

The impact of supply chain sustainability management on firm performance and its coordination mechanism

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Abstract: *With the rapid development of global economy and the increasing prominence of environmental problems, more and more enterprises begin to pay attention to its negative impact in the production process. Among them, supply chain management, as an important strategic decision-making tool, is widely used in various industries. However, the traditional supply chain management model often neglects issues such as environmental protection and social responsibility, which leads to the long-term development of enterprises being threatened. Therefore, how to realize the sustainable management of supply chain has become one of the urgent problems to be solved. This paper aims to explore the impact of supply chain sustainability management on enterprise performance and its coordination mechanism, with a view to providing effective solutions for enterprises, promoting the process of sustainable development of the entire industry, and contributing to the goal of environmental protection and sustainable development.*

Keywords: *supply chain, Sustainable management, Enterprise performance Impact, Coordination mechanism*

1. Introduction

At present stage, the competition of enterprises is increasingly fierce. In the current economic environment, enterprises need to pay more attention to their own sustainability and environmental friendliness in order to meet the needs of all sectors of society and improve their competitiveness. Therefore, how to realize the sustainable management of supply chain has become an important issue. The impact of supply chain sustainability management on enterprise performance, it can not only promote the transformation and upgrading of enterprises, improve the social responsibility and image of enterprises, but also promote the process of sustainable development of the whole industry, and contribute to the goal of environmental protection and sustainable development.

2. The relationship between supply chain sustainability management and enterprise performance

In the modern economy, supply chain has become one of the core competitiveness of enterprises. However, with the development of globalization and the increasing prominence of environmental issues, more and more enterprises begin to pay attention to the sustainability and environmental protection of supply chain. Therefore, how to realize the sustainability and environmental protection of supply chain has become one of the important directions of current research. The sustainable management of supply chain refers to a management method to optimize all links in the supply chain, improve resource utilization efficiency, reduce waste emissions and reduce energy consumption, so as to achieve the dual goals of long-term economic benefits and social responsibility^[1]. Corporate performance refers to whether the economic results achieved by an enterprise can meet the expectations of shareholders, employees and other stakeholders. Theoretically, supply chain sustainability management can effectively improve corporate performance. The management of supply chain sustainability can increase the profit level of enterprises by saving cost, improving productivity and quality. The management of supply chain sustainability can also provide enterprises with better social image and brand value, and enhance consumers' trust and loyalty to their products. The management of supply chain sustainability can also promote the innovation and development of enterprises, and promote enterprises to enter new market areas and expand business scope. However, supply chain

sustainability management is not a one-size-fits-all approach, and it needs to be coordinated with other factors to achieve its best results. For example, the management of supply chain sustainability may cause certain suppliers or customers to lose cooperation opportunities or market share, which may affect the overall performance of the company. In addition, the management of supply chain sustainability also needs to consider changes in various policies and regulations and changes in the market, otherwise unnecessary risks and losses may occur. Therefore, supply chain sustainability management is an important aspect of corporate performance, but its implementation also has certain risks and challenges.

3. Analysis of the impact of supply chain sustainability management on enterprise performance

3.1. The mechanism of supply chain sustainability management and enterprise performance

With the development of globalization and digitalization, supply chain is also facing more and more problems, such as resource shortage, environmental pollution and so on. Therefore, how to achieve the sustainability of the supply chain and improve the performance of enterprises has become an urgent problem to be solved. The management of supply chain sustainability is an important means to achieve this goal. Supply chain sustainability is the ability to meet the needs of the present without undermining the needs of future generations. Corporate performance, on the other hand, refers to the performance of economic benefits and social responsibility achieved by an enterprise within a certain period of time. The relationship between the two is very close, because only through effective supply chain sustainability management, can we ensure the long-term stability and development of enterprises. Specifically, supply chain sustainability management can promote enterprise performance in the following aspects: First, supply chain sustainability management can reduce costs and increase profits by optimizing the production process. For example, adopt green manufacturing technology, reduce waste emissions, save energy and raw materials, and thus reduce the operating costs of enterprises; At the same time, by strengthening supplier relationship management, establish a good cooperative relationship, ensure smooth supply channels, avoid price fluctuations caused by the contradiction between supply and demand, and thus improve the profitability of enterprises. Secondly, supply chain sustainability management can also enhance customer satisfaction and loyalty by improving product quality and service quality. For example, the adoption of advanced logistics and distribution systems can improve the efficiency and accuracy of product transportation, shorten the delivery time, and provide customers with better service experience; At the same time, pay attention to social responsibility, actively fulfill environmental obligations, protect the ecological environment, establish brand image, attract more consumer attention and support, and further promote the long-term development of the enterprise^[2]. Finally, supply chain sustainability management can also improve the core competitiveness of enterprises through innovative research and development and talent training. For example, through the continuous development of new products and the application of new technologies, to maintain a leading position in the market, attract more talents to join the company, train a group of high-quality professionals, and lay a solid foundation for the long-term development of the company.

3.2. The impact of supply chain sustainability management on corporate performance

Due to the complex relationship between various links in the supply chain, it is necessary to take into account the influence of various factors in supply chain management to ensure the efficient operation of the supply chain. The management of supply chain sustainability is one of the important directions of current research. It aims to improve supply chain efficiency and reduce cost by optimizing the structure and process of supply chain, while reducing environmental pollution and resource waste and other problems. This approach can not only bring long-term economic benefits to enterprises, but also achieve the goals of social responsibility and environmental protection. In theory, supply chain sustainability management can effectively improve corporate performance. By optimizing the supply chain structure and process, supply chain sustainability management can make the whole supply chain run more smoothly, thus improving the operation efficiency of enterprises. Supply chain sustainability management can also help enterprises better control inventory levels and avoid losses caused by too much or too little inventory. In addition, supply chain sustainability management also includes environmental considerations, such as the use of green energy, recycling waste, etc., which can effectively reduce the burden of enterprises and improve the profitability of enterprises.

3.3. Coordination mechanisms for the impact of supply chain sustainability management on corporate performance

In the modern economic environment, the development of enterprises cannot be separated from good supply chain management. However, with the increasing globalization and environmental awareness, more and more enterprises are beginning to pay attention to the issue of supply chain sustainability. Therefore, how to achieve the balance between supply chain sustainability and corporate performance has become an important research topic. At present, many scholars have conducted in-depth research on the relationship between supply chain sustainability management and enterprise performance. Among them, some scholars believe that supply chain sustainability management can improve the performance of enterprises, while others believe that there is a certain contradiction between the two. Specifically, on the one hand, supply chain sustainability management can promote the performance of enterprises by reducing costs and increasing efficiency. On the other hand, supply chain sustainability management also needs to invest more resources and time, which may lead to a decline in corporate performance. In order to solve this problem, a new coordination mechanism, the supply chain collaborative cooperation model based on shared value, is proposed. This model closely combines suppliers, manufacturers and retailers to jointly promote the development of supply chain sustainability management. By establishing a mutually beneficial and win-win relationship, all parties can benefit from it, thus achieving higher performance targets. At the same time, the model can also help companies better cope with market changes and environmental challenges, enhancing their competitiveness and development potential.

4. Empirical evidence of the impact of supply chain sustainability management on firm performance

4.1. Research methods

First, it is necessary to determine the research object and sample range. The research object is domestic small and medium-sized manufacturing enterprises, and the sample scope includes the financial statements and other relevant data of these enterprises in the past five years. On this basis, eligible enterprises can be further selected as research objects in order to better understand their supply chain sustainability management and its relationship with enterprise performance. Second, it is necessary to clarify the research hypothesis. In the research, it is believed that supply chain sustainability management can improve the efficiency and competitiveness of enterprises, thus improving the level of enterprise performance^[3]. Therefore, the following two hypotheses are proposed: supply chain sustainability management can reduce production costs; Supply chain sustainability management can increase product quality and customer satisfaction. In order to test these two hypotheses, various statistical methods were used, such as regression analysis, ANOVA and factor analysis. Meanwhile, SPSS software was used to control other factors to ensure the reliability and accuracy of the results. The research scheme will be constantly adjusted and improved during the research process to ensure the scientific and practical results. For example, the characteristics and differentiated needs of different industries will be considered to adapt to different actual situations and market environments. In addition, more comprehensive and specific guidance will be provided to readers based on practical cases and experience sharing.

4.2. Research hypothesis

In order to achieve this goal, the following research hypotheses are proposed: the higher the level of supply chain sustainability management, the better the performance of enterprises; There is a significant correlation between supply chain sustainability management level and corporate financial index; There is a significant correlation between supply chain sustainability management level and customer satisfaction; There is a significant correlation between the level of supply chain sustainability management and employee satisfaction. These research hypotheses are proposed based on the existing research and practical experience, aiming to provide reference for the subsequent data collection and analysis.

4.3. Sample selection and data sources

Founded in 2000, the company is mainly engaged in the manufacturing and sales of auto parts, with

multiple production bases and sales channels. In order to ensure the long-term development of the company, the company has actively promoted the management concept of supply chain sustainability and established the corresponding institutional system and organizational structure. In terms of sample selection, the method of random sampling was adopted, and qualified employees were selected from the company's internal database for questionnaire survey. At the same time, the company's internal information system was used to obtain some key indicator data, such as sales, cost rate, profit rate, etc., which were cleaned and processed for subsequent research and analysis, as shown in Figure 1.



Figure 1: Supplier performance analysis model.

4.4. Empirical analysis

First, it is found that supply chain sustainability management has a significant impact on the performance of enterprises. Specifically, it can be seen that those enterprises that pay attention to supply chain sustainability tend to be able to better control costs and improve efficiency, thus obtaining higher profit margins and better market competitiveness. At the same time, these companies also pay more attention to social responsibility and environmental issues, and actively take measures to reduce issues such as carbon emissions and waste of resources. Therefore, it is considered that supply chain sustainability management is a very important factor, which can help enterprises achieve long-term economic and social benefits, as shown in Table 1.

Table 1: Descriptive statistics and correlation analysis of variables.

latent variables	Knowledge management strategy	Knowledge management strategy and infrastructure construction	knowledge activity process	knowledge capital	Financial performance
Knowledge management strategy	0.77				
Knowledge management strategy and infrastructure construction	0.54	81			
knowledge activity process	0.51	74	77		
knowledge capital	0.63	73	74	80	
Financial performance	0.42	44	73	72	83

Secondly, some interesting phenomena were also found during the empirical analysis. For example, enterprises in some industries may ignore the importance of supply chain sustainability management due to their special business nature, resulting in their performance being inferior to other industries. In addition, some enterprises may only comply with the requirements of supply chain sustainability management on the surface, but in fact, they do not really do it, and this behavior will also affect their performance, as shown in Figure 2.

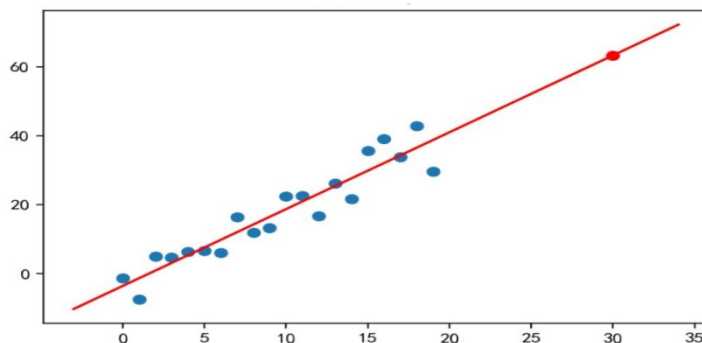


Figure 2: Results of the regression analysis test model

Finally, in order to further explore the impact of supply chain sustainability management on firm performance, a specific theoretical model is proposed. This model regards the relationship between supply chain sustainability and firm performance as an interdependent relationship, and can achieve the best results through certain coordination mechanisms. Specifically, the model argues that supply chain sustainability management should take a global perspective, taking into account the interaction between various links to ensure the sustainable development of the entire supply chain system.

5. Supply chain sustainability management for the implementation of enterprise coordination mechanism

5.1. Coordination mechanism

Coordination mechanism refers to a way to achieve cooperation and coordination among different stakeholders through various means and methods, so as to achieve a common goal. In the supply chain sustainability management, coordination mechanism plays a particularly important role. First, coordination mechanism can help enterprises better cope with market changes and competitive pressure. With the continuous development of the market and the intensification of competition, the production and operation of enterprises are facing more and more pressure. In this case, the coordination mechanism can help enterprises to allocate resources and design products more effectively to meet the needs of consumers and improve the competitiveness of products. At the same time, the coordination mechanism can also promote the cooperation and exchange among enterprises, enhance the internal coordination ability of enterprises, and provide guarantee for the long-term stability and development of enterprises. Second, the coordination mechanism can also optimize the operational efficiency of the supply chain. In the traditional supply chain management mode, there are often problems of information asymmetry and poor communication among all links, which leads to the low operation efficiency of the entire supply chain. With the help of the coordination mechanism, each participant can timely understand each other's situation and needs by establishing effective communication channels and information sharing platforms, so as to avoid unnecessary risks and losses. In addition, the coordination mechanism can also strengthen the relationship between suppliers and customers, enhance their trust and loyalty, and further promote the efficient operation of the supply chain. Thirdly, the coordination mechanism can also promote the performance of corporate social responsibility^[4]. In today's social environment, companies not only need to pay attention to their own economic benefits, but also need to assume certain social responsibilities. The coordination mechanism can pay attention to the development of environmental protection and social public welfare undertakings while ensuring the profits of enterprises, so as to establish a good corporate image and brand reputation. Coordination mechanism is one of the important components of supply chain sustainability management, it can help enterprises better adapt to changes in the market environment, improve production and operation efficiency, but also can promote enterprises to fulfill their social responsibilities, build a harmonious and stable supply chain ecosystem.

5.2. Operation process

In the management of supply chain sustainability, coordination mechanisms are key to achieving effective implementation. Coordination mechanism refers to the process of ensuring smooth cooperation among various participants by establishing effective communication channels and collaboration mechanisms. In the actual operation process, the operation process of the coordination

mechanism mainly includes the following aspects: First, it is necessary to clarify the role positioning and responsibility division of the parties. There should be a clear goal and task allocation plan between different participants, so as to ensure that all aspects can complete the work efficiently. At the same time, it is also necessary to formulate corresponding assessment standards and evaluation systems to promote the enthusiasm and efficiency of all participants. Second, we need to strengthen communication, communication and cooperation. In the entire supply chain management process, each participant needs to keep abreast of the other's situation and provide necessary support. Third, the collaborative decision-making process needs to be continuously optimized. In supply chain management, the change of various factors will affect the operation of enterprises. Therefore, it is necessary to adopt scientific and reasonable decision-making methods in order to better cope with the challenges brought by changes. To this end, a variety of methods can be used, such as SWOT analysis, analytic hierarchy process, etc., to determine the optimal decision scheme. Fourthly, we need to pay attention to risk control and crisis handling ability. In supply chain management, various uncertain factors may lead to problems such as business interruption or loss expansion. Therefore, it is necessary to take risk prevention measures in advance, and respond quickly when problems occur and adopt appropriate solutions.

5.3. Implementation steps

First, in order to ensure the effective implementation of the coordination mechanism, a comprehensive strategic planning and goal-setting system needs to be established. In this process, the definition of supply chain sustainability and the relationship between it and corporate performance should be clarified so that corresponding strategies and measures can be better formulated. At the same time, it is also necessary to consider the needs and expectations of various stakeholders to guarantee the stability and reliability of the entire system. Secondly, in the practical process, a series of concrete actions need to be taken to promote the development of supply chain sustainability management. These include but are not limited to: strengthening quality control and risk management of suppliers; Optimizing logistics distribution processes and inventory management; And improve employee job satisfaction and training, etc. Through these measures, the cost can be effectively reduced, efficiency and quality can be improved, thus bringing more revenue and development opportunities for the enterprise. Finally, it should be emphasized that the implementation of the coordination mechanism is a long-term process that requires constant evaluation and adjustment. On this basis, the management system can be constantly perfected and improved to adapt to changes in the market and the needs of customers. In addition, it is also necessary to pay attention to cooperation and communication with other organizations to jointly promote the process of sustainable development of the supply chain. Supply chain sustainability management is an integral part of modern enterprises^[5]. And the coordination mechanism is the key to realize this concept.

6. Conclusion

To sum up, with the development of the global economy and the increasing awareness of environmental protection, more and more enterprises have begun to pay attention to sustainability and environmental friendliness in their supply chains. At the same time, the government has also introduced a series of policies and regulations to encourage enterprises to carry out green production and recycling in order to achieve the goals of resource conservation and environmental protection. Therefore, it has become a trend and responsibility for enterprises to implement the management of supply chain sustainability^[6]. In a word, supply chain sustainability management is a complex systematic project, involving the collaboration between many links and departments. Only when all links cooperate and support each other, can the expected effect be truly achieved. In order to better promote supply chain sustainability management, it is necessary to establish an effective coordination mechanism to promote communication and win-win cooperation among all departments^[7].

References

- [1] Wang Di. *Research on Digital Transformation Efficiency of Chinese Manufacturing Enterprises [D]*. Jilin University, 2023.
- [2] WU Qiang, Zhang Yaming. *Performance analysis of commercial circulation enterprises based on supply chain risk management [J]*. *Business Economics Research*, 2020(24) : 114-116.
- [3] Song Xin. *New opportunities, Risks and Countermeasures of Enterprise Supply chain cost*

- Management under the condition of economic globalization [J]. Hebei Enterprise, 2021(7) : 82-84.*
- [4] Liu Songhui. *Financial Management and Risk of Enterprise Supply Chain Finance [J]. Financial and Economic Circle, 2020(11): 191.*
- [5] GUI Bin. *Research on Enterprise Supply Chain Management and Risk Prevention Based on International Trade Finance [J]. Enterprise Reform and Management,2020(12) : 107-108.*
- [6] Liu Xinzhe. *Study on the impact of supply chain Relationship on cost stickiness from the strategic perspective [D]. Lanzhou University of Finance and Economics,2023.*
- [7] Yang Ni. *Research on realization mechanism and evaluation of BL Group's social responsibility based on value sharing [D]. Yan 'an University,2023.*