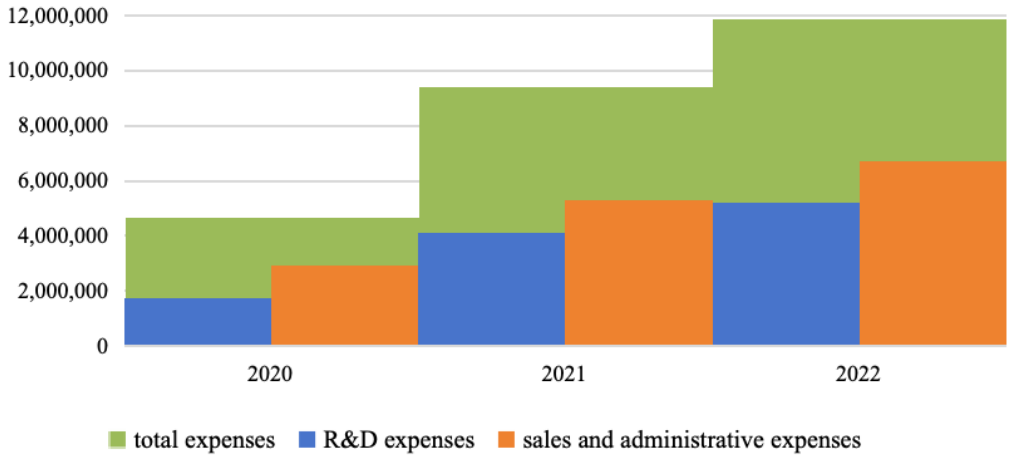


Figure 4. Proportion of each expense(Unit: Thousand yuan)

This research also conducted a study on the total operating expense ratio to measure the changes in enterprise cost control, involving sales expenses, management expenses, and research and development expenses. From 2020 to 2022, the total operating expense ratio of Xiaopeng Motors has decreased from 80% to 44%. However, an important point is that the proportion of research and development expenses is constantly increasing, while the proportion of sales and management expenses is constantly decreasing, and the overall expense structure is in the optimization stage. The increase in R&D expenses is mainly due to the increase in R&D personnel leading to an increase in employee salaries, as well as an increase in expenses related to developing new models to support future growth. Among them, investment in green and environmentally friendly equipment and sustainable development concepts is constantly increasing.

In summary, the overall financial indicators of Xiaopeng Motors are in the optimization stage, and ESG governance is playing an increasingly important role in improving Xiaopeng Motors. The relationship between these two is becoming increasingly close.

4. Conclusion

After analyzing the ESG environmental performance and specific indicators in new energy vehicle enterprises, it was found that there is a significant positive correlation between the two. It can be concluded that a good ESG environment performance has a significant improvement effect on a company's financial performance. Provide relevant suggestions based on the above conclusions.

The research and development technology is the most important in new energy vehicles, and investment in the research and development department should be increased to launch new low-carbon and environmentally friendly products that run through the entire production, transportation, and sales industry chain, bringing excellent ESG environmental performance and promoting the overall value enhancement of the enterprise. For senior managers of automotive manufacturing companies, internal controls determine the execution level of ESG performance. Environmental governance and a sense of responsibility are very important. A top-down internal governance system should be established, third-party supervision and management should be introduced, and supervision and disclosure of ESG activities should be strengthened to promote better ESG investment activities. For investors, discovering an excellent and promising company is not an easy task, and a considerable number of companies do not care about the performance of the ESG environment. In the future, investment companies should apply more comprehensive ESG rating models, accelerate guidance and alignment with national ESG ratings, and truly incorporate ESG ratings into the scope of investment considerations.

References

[1] Ma Kun. Strengthening Supply Chain Resilience and Jointly Building a New ESG Ecology in the Automotive Industry [J]. Automotive Zongheng, 2023, (08): 62 - 65.

[2] Xu Yan Analysis of the Impact of ESG Performance on Y Company's Financial Performance under the Background of "Dual Carbon" [J]. Business Observation, 2023, 9 (23): 62 - 65.

[3] Li Shenlan A Research on the Correlation between ESG Performance and Comprehensive Financial Performance: A Case Study of Listed Enterprises in Information Technology Services [J]. Operations Research and Fuzzy Theory, 2023, 13 (5): 5741 - 5753. DOI: 10.12677/ORF. 2023. 135573.

[4] Gao Lingling, Niu Yuhong, Xu Ke. Value Evaluation of New Energy Vehicle Enterprises Considering ESG Factors: Taking BYD as an Example [J]. Finance and Accounting Monthly, 2024,45 (01): 95 - 101. DOI: 10.19641/j.cnki.42-1290/f.2024. 01. 014.

[5] Li Jinying. Digitalization, ESG Performance, and Corporate Financial Performance: Based on Listed Companies in New Energy Vehicle Manufacturing [J]. Accounting, 2023, (24): 1 - 4.

[6] Zhang Haoxu, Ruan Min. The Impact of Commercial Banks Fulfilling ESG Responsibilities on Financial Performance: Based on Data from 38 A-share Listed Commercial Banks [J]. Gansu Finance, 2021, (09): 36 - 40.

[7] Chams, N.; García-Blandón, J.; Hassan, K. Role Reversal! Financial Performance as an Antecedent of ESG: The Moderating Effect of Total Quality Management.

[8] Zhou Guangyou, Liu Lian & Luo Sumei. (2022). Sustainable development, ESG performance and company market value: Mediating effect of financial performance. Business Strategy and the Environment (7), 3371 - 3387.

[9] Jia Yuxuan. Research on the Influence of ESG Evaluation System on the Financial Performance of Pharmaceutical Manufacturing Enterprises: Take Tianshili Pharmaceutical Group Co., Ltd. as an Example [J]. Value Engineering, 2022, 41 (31): 162 - 165.

[10] Zhang Yonghui, Qu Xiaoyu, Li Kexuan, et al. Empirical Study on the Impact of Financial Performance and Systemic Risk of Enterprises on ESG Performance: A Case Study of A-share Paper Industry Listed Enterprises [J]. Tropical Agriculture Engineering, 2020, 44 (05): 119 - 124.