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The Role of Green Supply Chain Management in Corporate Sustainability Performance

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Abstract

Green supply chain management is crucial for organizations aiming to uphold high standards of sustainable performance. However, an underdeveloped green supply chain management can adversely affect overall sustainability outcomes. This study primarily explores the impact of green supply chain management practices on corporate sustainability performance. Using partial least squares structural equation modeling for data analysis, the study identified varying effects of different green supply chain management components on sustainability outcomes. Notably, components such as the environmental education system and green information system showed no significant correlation with sustainability performance. In contrast, the other six components demonstrated a positive and significant relationship with sustainability metrics. The study's findings highlight the critical role of green supply chain management in predicting and enhancing organizational sustainability performance. This research adds to the existing literature by underscoring the necessity of effective green supply chain management practices in driving sustainable performance across industries, particularly in the food manufacturing sector. The practical implications are significant for supply chain managers, especially within food manufacturing. By leveraging these insights, managers can refine their green supply chain management practices, focusing on elements like green procurement, eco-design, and reverse logistics to boost environmental commitment and operational efficiency. Organizations that recognize and integrate robust green supply chain management strategies can address sustainability challenges more effectively and secure a competitive edge in a dynamic business environment. The study's results suggest that an emphasis on comprehensive green supply chain management practices is essential for long-term success. By adopting these strategies, companies can improve their environmental performance and enhance their overall sustainability outcomes. This approach not only benefits the environment but also contributes to the company's reputation and market positioning. It provides valuable insights for practitioners and policymakers aiming to enhance sustainability in the food manufacturing industry. The findings encourage a proactive stance in adopting green supply chain management practices, which can lead to significant improvements in sustainability metrics and help organizations navigate the complexities of modern supply chain management.

Keywords: Green Supply Chain Management, Corporate Sustainability, Food Manufacturing

JEL Codes: Q56, L66, M11

1. INTRODUCTION

In the modern world, the depletion of natural resources, the growing threat of global warming, and widespread environmental pollution present significant challenges to maintaining environmental stability. These persistent issues of environmental degradation demand proactive measures from companies, individuals, and communities to protect our planet (Ahmad, 2018; Panwar et al., 2023; Li & Yang, 2023). Addressing these urgent environmental concerns requires collective action across all societal levels. From global corporations to local communities, the call for responsible environmental stewardship is echoed across various sectors. This call to action surpasses geographical boundaries and socioeconomic divides, highlighting our collective duty to preserve the planet's health and integrity. As stakeholders navigate the complexities of sustainability, they must reassess traditional practices and adopt innovative solutions to mitigate environmental risks (Jayarathna et al., 2023; Audi et al., 2024). Whether through eco-friendly technologies, stringent environmental policies, or promoting sustainable lifestyles, individuals and organizations are urged to be catalysts for positive change (Wang & Manopimoke, 2023)).

The discussion on environmental sustainability has shifted from being a marginal issue to a core principle of modern governance and corporate responsibility. Recognizing the link between environmental health and human well-being is essential for creating a sustainable and resilient future for future generations. Organizations facing environmental challenges must critically assess their production processes (Ramli et al., 2023). This self-examination is crucial for identifying inefficiencies, pinpointing environmental concerns, and developing targeted improvement interventions. Additionally, adopting practices that enhance environmental performance is imperative. In this context, green supply chain management practices play a crucial role (Srivastava, 2007; Adriana, 2009; Koocheki, 2018). Green supply chain management offers a comprehensive approach to addressing modern environmental issues within supply chain operations. By incorporating environmental considerations into all aspects of the supply chain—from sourcing raw materials to

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product distribution—organizations can significantly reduce their ecological footprint while increasing operational efficiency. Adopting green supply chain management principles involves a comprehensive approach, incorporating eco-friendly sourcing, energy-efficient production processes, and sustainable logistics practices (Agrawal et al., 2023). By aligning their supply chain activities with environmental goals, organizations can mitigate environmental risks and unlock benefits such as cost savings, improved brand reputation, and regulatory compliance.

According to Eltayeb et al. (2011), green supply chain management has developed into a multidisciplinary concept, driven by the advancement of environmentally friendly management practices, particularly in supply chain operations. Srivastava (2007) further explains that green supply chain management encompasses a range of activities throughout the supply chain lifecycle. These stages include the manufacturing process, where adopting eco-friendly production methods and technologies is crucial for reducing environmental impact. Additionally, green supply chain management involves sourcing and procurement, highlighting the importance of selecting sustainable and responsibly sourced materials. Product design is also a critical element within green supply chain management. By incorporating environmental considerations into the design phase, organizations can create products that are eco-friendly from the outset, using recyclable materials and optimizing resource efficiency. Furthermore, the distribution of products is an essential aspect of green supply chain management. This approach ensures that every stage, from production to delivery, aligns with environmental sustainability goals. Through these comprehensive practices, green supply chain management aims to minimize ecological footprints while maintaining operational efficiency and competitiveness.

Sustainable logistics practices, such as route optimization and shifting to greener transportation modes, play a crucial role in reducing carbon emissions and minimizing environmental footprints (Luna & Luna, 2018; Rigogiannis et al., 2023). This definition highlights the broad scope of green supply chain management in today's context. However, early studies on green supply chain management often focused on specific functional areas, such as reverse logistics or green procurement (Le et al., 2022). Later research aimed to expand the perspective by examining environmental impacts across various supply chain facets (Schmidt et al., 2017; Jayarathna et al., 2023). Despite the growing interest in green supply chain management, creating a comprehensive framework that includes all relevant metrics remains challenging. Existing literature points out the lack of a holistic conceptual framework to define the dimensions of green supply chain management (Dubey et al., 2015). This lack of consensus hinders the optimization of green supply chain management practices. Addressing these gaps, Diabat and Govindan (2011) argue that green supply chain management offers significant potential for enhancing corporate sustainable performance. By aligning supply chain activities with environmental goals, organizations can mitigate environmental risks and promote long-term stability and resilience.

Sustainable development gained significant attention following the release of the Brundtland Report in 1987, which defined sustainability as meeting current needs without compromising the ability of future generations to meet their own needs (WCED, 1987). Since then, academic discussions have emphasized the need to address three interconnected aspects of sustainability performance: economic, environmental, and social. To achieve optimal sustainability, organizations must balance these dimensions within their operations (Ikram et al., 2020; Audi et al., 2024). However, achieving this balance is challenging due to the complexities and interdependencies among these dimensions. Success and competitive advantage, while promoting environmental stewardship and social responsibility, require innovative approaches. In this regard, Diabat and Govindan (2011) advocate for the adoption of green supply chain management to achieve a balance across environmental, social, and economic performance metrics. By integrating environmental considerations into supply chain practices, organizations can reduce their ecological footprint while enhancing social welfare and economic prosperity.

Green supply chain management provides a comprehensive framework for aligning supply chain activities with sustainability goals. By adopting eco-friendly sourcing practices, energy-efficient production processes, and socially responsible labor practices, organizations can achieve balanced performance across the economic, environmental, and social dimensions. Previous research has highlighted the critical role of green supply chain management in driving sustainable outcomes (Le et al., 2022). A prominent theoretical framework that underscores the importance of environmental practices in gaining competitive advantage is the natural resource-based view, as proposed by Hart (1995). This theory posits that leveraging environmental practices as a primary source of competitive advantage can significantly enhance sustainable corporate performance. By integrating these practices into green supply chain management, organizations can reap multiple benefits. Firstly, green supply chain management helps reduce energy consumption and material usage, minimizing resource depletion and environmental degradation. It also fosters greater engagement with stakeholders, including customers, employees, and communities, leading to increased trust and goodwill. Furthermore, adopting environmentally friendly practices within the supply chain can lower costs associated with waste disposal, regulatory compliance, and resource inefficiencies, thereby enhancing operational efficiency and cost-effectiveness. Additionally, green supply chain management initiatives often improve product quality through innovations in sustainable design, production processes, and material sourcing. Prioritizing environmental considerations throughout the supply chain allows organizations to deliver products that meet stringent environmental standards and appeal to environmentally conscious consumers, thus enhancing brand reputation and market competitiveness.

The existing literature extensively examines the impact of green supply chain management practices on sustainable performance dimensions, particularly focusing on environmental and economic aspects (Le et al., 2022; Li et al., 2016; Zhu et al., 2005). However, the social performance dimension has received comparatively less attention. This gap is significant given the interconnected nature of economic, environmental, and social dimensions in driving overall sustainability. Moreover, most prior studies have concentrated on developed countries, with a limited focus on developing nations such as Indonesia (Yuda & Kühner, 2023). This disparity is particularly notable in the Indonesian food industry,

which is economically vital for the country's development. Food products manufactured within this sector are essential for human consumption, highlighting the critical role of food production in meeting societal needs and fostering economic growth. The Food Ingredients Asia report (2019) further emphasizes the importance of green supply chain management in enhancing manufacturing conditions in the Indonesian food industry. Despite the potential benefits, there is a lack of research exploring the implementation and impact of green supply chain management practices within the Indonesian food industry context. Addressing this research gap is essential for understanding how green supply chain practices can be effectively integrated into this sector to promote sustainability across all dimensions.

2. LITERATURE REVIEW

The initial phase of green supply chain management often focuses on the purchasing function, emphasizing the integration of environmental considerations into procurement activities to align with the organization's broader environmental objectives (Carter et al., 2000; Srivastava, 2007). Consequently, green purchasing is a crucial dimension within the green supply chain management framework. This approach involves prioritizing environmental sustainability in the sourcing process (Rao & Holt, 2005), which includes selecting suppliers who share the organization's environmental values and fostering partnerships aimed at continuous environmental improvement. Strategically engaging with suppliers committed to sustainability allows organizations to leverage external expertise and resources to further their environmental goals. This can involve sourcing eco-friendly materials, implementing sustainable production practices, and adhering to strict environmental standards throughout the supply chain. Through green purchasing, organizations not only meet their environmental objectives but also encourage suppliers to enhance their environmental performance, creating a ripple effect of sustainability across the supply chain.

Green manufacturing is a critical component of green supply chain management, emphasizing the implementation of environmentally friendly processes and technologies throughout the production cycle. This dimension aims to reduce resource consumption, energy usage, and environmental pollution while optimizing operational efficiency and product quality. According to Carter (2005) and Gao et al. (2009), green manufacturing involves planning and executing activities that require minimal energy and resources, thereby reducing the ecological footprint of production processes. Adopting innovative technologies, such as energy-efficient machinery and renewable energy sources, is essential to minimize energy consumption and greenhouse gas emissions. The primary goal of green manufacturing is to continuously improve industrial production processes to mitigate environmental impact. This includes implementing measures to prevent pollution, reduce waste, and promote recycling, thereby minimizing water, soil, and air pollution. Through these efforts, green manufacturing strives to create a more sustainable and efficient production system.

Green packaging is a vital aspect of green supply chain management, intricately connected with other dimensions within the framework. Its importance arises from its direct influence on environmental sustainability, making it a key area for organizations aiming to reduce their ecological footprint throughout the supply chain (Routroy, 2009). Green packaging practices involve various strategies designed to lessen environmental impact while maintaining product integrity and consumer satisfaction. These strategies include simplifying packaging design, optimizing material usage, eliminating excess packaging, and using eco-friendly materials and technologies (Kung et al., 2012). By streamlining packaging processes and adopting sustainable materials, organizations can achieve several critical objectives. Firstly, they can lower resource consumption and waste generation, resulting in cost savings and environmental benefits. Additionally, green packaging practices can improve product safety and quality by minimizing the use of harmful chemicals and materials. This holistic approach not only supports environmental sustainability but also contributes to overall supply chain efficiency and customer satisfaction.

Srivastava (2007) outlines that green supply chain management includes several key components such as green purchasing, green design, green production, green distribution, green logistics, green marketing, and reverse logistics. These components involve practices aimed at incorporating environmental considerations throughout the supply chain. Green supply chain management covers all stages of the production cycle, from raw material extraction and product design to manufacturing, delivery, consumer usage, and product disposal. This approach extends the traditional supply chain management framework by focusing on environmental sustainability principles at each phase of the process. It is important to highlight that the scope of green supply chain management can be flexible and is often determined by the specific objectives of the researchers (Srivastava, 2007). Consequently, the dimensions included within green supply chain management may vary between studies, reflecting different research goals and contexts. This variability allows for the adaptation of green supply chain management to various industries and environmental challenges, supporting tailored approaches that align with particular sustainability objectives.

In green supply chain management, green distribution is a crucial activity that significantly affects green supply chain performance. It encompasses all activities aimed at reducing environmental damage and shipment waste (Gao et al., 2009). Key aspects include fuel consumption for product transportation and packaging characteristics, which greatly influence green distribution and enhance sustainable performance (Le et al., (2022). Within organizations, green marketing seeks to meet human needs while minimizing environmental impact (Singh & Pandey, 2012). Olu Adeyoyin (2005) described green marketing as involving the design, pricing, promotion, and distribution of products in a way that avoids negative environmental effects. In this context, green marketing is viewed as a critical component of product promotion. Inventory recovery is another essential dimension of green supply chain management. Traditionally, inventory recovery involves addressing issues related to excess inventory or scrap material (Le et al., 2022). The primary goal of inventory recovery is to recapture the value of surplus and outdated products (Ayres, Ferrer, & Van Leynseele, 1997).

This process includes all activities within reverse logistics, aiming to maximize the value recovered from surplus inventory.

Internal environment management involves creating policies for environmental protection (Chan, He, Chan, & Wang, 2012). This includes upper and middle-level management activities that enhance environmental cooperation between departments and establish management systems for addressing environmental issues within the organization (Zhu et al., 2005). The development of human resources through environmental education is crucial for fostering sustainable practices within an organization (Yildiz et al., 2019). Empirical research underscores the importance of environmental education for green management and organizational success (Le et al., 2022). This education serves two primary objectives: understanding the organization's environmental policies and fostering behavioral changes that support a sustainable relationship with the environment (Sammalisto & Brorson, 2008). The effective implementation of green supply chain management practices relies on an organization's information system's ability to capture relevant data on environmental sustainability efforts and performance (Preuss, 2002; Sammalisto & Brorson, 2008). Analyzing this data is essential for making informed decisions that enhance sustainable performance through supply chain management (Preuss, 2002). Moreover, sustainability-related information systems demonstrate environmental control efforts through internal management systems and by communicating the needs of various stakeholders within the organization (El-Gayar & Fritz, 2006).

The resource-based view theory is applied to elucidate the impact of green supply chain management on business performance. According to the resource-based view, valuable and non-substitutable resources can provide organizations with a competitive advantage (Barney, 1991). These resources, both tangible and intangible, include market agility, human resources, leadership, and social reputation (Mahoney & Pandian, 1992). While tangible assets offer a short-term competitive edge due to their ease of imitation, intangible resources, which are harder to replicate, accumulate greater experience and market value over time. Hart (1995) also noted that natural constraints, such as the depletion of resources, pose a threat to an organization's capabilities and existing resources. This led to an expansion of resource-based approaches to include the opportunities and limitations inherent in the natural environment. Hart's natural resource-based view posits that firms can gain a competitive advantage through strategies like product stewardship, pollution prevention, and sustainable development. Environmental practices, including green supply chain management, are seen as valuable resources that can enhance organizational performance (Choi & Hwang, 2015). These practices are difficult for competitors to imitate because they are based on experience and continually updated knowledge. Another relevant theory for explaining the effect of green supply chain management on corporate social performance is stakeholder theory. In today's competitive environment, organizations often focus primarily on profit-making activities (Choi & Hwang, 2015). However, increasing competition, environmental degradation, the need for global competitive advantage, and the expansion of social responsibility have brought stakeholder considerations to the forefront. Stakeholders are defined as any individuals or groups that significantly affect or are affected by a business's success (Freeman, 1994). Freeman categorizes stakeholders into two groups: internal stakeholders, such as owners, managers, and employees, and external stakeholders, including suppliers, competitors, and the government. According to Freeman, stronger relationships among societal parties facilitate the achievement of mutual goals. Stakeholder theory suggests that businesses should be managed to better meet stakeholders' expectations.

To tackle environmental issues effectively, firms must first identify the root causes within their operations. Businesses, in their effort to meet consumer demands, have historically utilized minimal resources, resulting in environmental pollution through harmful emissions, waste, and soil contamination (Azapagic, 2003). Environmental performance is a measure of how well an organization can minimize pollution, waste, and environmental accidents. Green supply chain management encompasses all initiatives aimed at mitigating the negative environmental impacts of a company's products, thereby enhancing sustainable business performance by reducing harmful liquid waste and promoting actions that benefit community well-being (Eltayeb et al., 2011). In essence, green business activities significantly impact environmental practices by reducing production waste and ensuring the efficient use of materials and energy (Famiyeh et al., 2018; Le et al., 2022).

One of the contentious issues related to green supply chain management is the cost-benefit analysis for organizations. Existing literature presents varied perspectives on this matter. One viewpoint suggests that green supply chain management can impose a cost burden. For instance, Bowen, Cousins, Lamming, and Faruk (2006) argue that environmental practices do not necessarily impact short-term business performance. Min and Galle (2001) further explain that green purchasing can increase costs, potentially negatively affecting business performance. Conversely, another perspective highlights the positive effects of green supply chain management on sustainable (economic) performance. The natural resource-based view posits that environmental practices can yield significant business benefits. Extant literature indicates that green supply chain management can enhance economic performance in two main ways (Hart, 1995). First, businesses can achieve economic gains by reducing energy costs and material waste. Second, the adoption of green practices can boost economic benefits by enhancing customer loyalty and reputation (Schmidt et al., 2017). Numerous studies support the notion that green supply chain management positively and significantly impacts economic performance (Tang et al., 2012; Le et al., 2022). Moreover, heightened awareness of corporate social responsibility enables firms to improve their public image among stakeholders, customers, employees, society, and government by mitigating environmental damage. These positives are crucial for customer loyalty and satisfaction (Hoffman, 2001; Le et al., 2022). Testa and Iraldo (2010) also state that green supply chain management can enhance brand image, foster good stakeholder relations, and boost employee motivation. Summarizing this discussion, it can be concluded that effective environmental practices help strengthen a firm's relationship with all stakeholders.

3. METHODOLOGY

This study employed a cross-sectional design and quantitative approach to investigate the relationship between green supply chain management practices and corporate sustainability performance. Data collection was conducted using a self-administered questionnaire distributed to 609 employees of food manufacturing companies in Indonesia, utilizing a non-probability convenient sampling technique. The questionnaires were personally delivered to respondents, who were requested to complete them within one hour. A total of 400 completed questionnaires were returned, resulting in a 65.68% response rate. Existing literature recommends a response rate greater than 20% for supply chain management practices research (Christmann, 2000; Darnall et al., 2010).

The scales for various green supply chain management dimensions were adapted from previous studies. The scale for green purchasing was adapted from Le et al., (2022) and included one item from Shang et al., (2010). Questionnaires for green manufacturing, green packaging, and green distribution were adopted from studies by Shang et al. (2010), Faruk et al., (2001), and Lieb and Lieb (2010). The internal environmental management scale was adapted from Shang et al. (2010) and Le et al., (2022). Scales for environmental education and green marketing were adapted from Shang et al. (2010), while the investment inventory scale was adopted from Chan et al. (2012). The green information system scale was adapted from Paulraj (2011), and the environmental performance scale was adapted from Paulraj (2011) and Zhu et al. (2007a). Corporate sustainability performance was measured using three scales from Bansal (2005): corporate environmental performance, corporate social performance, and corporate economic performance.

In this study, all questionnaire items were measured using a Likert scale ranging from strongly agree (1) to strongly disagree (5). The collected data was analyzed using Smart PLS 3.0, which has been identified by previous researchers as a highly effective tool for analyzing such data (Ahmad et al., 2019; Ikram et al., 2020).

4. DATA ANALYSIS

The Fornell and Larcker criterion for discriminant validity assesses the square root of the average variance extracted (AVE) for each construct against the correlations between constructs. In Table 1, this criterion is applied to various constructs: CECO, CENV, CSOC, EEDU, GDP, GIS, GMA, GMK, GP, IEM, and IR. The table presents the correlations between these constructs on the diagonal, and the AVE square roots for each construct are presented above the diagonal. According to the criterion, discriminant validity is supported if the square root of the AVE for each construct (shown above the diagonal) is greater than the correlations between that construct and others (shown on the diagonal). CECO has an AVE of 0.710, which is higher than its correlations with CENV (0.568), CSOC (0.267), and EEDU (0.010), indicating good discriminant validity with these constructs. GP has an AVE of 0.574, which is higher than its correlations with GP (0.342), GMA (0.239), and others, showing adequate discriminant validity. However, some constructs, such as GMA and GMK, show correlations (0.724) that are higher than their AVE square roots (0.03 and 0.744, respectively), suggesting potential issues with discriminant validity between these constructs. In summary, while many constructs in the table demonstrate good discriminant validity according to the Fornell and Larcker criterion, some correlations suggest that further investigation or refinement may be necessary to clarify the distinctiveness between certain constructs, particularly GMA and GMK.

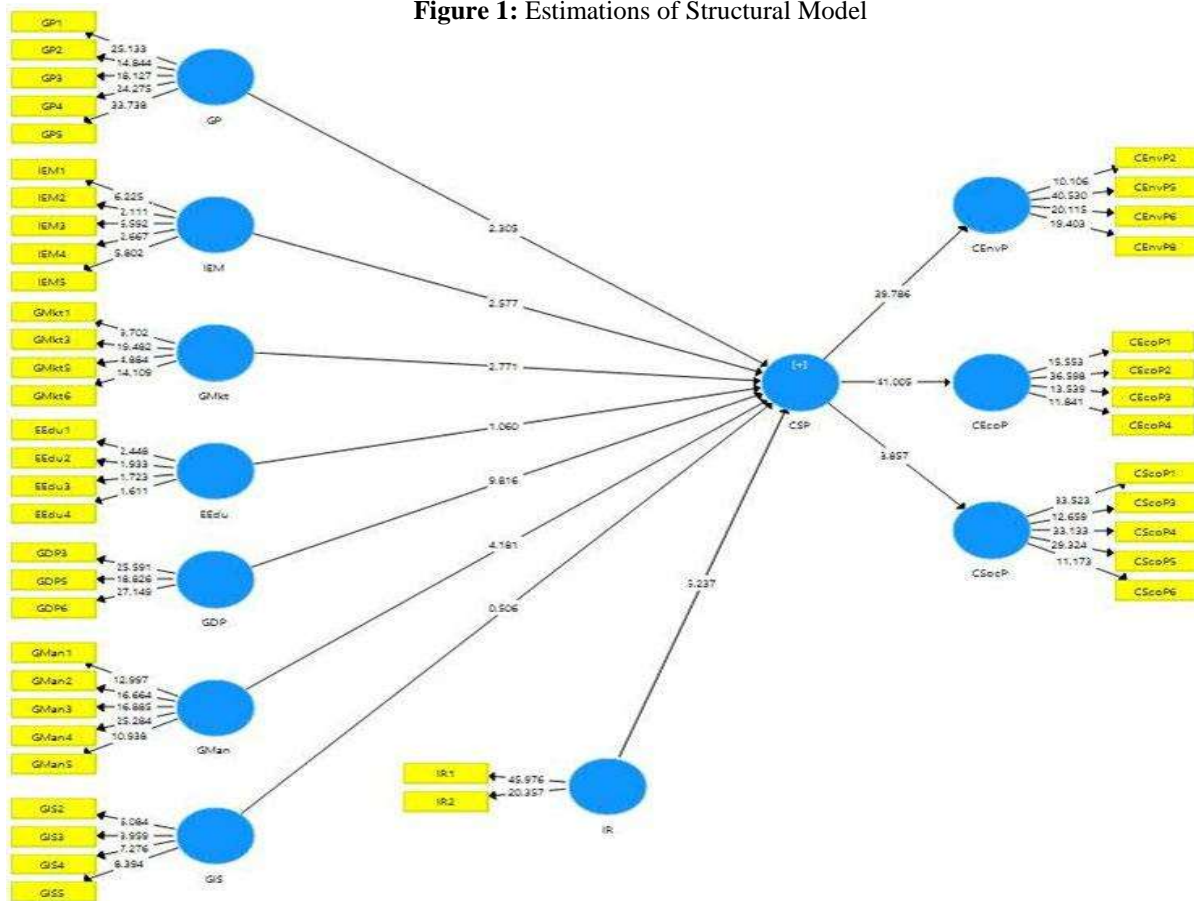
Table 1: Fornell and Larcker Criterion for Discriminant Validity

	CECO	CENV	CSOC	EED	GD	GIS	GMA	GMK	GP	IEM	IR
CECO	0.710										
CENV	0.568	0.721									
CSOC	0.267	0.258	0.738								
EEDU	0.010	0.040	0.237	0.87							
GDP	0.504	0.515	0.313	0.19	0.79						
GIS	0.151	0.11	0.172	0.12	0.17	0.76					
GMA	0.277	0.213	0.434	0.15	0.26	0.03	0.724				
GMKT	0.163	0.259	0.144	0.01	0.18	0.10	0.171	0.744			

In this context, the nodes in the figure likely represent key variables such as green supply chain management and corporate sustainability performance. The green supply chain management node encompasses practices and initiatives aimed at enhancing environmental sustainability within the supply chain, such as eco-friendly procurement, sustainable production processes, and waste reduction strategies. On the other hand, the corporate sustainability performance node represents the outcomes associated with corporate sustainability, including reduced environmental impact, improved resource efficiency, and enhanced corporate reputation. The arrows connecting the nodes indicate the hypothesized causal relationships between these variables. For example, an arrow from green supply chain management to corporate sustainability performance suggests that the implementation of green supply chain practices directly influences corporate

sustainability performance. The numerical values near the arrows represent the estimated strength and direction of these relationships. A positive coefficient indicates that an increase in green supply chain management practices leads to an improvement in corporate sustainability performance, while a negative coefficient would suggest the opposite. Furthermore, symbols such as asterisks (*) may be present to denote the statistical significance of these estimates, with common thresholds being $*p < 0.05$. This signifies that the observed relationships are unlikely to be due to chance, thus providing stronger evidence for the hypothesized effects. By analyzing these relationships, the figure provides a visual and quantitative understanding of how green supply chain management initiatives can drive improvements in corporate sustainability performance, highlighting the importance of sustainable practices in achieving long-term corporate goals.

Figure 1: Estimations of Structural Model



This research extends the theory of green supply chain management by evaluating the relationship between green supply chain management activities and corporate sustainability performance. The study investigates the impact of eight green supply chain management practices on corporate sustainability performance, offering insights for managers in the Indonesian food industry to identify effective green supply chain management practices to improve their organizational sustainability performance. Consistent with previous studies, this research reinforces the foundations of the natural resource-based view by demonstrating the influence of green supply chain management on corporate sustainability performance. For example, Schmidt et al. (2017) found a positive relationship between green supply chain management practices and market and financial performance. Additionally, Chan (2005) noted that environmental strategies significantly affect organizational environmental performance. Although environmental initiatives require substantial investments and impose financial pressures in the short term, their long-term benefits ensure business financial sustainability (Green et al., 2012; Esfahbodi et al., 2017).

In agreement with the earlier studies of Carter et al. (2000) and Paulraj (2011), the findings reveal a positive relationship between green purchasing and corporate sustainability performance. This suggests that careful selection of products and consideration of environmental, social, and economic factors can enhance corporate sustainability performance. Similarly, a significant positive association is observed between internal environmental management practices and corporate sustainability performance. These results align with the studies of Chan et al. (2012) and Zhu et al. (2005), who argued that companies could improve their sustainability performance by developing an effective internal environmental management system. This system helps organizations reduce harmful processes that could negatively impact the environment and society. Furthermore, there is a significant positive relationship between green marketing and corporate sustainability performance, indicating that incorporating environmental considerations in promotional activities can enhance corporate sustainability performance by fostering a positive image and trust within society (Singh & Pandey, 2012; Pride & Ferrell, 1993).

The findings also suggest that green distribution and packaging can improve corporate sustainability performance. Green packaging can mitigate negative environmental impacts through recycling processes (Zsidisin & Sierd, 2001). Similarly, green distribution can optimize fuel consumption by streamlining distribution channels and routes (Kumar et al., 2015). The study also provides empirical evidence of a significant relationship between green production and corporate sustainability performance, highlighting the importance of environmentally friendly products and production processes in achieving sustainability goals through the use of healthy ingredients and waste minimization (Gao et al., 2009; Routroy, 2009). However, the study found no empirical evidence of the relationship between environmental education and green information systems, as these are better predictors of other green supply chain management practices (Sammalisto and Brorson, 2008; Le et al., (2022).

5. CONCLUSIONS

In conclusion, this study highlights the crucial role of green supply chain management in enhancing corporate sustainability performance within the food industry in Indonesia. By evaluating eight distinct green supply chain management practices, the research provides a comprehensive understanding of how these practices contribute to organizational sustainability. The findings demonstrate that integrating green supply chain management practices, such as green purchasing, internal environmental management, and green marketing, positively influences corporate sustainability performance. These practices not only mitigate environmental impact but also foster a positive corporate image and build trust within the community. The study emphasizes the importance of green distribution and packaging in optimizing resource use and reducing environmental harm. By adopting recycling processes and optimizing distribution channels, organizations can achieve significant sustainability gains. Additionally, the positive association between green production and corporate sustainability performance underscores the value of environmentally friendly products and processes in achieving long-term sustainability goals. This approach not only minimizes waste but also promotes the use of healthier ingredients, aligning with broader sustainability objectives. Furthermore, the study identifies areas where green supply chain management practices can be refined. While most practices show a strong positive impact on corporate sustainability performance, the lack of empirical evidence linking environmental education and green information systems to corporate sustainability performance suggests the need for further research and development in these areas. This insight provides a pathway for organizations to focus on improving these aspects to enhance overall sustainability performance. Overall, this research contributes to the growing body of knowledge on green supply chain management by establishing clear linkages between specific practices and corporate sustainability performance. The practical implications of these findings offer valuable guidance for managers in the food industry, enabling them to implement effective green supply chain management strategies that drive both environmental and financial sustainability. The study's outcomes reaffirm the importance of a holistic approach to supply chain management, where environmental considerations are seamlessly integrated into business operations to achieve sustainable development.

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