

The Impact of Green Supply Chain Management on Corporate Sustainable Performance: A Review of Research

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Abstract: With the introduction of carbon neutrality and the emphasis on environmental protection, green supply chain management has emerged. More and more enterprises are adopting this strategy to achieve environmental performance while promoting economic benefits and sustainable development. At present, certain theoretical results have been developed on the impact of green supply chain management on corporate sustainability, but there is a lack of systematic reviews to help scholars understand the overview of research in this area. Using a literature search and collation approach, this paper firstly clarifies the concept and connotation of green supply chain management, and secondly summarizes the importance of sustainable development of enterprises. This is followed by an analysis of the impact of green supply chain management on corporate sustainability performance. Finally, a summary is provided, and the limitations of the article are presented. This paper aims to provide more comprehensive theoretical guidance for enterprises to implement green supply chain management and stimulate researchers to explore the research gaps.

1. Introduction

In line with the 13th UN Sustainable Development Goal ‘Take urgent action to address climate change and its impacts’, reducing carbon emissions has become one of the key objectives in all activities worldwide. Increased consumer willingness to purchase low-carbon products and government subsidies are driving companies to reduce emissions in their supply chains^[1]. Among them, green supply chain management (GSCM) has received increasing attention and research from scholars as an important initiative to achieve the green development of enterprises. Studies have shown that green supply chain management practices have a positive effect on corporate sustainable performance (CSP)^[2]. The continuous improvement of corporate sustainable performance can in turn promote the green upgrading of the supply chain. The study of this virtuous circle can help guide companies in their practices to achieve a win-win situation in terms of both environmental and economic benefits. Therefore, this paper summarizes recent research findings with green supply chain management and corporate sustainability performance as the core issue and hopes to be useful for managers.

2. The Green Supply Chain Management (GSCM)

2.1 The Concept and Content of GSCM

Adding a 'green' element to supply chain management to address the adverse environmental impacts of the supply chain is the origin of the concept of green supply chain management^[3]. Srivastava has defined this as the process of integrating green thinking into supply chain management, including the design of products, the procurement and selection of materials, the process of manufacturing, the delivery of the end product to customers, and the waste management of products after their useful life. It is also the most cited definition in recent years^[4]. The definition of GSCM has evolved as business practices have progressed. Today, GSCMs are considered to be enterprise strategies involving all supply chain measures and practices aimed at ensuring environmental and social well-being^[5]. In addition, the concept of Green Supply Chain Practices (GSCP) has been proposed as practice deepens and has specific definitions in different sectors. GSCM is the concept while GSCP is the actions that companies implement daily when translating it into practice^[6]. The development of the GSCM concept also reflects a growing trend of practice, how to reasonably collaborate with internal and external stakeholders to achieve intra- and inter-organizational synergistic management, and how to better ground the theory and guide corporate practice will GSCM is an important direction for the future development of GSCM. In addition, the importance of GSCM to the sustainable development of enterprises is also increasingly mentioned, which is also the focus of this research paper.

2.2 Drivers of GSCM

Existing studies have carried out more comprehensive research on the drivers of green supply chain management based on theories such as stakeholder theory, institutional theory and resource-based view, and these studies can be summarized as resource capacity driven and stakeholder driven.

Firstly, the concrete implementation of GSCM requires companies to have sufficient resources and capabilities such as capital, technology, construction facilities, and comprehensive management capabilities. It has been suggested that blockchain technology can empower all aspects of supply chain management^[7]. Leadership, organizational culture, and collaboration of suppliers contribute to the implementation of green supply chain management^[8]. Whereas different business strategies can have different impacts on different aspects of GSCM practices, the adoption of differentiated strategies can facilitate a wide range of business engagement in GSCM^[9].

Secondly, stakeholder pressure from customers, employees, the government, and competitors is a huge driver for firms to implement GSCM. Some studies have analyzed specific stakeholder pressures. Zhao et al.^[10] empirically tested that the green success of competitors has a direct and positive impact on firms engaging in green supplier integration. Li et al^[11] found that environmental pressure from external markets and exports can drive GSCM practices to improve performance. Some scholars have also studied the mediating role, Kitsis and Chen^[12] concluded that stakeholder pressure can stimulate top management commitment and thus promote GSCM practices. Some have also concluded through game modeling that stronger government regulation and the adoption of higher penalties can effectively drive upstream and downstream firms in the green supply chain to reduce emissions faster^{[13][14]}.

As research progresses, scholars find that different influencing factors interact with each other and the factors affecting the implementation of GSCM vary according to the situation. Further research on GSCM therefore needs to adopt a more multifaceted and holistic perspective.

3. Corporate Sustainable Performance (CSP)

Sustainable development means satisfying human needs without jeopardizing the capacity of

future generations to fulfill their own needs^[15]. Elkington^[16] further argued that companies in the 21st century must consider the 'triple bottom line' - economic, environmental, and social criteria - to achieve sustainable development. Furthermore, CSP reflects the long-term competitive advantage that a company can achieve financial returns without sacrificing the interests of its stakeholders by considering its environmental and social impact^[17]. This specifically includes the implementation of sustainable management, protection of the environment, eco-regulations, prevention of pollution technologies, or reduction of waste practices^[18]. Since the 1990s supply chain revolution, sustainability goals have become central to the vision of many organizations^[4]. Study shows that CSP moderates the relationship between environmental behavior and financial performance, and that business performance on sustainability has a positive impact on financial performance^[18]. For small and medium-sized enterprises (SMEs), sustainability also has an indirect positive impact on business performance, although the problem of insufficient resources hinders the implementation of sustainable strategies^[19]. Specifically, sustainable businesses can increase their competitiveness by increasingly producing green products and thus opening up new customer segments. Achieving sustainable performance will help companies to reduce waste at all levels and increase resource efficiency, thereby reducing production costs and achieving higher profits while achieving environmental benefits. Therefore, it is necessary for companies to achieve sustainable performance to satisfy stakeholders' interests and achieve greater economic returns.

4. The Effect of GSCM on CSP

This paper finds that while previous research has focused on developed countries and large firms, in the last five years scholars have focused more on the effects of GSCM in developing countries and SMEs to fill the research gap. As a result, most of the findings summarized in this paper are based on empirical evidence from developing economies or SMEs. Overall, research suggests that GSCM can contribute to sustainable business performance.

Scholars differ in their views on the independence of the impact of the GSCM, Wang, Zhang and Zhang's^[20] empirical tests suggest a positive relationship between the GSCM and firm performance in the Chinese context. However, some studies have also argued that the impact of GSCM on corporate sustainable performance is not independent, as companies need to engage in complex cross-functional collaboration in driving environmental management. Quality implementation of GSCM requires companies to train and empower their employees on the environment and that the integration of green human resource management and GSCM can work together to influence sustainable performance^[2].

Some scholars have also subdivided the variables to achieve a more refined study. Some scholars divide sustainability performance into operational performance, environmental performance, and economic performance, and examine the impact of GSCM on them separately through empirical evidence while suggesting the moderating role of collaborative capabilities on GSCM with environmental and economic performance^[21]. Some scholars have also classified specific GSCM practices and judged their relationship with corporate sustainability performance separately. The results show that in-house environmental management, investment recovery, eco-design and environmental collaboration can have a significant positive impact on sustainability performance, while supplier selection and supplier assessment have a non-significant effect because few companies implement them in practice, while collaboration with customers has a negative effect^[22].

Furthermore, in different industries, GSCM has different impact effects and pathways. In light industries such as the food industry, their green practices stem from Corporate Social Responsibility initiatives, which will promote green innovation and GSCM to reduce waste at all stages of the supply chain and thus achieve CSP^[5]. In heavy industries such as automotive manufacturing, studies have shown that GSCM can have a positive and significant impact on the economic and environmental performance of companies, but the initial implementation of GSCM requires significant environmental investment and operational training costs, which will have a negative economic impact

on the company's performance^[23] (Li et al. 2022). This is also in line with the fact that heavy industries are inherently more polluting and require more investment to prevent and control pollution. In the case of mining companies, the situation is more complex, and to meet all sustainable performance, companies must adopt eco-innovation and reverse logistics practices in green supply chain management.

In general, there is now a unified academic attitude towards the positive impact of GSCM on corporate sustainable performance. Scholars' research has also expanded from a single perspective to multiple perspectives and subjects, which also indicates that research on GSCM is becoming more in-depth and detailed. In addition, scholars have also explored the specific impact mechanisms of GSCM, noting the synergistic effects of multiple factors that are of increasing value as guidance for practice. However, it is also important to note that the impact of GSCM on sustainable corporate performance may change in different contexts, and many important situational conditions have yet to be mentioned, which require more in-depth thinking by scholars. Furthermore, the negative effects of GSCM have not received sufficient attention. Future research should explore the superimposed effects of positive and negative effect pathways on corporate sustainability performance, so that companies can be guided to enhance positive effects and suppress negative effects in a targeted manner to maximize sustainability performance.

5. Methodology

Using the Science Direct database, VU Library, and China Knowledge Network, this study searches the literature in recent years with the keywords "green supply chain management and sustainability performance". First read the titles, abstracts, and keywords of articles for initial screening. The literature obtained is then carefully read and analyzed, and the literature base is further expanded using a retrospective approach. As this research involves crosscutting concepts, this study also includes research findings on 'sustainable supply chain management', 'corporate performance', and 'green supply chain practices'. By reviewing and analyzing the relevant literature, this paper concludes with a summary of research findings on green supply chain management and corporate sustainability.

6. Conclusion and Limitation

In order to answer the question of how companies can influence their sustainable performance through GSCM, this study first collates the concept and meaning of GSCM, followed by a review of its influencing factors. In the second part, this study then summarizes the relevant research on corporate sustainable performance. Finally, this paper presents the effects of GSCM's impact on CSP. A possible contribution of this paper is to summarize the impact of GSCM on CSP and to make some suggestions for future research directions. However, there are certain limitations in this study. As the collated literature is mostly focused on the last five years and is small in number, this makes the findings of the study not meet generalizability. Secondly, there is a certain amount of subjectivity in the selection of papers, which may also bias the conclusions. A more objective and comprehensive selection of papers should be used in future research.

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