THE GREEN SUPPLY CHAIN AND SUSTAINABILITY PERFORMANCE IN EMERGING COUNTRY

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Abstract

This study explicates the effect of green supply chain management on corporate sustainability performance in Indonesia. We conducted an online survey to collect data from targeted respondents with three years of experience on average in the supply chain management field. The respondents consist of company managers, public accountants, public sector accounting managers, and accounting lecturers. We analyzed the data by implementing ordinary least square regression procedures. Our study results suggest that green purchasing, green manufacturing, and internal environmental management can hardly improve economic performance, social performance, and environmental performance. However, strong evidence shows that green distribution triggers a positive effect on economic, social, and environmental performance. Our study implicates that both private sector companies and public sector organizations in Indonesia, as an emerging country, should consider green supply chain management as a necessity. More organizations should pay more attention to apply the green supply chain framework to nourish the competitive advantage.

Keywords: Green Supply Chain, Sustainability, Performance, Management Accounting, Indonesia

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1. INTRODUCTION

Environmental devastation issues, such as resource decimation, carbon pollution, climate change, and biodiversity decline, lead to ecological balance decline (Cankaya & Sezen, 2019). The fact that this kind of decline continues to prevail makes world communities start paying attention to the ecological matters to take preventative measures in environmental matters (Walker, Di Sisto, & McBain, 2008). The sustainable development field had set to attract more concern since 1987 (Cankaya & Sezen, 2019) when Brundtland published his early report towards the concept of sustainability reporting (World Commission on Environmental and Development, 1987). He stated that economic developments must be sustainable to satisfy current needs without compromising future needs (Cankaya &

Sezen, 2019). There are three dimensions of sustainability comprising of environment, economy, and social. Achieving the equilibrium in the three measurements is essential for every company. However, the complexity of the sustainability dimensions is not easy to handle. Thus, the companies frequently encounter a very thick wall of adversities to succeed in the implementation.

The failure to improve environmental performance will lead to more significant problems faced by companies. The protest, massive rallies, and riots are some problems that will arise because of the fiasco. The management should tackle those issues by developing a more effective environmental management consisting of essential aspects of its operations (Lee, 2009). The concept of environmental management is developed to counter rebuttals caused by the popularity of environmentalism that becomes an integral part of business management (Chen, 2008). Therefore, some companies labeled as environmental trouble makers have to review their production processes and supply chains due to external pressures (Cankaya & Sezen, 2019).

Along with the demands from externals for corporate responsibility, the green supply chain activities have become a viable alternative to resolve the issue of being labeled as the rabble-rousers (Adriana, 2009). The green supply chain concept emerged from its activities to develop environmentally-friendly management in the supply chain (Eltayeb, Zailani, & Ramayah, 2011). Srivastava (2007) stated that the green supply chain was developed to incorporate environmental concepts in supply chain management. Green supply chain management stages consist of product design, material sourcing and selection, manufacturing processes, product delivery, and final product management (Cankaya & Sezen, 2019).

The field of green supply chain management (GSCM) was discussing in the previous studies. Luthra, Garg, and Haleem (2016) and Schmidt, Foerstl, and Schaltenbrand (2017) scrutinized the supply chain effect portrayed from the environmentalists' perspective. Despite the increasing number of GSCM studies in recent years, there is a fact that this concept has an extensive implementation area, so that building a comprehensive framework is difficult to achieve. This issue is arguably confirmed by previous literature stating that the GSCM field lacks a holistic framework (Murphy & Poist, 2003; Laosirihongthong, Adebanjo, & Tan, 2013; Sharma, Chandana, & Bhardwaj, 2015). However, Diabat and Govindan (2011) contested the issue by proving that GSCM is likely to be the bridge for the company to put the environmental purpose and the socio-economic benefit. Furthermore, the successful a company utilizes GSCM will enhance its possibility to realize a sustainable development state (Green, Zelbst, Meacham, & Bhadauria, 2012; Rao & Holt, 2005; Sarkis, Gonzalez-Torre, & Adenso-Diaz, 2010). By reducing non-renewable energy consumption, increasing stakeholder involvement, and decreasing the high cost, the company could eventually escalate its sustainable performance (Cankaya & Sezen, 2019). Interestingly, Hart (1995) employed a natural resource-based view (NRBV) to unravel its hidden agenda behind the sustainable development program. The motive is no more than gaining substantial dollars in the long run (Schmidt et al., 2017; Younis, Sundarakani, & Vel, 2016).

Economic performance becomes the company's sole objective in implementing GSCM (Zhu, Sarkis, & Geng, 2005; Zhu & Sarkis, 2004). There are two leftover objectives to fulfill, environmental purpose and social aim. Environmental performance is positively affected by the use of GSCM (Green, Inman, Sower, & Zelbts, 2019; Younis et al., 2016; Li, Jayaraman, Paulraj, & Shang, 2016; Laari, Töyli, Solakivi, & Ojala, 2016; Choi & Hwang, 2015). The same effect goes to the social performance that will go upwards following the GSCM effective implementation (Younis et al., 2016). Furthermore, Yusoff, Omar, Zaman, and Samad (2019), Yadiati, Nissa, Paulus, Suharman, and Meiryani (2019), and Yusliza et al. (2020) examined green intellectual capital on sustainability performance. Simultaneously, Rosini, Gunawan, and Hakim (2020) investigated the management control system and capabilities on sustainability performance. Four main spheres of performance form sustainable performance. Most studies elucidate the effect of GSCM on sustainable performance partially. Nevertheless, scant amounts of research focus on how the whole dimensions of sustainable performance are influenced by GSCM performative measurement. The only paper lying on this research gap is Cankaya and Sezen (2019), which explores the cynic relationship between GSCM and sustainable performance. The interplay took place in Turkey in 2019 as one of the developing countries.

However, GSCM praxis in developing countries is still less information. However, this study will focus on the Indonesian context as the last mentioned is on the edge of a developing country. To investigate more about the effect of GSCM on sustainable performance is the primary goal. The implementation of corporate social responsibility in Indonesia was started in 2007 with Act No. 40 of 2007 concerning the incorporated company. Until 2020, the implementation of social responsibility disclosure in Indonesia only focuses on environmental aspects. The Indonesian Ministry of Environment only carries out corporate social responsibility assessments in Indonesia through a company performance appraisal program called the Corporate Performance Assessment Program in Environmental Management (PROPER). This program is used to monitor the company's performance of environmental responsibility as the Indonesian Minister of Environment Decree No. 5 of 2011. The implementation of PROPER is also expected to provide answers to the needs of access to information, transparency, and public participation in environmental management as mandated by Act No. 32 of 2009 concerning Environmental Protection and Management related to access and everyone's role in environmental protection and management.

Besides corporate social responsibility, environmental responsibility performance monitored through PROPER is expected to encourage corporate ethical behavior. This paper, like every country, has its characteristics of GSCM. The studies of GSCM are still rare in Indonesia. Dermawan, Bahtiar, and Sofian (2018), Susanty, Santosa, and Tania (2017), Djunaidi, Sholeh, and Mufiid (2018), and Roespinoedji, Mulyawan, Prawira, and Abidin (2019) only explicated the means to succeed the GSCM enforcement. How GSCM predisposes sustainable performance remains obscured. This study takes

the position to uncover the concealed case. The paper provides a fundamental starting point for future research about the dynamics between GSCM and sustainable performance in a developing country.

This research consists of six parts. The first section is the introduction that consists of research phenomena, research problems, research objectives, and the differences in this study with previous research. The second section is the literature review and hypotheses development. The third section contains the research methodology, including the indicator and the proxy used to measure each variable. The fourth section is the result explains the testing results, including descriptive statistics and hypothesis testing. The fifth section is the discussion that explains the reviews based on the research findings. The sixth section is the conclusion: the discussion summary based on the research objectives and the limitations and implications of both the managerial implications and future research.

2. LITERATURE REVIEW

Srivastava (2007) identified that GSCM included green design, green purchasing, green production, green distribution, green logistics, green marketing, and reverse logistics. According to Walker, Di Sisto, and McBain (2008), the GSCM concept covers all phases of the product life cycle, starting from the extraction of raw materials through design, production, distribution phases in the use of products by consumers, and disposal ends the product life cycle. The concept of GSCM is similar to the concept of green corporate social responsibility (GCSR), but the boundaries of GSCM depend on the researcher (Srivastava, 2007). This study employed the concept of a green supply chain proposed by Cankaya and Sezen (2019). The study identified that GSCM covers seven dimensions: green purchasing, green production, green distribution, green packaging, internal environmental management, green marketing, and green education.

Green purchasing is the first stage in the value chain. Its success will depend on integrating environmental efforts, purchasing activities, and the environmental objectives of the company's objectives (Carter, Kale, & Grimm, 2000). Besides, green purchasing can be defined as integrating problems and environmental concerns into the procurement process (Rao & Holt, 2005). The selection of the right supplier has an essential influence on realizing the company's environmental goals. If an appropriate supplier has been selected, the supply process must be managed by adopting a strategic and collaborative understanding with the supplier. In addition to supplier selection and management, it is also essential to assess whether the supplier meets its environmental criteria.

Green production is one of the most critical steps in green supply chain activities. Green production is the application and planning of activities that will require energy and use fewer resources to reduce environmental pollution (Gao, Li, & Song, 2009). Green production aims to improve industrial processes and products that prevent or reduce environmental pollution. Thus, it can be concluded that green production aims to produce products that are friendly to the environment, using minimal resources and minimal waste (Routroy, 2009).

Green distribution is also an important activity that affects the performance of green supply chains. The green distribution includes all goods delivery activities that minimize waste (Gao et al., 2009). Things that affect the green distribution performance include the fuel consumed by the vehicle, the frequency of transport operations, the distance to the customer, and the characteristics of the products delivered (Sarkis, 2003).

Internal environmental management is creating companies on their environmental protection policies and environmental targets to ensure environmental protection (Chan, He, Chan, & Wang, 2012). Activities such as the support of top and middle-level managers for environmental practices, interdepartmental cooperation in the context of environmental improvement, and the preparation of environmental management systems are the scope of this internal environmental management (Zhu et al., 2005).

Green marketing involves meeting human needs with a minimal negative impact on the natural environment (Singh & Pandey, 2012). Green marketing involves efforts to design, promote, value, and distribute products that will not damage the environment (Pride & Ferrell, 1993). Thus, green marketing is more than just promotion carried out by companies because it also includes packaging and distribution (Cankaya & Sezen, 2019).

Green education is considered an essential tool to ensure human resources development towards a sustainable society (Cankaya & Sezen, 2019). Sarkis et al. (2010) and Sammalisto and Brorson (2008) stated that environmental education serves two critical objectives: to teach employees about company environmental policies and change employee behavior in building more permanent and responsible relationships with the environment.

The resource-based view (RBV) is often used extensively to discuss the impact of GSCM on company performance (Cankaya & Sezen, 2019). The RBV suggests that scarce resources are needed, valuable, and cannot be substituted within a company and will create a sustainable competitive advantage (Barney, 1991). In this case, the company's resources include tangible assets and intangible assets such as leadership, market agility, positive social reputation, and human resources (Mahoney & Pandian, 1992). Tangible resources provide a temporary competitive advantage for a company because of its competitiveness. Intangible resources are more difficult to imitate because they are obtained from experience (Hart, 1995). Hart (1995) stated that the natural environment's obstacles, such as resource depletion and ecosystem degradation, threaten the company's existing resources and capabilities. According to Cankaya and Sezen (2019), expanding the resource-based approach's scope includes opportunities and limitations inherent in the company's natural environment.

Besides RBV, NRBV is also a theory used in discussing GSCM. In NRBV, companies can gain a competitive advantage by implementing pollution prevention, product control, and sustainable development (Hart, 1995). Thus, in NRBV, environmental applications, such as green supply chains, are strategic resources that enhance company performance (Choi & Hwang, 2015). Green supply chain practices are company resources that

are difficult for competitors to imitate because they are obtained through company knowledge and experience. One example of these resources is a positive reputation. Companies that have a positive reputation have increased sales because they can distinguish themselves from competitors. After all, that reputation is a form of increased market legitimacy and more significant social approval (Molina-Azorin, Claver-Cortes, Lopez-Gamero, & Tari, 2009). Thus, environment-friendly practices positively impact the company's sustainability performance through cost advantages, increasing competitiveness through capacity building, increasing production and environmental performance, creating new capabilities, reducing waste, product quality, and process improvement (Wijethilake, 2017).

Another theory that can be used to explain GSCM is the stakeholder theory. Since the industrial revolution up to a certain period, many companies have only focused on profit-related activities. However, increasing competition, environmental damage, and increasing various interests must be borne by companies that cause social responsibility activities to be necessary. In stakeholder theory, stakeholders are defined as people or groups of people who can influence the achievement of company goals and who are influenced by these goals (Freeman, 1994). Freeman (1994) divided stakeholder groups into two, namely, internal stakeholders (employees, managers, owners) and external stakeholders (suppliers, customers, communities, government, and competitors). Companies with strong relationships with community groups tend to have facilities in achieving common goals (Freeman, 1994). Stakeholder theory states that companies must meet and manage their stakeholders' expectations and needs in the best way (Cankaya & Sezen, 2019).

The stakeholder group, which has an increasingly high level of awareness about the environment, expects not only economic success but also expects corporate action on social and environmental issues. For example, stakeholders will pay attention to what companies are doing in dealing with environmental pollution problems. With this condition, companies try to implement more proactive environmental strategies such as green supply chains to develop better relationships with their stakeholders and meet stakeholder expectations in the best way (Rivera-Camino, 2007).

Considering the increasing attention of stakeholders about how a company is managed, GSCM is a valuable tool to answer stakeholders' needs (Longoni & Cagliano, 2018). The company's activities in protecting the environment will improve relations with customers, partners, employees, and the community. As a result, by conducting successful stakeholder management, companies can gain a competitive advantage in various aspects such as efficiency, good reputation, and long-term customer and supplier relationships (Endrikat, Guenther, & Hoppe, 2014).

Economic performance is related to its ability to reduce costs associated with purchased raw materials, energy consumption, waste treatment, waste disposal, and fines for environmental accidents (Zhu, Sarkis, & Lai, 2008). Related to the application of GSCM, Bowen, Cousins, Lamming, and Faruk (2006) concluded that environment-related practices do not affect short-term profitability and sales performance, while Min and Galle (2001) found that green purchasing increases corporate expenses, which can negatively affect business financial performance. Meanwhile, NRBV considers that environmental practices can provide significant benefits for companies. Hart (1995) stated that GSCM could improve economic performance. The benefits obtained by implementing GSCM are economic benefits by reducing waste and energy costs to indirectly increase customer loyalty and company reputation through green practices (Schmidt et al., 2017). Several previous studies have found that GSCM activities positively affect economic performance (Carter et al., 2000; Rao & Holt, 2005; Zhu & Sarkis, 2004; Tang, Lai, & Cheng, 2012). Companies can apply GSCM in their business activities to get direct or indirect economic benefits. This practice, which some parties consider to add to the company's expenses, can reduce the costs associated with waste and energy. Besides, GSCM practices are closely related to stakeholders who wish the business practices carried out must be closely related to the environment. Therefore, companies that carry out GSCM activities can reduce their expenses and increase stakeholders' loyalty. Therefore, the hypothesis in this study is:

H1a: Green purchasing is positively associated with economic performances.

H1b: Green production is positively associated with economic performances.

H1c: Green distribution and packaging are positively associated with economic performances.

H1d: Internal environmental management is positively associated with economic performances.

H1e: Green marketing is positively associated with economic performances.

H1f: Green education is positively associated with economic performances.

The development of environmentalism in the community has resulted in companies having to obtain a competitive advantage. Therefore, social sustainability in maintaining the company's sustainability needs to be done by the company needs to be a concern. This condition cannot be avoided because the company is sensitive in conducting relationships with stakeholders. Examining the effect of GSCM on social performance is still rarely performed. Test conducted by Cankaya and Sezen (2019) proved that the dimensions in GSCM provided varying results on social performances. Companies need to consider Indonesia's social issues in managing their supply chains to raise social responsibility awareness. GSCM practices will enable companies to have a positive image in the eyes of stakeholders, the community, customers, personnel, and the government by reducing environmental damage. This condition is closely related to customers and company employees (Hoffman, 2001). Testa and Iraldo (2010) and Xie and Breen (2012) asserted that GSCM could increase its right name, better relations with stakeholders, and increase employee motivation. As part of sustainability performances, social performances are related to stakeholder responses to the company's existence. Social performance is essential in the context of company sustainability in the future. The stakeholder's acceptance of the company's activities and existence needs to be a concern of the company. GSCM

practices by companies are closely related to these conditions. Therefore, the hypothesis in this study is as follows:

H2a: Green purchasing is positively associated with social performances.

H2b: Green production is positively associated with social performances.

H2c: Green distribution and packaging are positively associated with social performances.

H2d: Internal environmental management is positively associated with social performances.

H2e: Green marketing is positively associated with social performances.

H2f: Green education is positively associated with social performances.

To obtain a better understanding of the main environmental problems and produce effective solutions, companies need to identify the source of environmental problems within their scope (such as production, transportation, procurement, and products). In producing goods and services, companies consume limited resources and cause environmental pollution due to the use of hazardous substances released through the air, water, and soil, resulting in pollution (Azapagic, 2003). Environmental performances measure the company's ability to reduce pollution, reduce waste, prevent hazardous substances, and reduce environmental accidents. This effort has a positive impact on improving environmental performance by reducing the consumption of solid/liquid waste and hazardous substances, reducing the incidence of environmental accidents, and improving public health (Eltayeb et al., 2011).

Lee (2009) found that green practice cases from small and medium businesses have reduced the use of raw materials, water, and waste to the lowest level. Likewise, Azevedo, Carvalho, and Machado (2011) stated that green practice contributes to improving environmental performance by reducing waste. Some studies show that green practice positively impacts environmental performance through activities including reducing production waste and using environmentally friendly energy and materials (Zhu & Sarkis, 2007; Rao, 2002; Kung, Huang, & Cheng, 2012; Famiyeh, Adaku, Amoako-Gyampah, Asante-Darko, & Amoatey, 2018). GSCM includes every effort to reduce the adverse impact of products or services produced by the company related to the environment. These businesses provide benefits for companies that competitors may not carry out. Good environmental performance results in companies having a guaranteed quality of life that is getting better. Therefore, the hypothesis in this study is as follows:

H3a: Green purchasing is positively associated with environmental performances.

H3b: Green production is positively associated with environmental performances.

H3c: Green distribution and packaging are positively associated with environmental performances.

H3d: Internal environmental management is positively associated with environmental performances.

H3e: Green marketing is positively associated with environmental performances.

H3f: Green education is positively associated with environmental performances.

3. RESEARCH METHODS

This study provides some preliminary indicators to explain the dynamic interplay between green supply chain management and Indonesia's sustainability performance, one of the developing countries. This study employs a quantitative method to investigate the independent variable, the green supply chain components, the dependent variable, and the sustainability performance components. This study uses primary data so that the instrument used was a questionnaire survey. The survey was conducted at public sector practitioners, private sector practitioners, managers, and lecturers in Indonesia who have knowledge related to the sustainability field. Although the respondents were not specifically practiced in a corporate environment, they have one thing in common: they know how the corporation runs its business to comply with sustainability regulation in Indonesia. The tacit knowledge was beneficial to the respondents to understand the survey question's context as the knowledge will lead them to answer the question correctly and unbiasedly. The questionnaire in this study consists of three parts. The first part is the respondent's data. It consists of the respondent's perception related to the green supply chain component in the second part. The last part is the respondent's perception related to the environmental performance component. This study's data analysis methods are the validity test, reliability test, descriptive analysis, and multiple linear regression analysis using SPSS 25. Therefore, data analysis is expected to test the effect of green supply chain components on sustainability performance. We applied the multiple regression analysis with the consideration that this study aims to see the effect of independent variables on the dependent variable so that the relationship between independent variables is not the focus of the study. Besides, by applying linear regression, we can keep the model simple. The regression was also applied as the analytical tool because the sample was categorized as a small sample: 60 respondents (Kamaruddin & Abeysekera, 2013). In the case of the small sample, Nunkoo and Ramkissoon (2012), Ramli, Latan, and Nartea (2018), and Xiao (2013) suggested that the use of the regression would be preferred than structural equation modeling to predict the accurate results with the less exaggerated model.

The operationalization of variables in this study uses dimensions developed by Cankaya and Sezen (2019). Dependent variables in this study are economic performance, social performance, environmental performance. Meanwhile, the independent variables are green purchasing, green manufacturing, green distribution and packaging, internal environmental management, green marketing, and green education. There is one variable, namely investment recovery, which is not used in this study because this component does not include the core of the green supply chain.

The indicators used for independent variables are as follows: *(X1) green purchasing:* design specifications to suppliers that include environmental requirements, cooperation with suppliers for environmental purposes, selecting environmentally-friendly supplier criteria, requires suppliers to have ISO 14000 certification, environmental audits for internal supplier management. *(X2) green*

manufacturing: the implementation of the product manufacturing process by reducing noise pollution to a minimum in the production process, the substitution of materials are containing polluting and dangerous substances in the production process, filter and control emissions and discharges in the production process, production planning, and control, which is focused on reducing waste and optimizing material exploitation, and design processes that are focused on reducing energy consumption and natural resources in the production process. *(X3) green distribution and packaging:* reduce packaging material, use ecological materials (minimize the existence of environmental impacts) for the packaging of products produced, use packaging that can be recycled or can be reused, choose a cleaner transportation method, consolidation of effective shipping, and full loading of vehicles, freight transportation route system to minimize the distance. *(X4) internal environmental management:* cross-functional cooperation for improving the company's environment, index of environmental protection recycling, gas reduction, energy conservation, environmental management system, support from senior managers and middle-level managers, and fulfillment of requirements related to environmental problems. *(X5) green marketing:* voluntary information regularly related to environmental management to customers and related institutions, sponsoring events/activities related to the environment or collaborating with ecological organizations, the natural environmental argument in marketing products, periodic website updates related to environmental issues, label the raw material package to facilitate the retrieval of raw materials, eco-product assumptions can increase consumer's desires in making purchases. *(X6) green education:* an environmental awareness seminar for suppliers, a natural environment seminar for executives, natural environment training programs for managers and employees, and natural environment programs that are in line with the activities carried out by the government.

The dependent variables use these following indicators: *(Y1) economic performance:* reduction in the cost of materials purchased by the company, reduction in the cost of energy consumption of the company, reduction in costs for corporate waste disposal, increase in earnings per share of the company, increase in return on company investment, company sales growth, company profit growth. *(Y2) social performance:* increased customer satisfaction, improving the company's image from the consumers perspective, the increased investment made by companies in social projects (education, culture, sports), improvement in the company relations with community stakeholders, such as non-governmental, organizations and community activists, awareness-raising and protection of the claims and rights of people in the community served by the company, improvement in employee training and education, improve employee health and safety, and welfare improvement or overall stakeholder improvement. *(Y3) environmental performance:* improvement of the environmental situation at the company site, reduction of waste, reduction of air emissions, decreased consumption of hazardous/toxic substances, and frequency reduction for environmental accidents.

4. RESULTS

This research was conducted from March to May 2020, using primary data through a questionnaire survey. Questionnaires were distributed by distributing directly online to respondents through the link address http://gg.gg/KuesionerGSC. Questionnaires were given to respondents from the 4th to the 15th of May 2020. The distribution of questionnaires online was carried out personally by as many as 63 respondents. The total number of questionnaires filled were 60 respondents, and all items of the questionnaire could be used. Even though we only used data generated from 60 respondents, which is classified as a small sample (Kamaruddin & Abeysekera, 2013), the use of a small sample is not illicit in a cross-sectional study and still can produce unbiased results if the data is tagged as best linear unbiased estimator-BLUE (Gujarati & Porter, 2008; Ramli et al., 2018). Our validity and reliability tests below show strong evidence of unbiased data to exploit the data to construct the model of sustainability performance.

The validity test related to the question instrument in this study uses Pearson's product-moment correlation, which was performed by comparing Pearson correlation (*rcount*) of each instrument in the questionnaire with rtable at 95% confidence level and degree of freedom (*df*) = n-2 where *n* = number of respondents. The degree of freedom and *rtable* in this study are *df* = 58 and *rtable* = 0.2542. If *rcount* > *rtable*, then the instrument is declared valid. Conversely, if *rcount* < *rtable*, the instrument is declared invalid (Ghozali, 2016). Table 1 to Table 10 compares the instrument questionnaire items' validity test results for each variable in this study.

Table 1. Test results for questionnaire validity for Green purchasing variable

Item	*Pearson correlation*	*r-table*	*Result*
GP1	0.705	0.2542	Valid
GP2	0.764	0.2542	Valid
GP3	0.743	0.2542	Valid
GP4	0.645	0.2542	Valid
GP5	0.718	0.2542	Valid

Table 2. Test results for questionnaire validity for Green manufacturing variable

Item	*Pearson correlation*	*r-table*	*Result*
GM1	0.302	0.2542	Valid
GM2	0.651	0.2542	Valid
GM3	0.355	0.2542	Valid
GM4	0.745	0.2542	Valid
GM5	0.646	0.2542	Valid

Table 3. Test results for questionnaire validity for Green distribution and packaging variable

Item	*Pearson correlation*	*r-table*	*Result*
GDP1	0.713	0.2542	Valid
GDP2	0.794	0.2542	Valid
GDP3	0.696	0.2542	Valid
GDP4	0.660	0.2542	Valid
GDP5	0.411	0.2542	Valid
GDP6	0.359	0.2542	Valid

Table 4. Test results for questionnaire validity for Internal environmental management variable

Item	*Pearson correlation*	*r-table*	*Result*
IEM1	0.777	0.2542	Valid
IEM2	0.779	0.2542	Valid
IEM3	0.749	0.2542	Valid
IEM4	0.813	0.2542	Valid
IEM5	0.636	0.2542	Valid

Table 5. Test results for questionnaire validity for Green marketing variable

Item	*Pearson correlation*	*r-table*	*Result*
GMR1	0.634	0.2542	Valid
GMR2	0.679	0.2542	Valid
GMR3	0.512	0.2542	Valid
GMR4	0.505	0.2542	Valid
GMR5	0.385	0.2542	Valid
GMR6	0.485	0.2542	Valid

Table 6. Test results for questionnaire validity for Green education variable

Item	*Pearson correlation*	*r-table*	*Result*
GE1	0.888	0.2542	Valid
GE2	0.947	0.2542	Valid
GE3	0.947	0.2542	Valid
GE4	0.840	0.2542	Valid

Table 7. Test results for questionnaire validity for Economic performances variable

Item	*Pearson correlation*	*r-table*	*Result*
KE1	0.756	0.2542	Valid
KE2	0.724	0.2542	Valid
KE3	0.803	0.2542	Valid
KE4	0.898	0.2542	Valid
KE5	0.927	0.2542	Valid
KE6	0.841	0.2542	Valid
KE7	0.873	0.2542	Valid

Table 8. Test results for questionnaire validity for Social performances variable

Item	*Pearson correlation*	*r-table*	*Result*
KS1	0.722	0.2542	Valid
KS2	0.849	0.2542	Valid
KS3	0.847	0.2542	Valid
KS4	0.770	0.2542	Valid
KS5	0.800	0.2542	Valid
KS6	0.895	0.2542	Valid
KS7	0.911	0.2542	Valid
KS8	0.887	0.2542	Valid

Table 9. Test results for questionnaire validity for Environment performances variable

Item	*Pearson correlation*	*r-table*	*Result*
KL1	0.809	0.2542	Valid
KL2	0.955	0.2542	Valid
KL3	0.891	0.2542	Valid
KL4	0.922	0.2542	Valid
KL5	0.910	0.2542	Valid

Based on Table 10, all the variables in this study have a Cronbach value > 0.6. According to Sujarweni (2015), a minimum value of Cronbach alpha (α) > 0.6, while according to Hair, Black, Babin, and Anderson (2013), the minimum value of Cronbach alpha (α) > 0.5. Therefore, all variables used in this study are stated to be reliable.

Table 10. The results of research variability reliability tests

Variable	*Cronbach alpha (α)*	*Result*
Green purchasing	0.744	Reliable
Green manufacturing	0.664	Reliable
Green design and Packaging	0.726	Reliable
Internal environmental management	0.795	Reliable
Green marketing	0.625	Reliable
Green education	0.927	Reliable
Economic performance	0.926	Reliable
Social performance	0.937	Reliable
Environment performance	0.938	Reliable

In this study, descriptive statistics are used in minimum, maximum, median, mean, and standard deviation. Values above 3 depict respondents' perceptions to tend to agree about the statement instruments that make up the variable, while values below 3 describe respondents' perceptions to disagree about the questionnaire items that make up these variables. Table 11 presents descriptive statistics for all variables in this study.

Table 11. Descriptive statistics of research variables

Variable	*N*	*Mean*	*Med.*	*Std. dev.*	*Min.*	*Max.*
GPR	60	3.713	3.6	0.718	1.60	5.00
GMCR	60	3.633	3.833	1.030	1.00	5.00
GDPR	60	3.970	4	0.652	2.60	5.00
IEMR	60	3.996	4	0.637	2.40	5.00
GMRR	60	3.816	4	0.676	2.25	5.00
GER	60	3.566	3.75	0.914	1.00	5.00
KER	60	3.552	3.642	0.871	1.29	5.00
KSR	60	4.048	4	0.653	2.63	5.00
KLR	60	4.080	4.1	0.825	1.60	5.00

Green purchasing, Green manufacturing, Green distribution and Packaging, Internal environmental management, Green marketing, Green education, Economic performance, Social performance, and Environmental performance have mean and median values above 3. However, when these are viewed from the minimum questionnaire value, there is still an average value below 3. It shows that respondents perceive that the components of the green supply chain and sustainability performance in Indonesia are still not thoroughly carried out correctly. Furthermore, Table 12 shows the hypothesis test results.

Table 12. The summary of hypothesis test results

Variables	*Economic performance*			*Social performance*			*Environmental performance*		
	β	*t*	*Sig.*	*β*	*t*	*Sig.*	*β*	*t*	*Sig.*
C	0.940	1.305	0.099*	1.141	2.34	0.0115**	1.065	1.59	0.059*
GPR	0.025	0.119	0.453	-0.007	-0.05	0.48	-0.06	-0.304	0.381
GMCR	-0.110	-0.998	0.1615	-0.019	-0.257	0.3995	-0.02	-0.197	0.422
GDPR	0.493	2.635	0.0055***	0.244	1.931	0.0295**	0.477	2.745	0.004***
IEMR	-0.086	-0.300	0.3825	0.152	0.78	0.2195	-0.208	-0.779	0.219
GMRR	0.090	0.332	0.3705	0.288	1.565	0.062*	0.456	1.805	0.038**
GER	0.269	1.582	0.06*	0.092	0.801	0.2135	0.143	0.902	0.185
R^2	0.343			0.466			0.367		
Adj. R^2	0.269			0.406			0.296		
F	4.618			7.711			5.130		
Sig.	0.001			0.000			0.000		

5. DISCUSSION

The test result suggests that green purchasing is not associated with economic performances. The result is in line with Cankaya and Sezen (2019). In Indonesia, as a developing country, it is expected that purchasing raw materials for the production process is still running traditionally and ignores environmental impacts. Companies in Indonesia have not yet made the leading supplier of raw materials that care for the environment as one of the main criteria. The companies still consider these criteria as not activities that can improve economic performance. Environmentally friendly supply channels can support the company's economic performance. Therefore, the relationship and commitment with suppliers are essential to obtain the attention of the company. In supporting green purchasing success, companies also need to pay attention to consistent supplier behavior that will support environmentally friendly (Joshi & Rahman, 2015). The limited knowledge of environmental protection from management triggers that purchasing activities in line with environmental protection cannot be optimally carried out.

Regarding the green manufacturing, we find that this variable is not associated with economic performance. The result is different from Cankaya and Sezen (2019). It indicates that Indonesia's companies are suspected to be more likely to follow business processes running so far. The concept of environmentally friendly in the production process is still not a concern of the company and is considered not necessarily able to provide economic

benefits. Also, an environmentally friendly production process is still considered to have a significant cost impact on the company. Ideally, the production process carried out many activities that do not provide added value will be eliminated (Djunaidi et al., 2018). This activity's economic efficiency can also eliminate overall production costs (Hartini & Ciptomulyono, 2015). Indonesia's regulation related to the implementation of environment-based industries is still low, including sanctions imposed on companies if they do not comply with environmental regulations. Therefore, it is not an obligation in Indonesia to implement that.

Our study also finds that green distribution and packaging are positively associated with economic performance. The results of this study are in line with Cankaya and Sezen (2019). Companies that can carry out distribution activities of packaging products/services that are environmentally friendly can have a competitive advantage compared to their competitors. It is expected that companies in Indonesia have realized that the distribution of environmentally friendly products/services can boost their economic performance by reducing various costs incurred. Meanwhile, consumers in Indonesia have realized the importance of environmentally friendly product/service packaging to choose products/services that have implemented the policy. Therefore, products/services packaged by taking into account the environmentally friendly principles in Indonesia can become more attractive. Products/services that are environmentally friendly are more acceptable to consumers in Indonesia, so the consumer's decision on the packaging of products and environmentally friendly services is beneficial for the company (Djunaidi et al., 2018). Also, practices such as saving resources and energy, reducing waste, and using less packaging help companies develop their performance environment and are closely related to economic performance. Likewise, reducing packaging ingredients reduces packaging costs and transportation costs (Carter et al., 2000). With environmentally-friendly distribution and packaging practices, companies will be able to use their resources more efficiently. It will enable the company to reduce production costs and increase efficiency. It is in line with natural resource-based theory, which states that a company can use its environmentally friendly company resources to obtain economic benefits in competitive advantages that are different from its competitors.

Another finding in this study is internal environmental management is not associated with economic performances. The result is in line with Cankaya and Sezen (2019). Internal environment management within the company has not become a concern for the company to be carried out optimally so that this activity has not become the company's top priority. Companies can still consider the absence of rules that oblige companies to implement this provision. Although it is possible that companies/ organizations have implemented this activity, but it has not yet fulfilled good quality, even though the support of top management and environmentally friendly organizational strategies can provide immense economic benefits (Djunaidi et al., 2018). Therefore, the company's quantity may still not touch the substance of real internal environmental management.

Regarding the green marketing, this study finds it is not associated with economic performance. The result is in line with Cankaya and Sezen (2019). If companies have implemented this strategy, the name is still considered a slogan in Indonesia, so consumers do not fully believe that this activity truly reflects real green marketing. The quality of the implementation of environmentally friendly product/service marketing carried out by the company is still not entirely reasonable, even though this activity is closely related to consumer or community response. While green marketing practices can enhance a company's reputation and image and increase sales, it affects economic performance (Chan, 2005). Companies including in Indonesia, assume that environmentally friendly marketing practices can initially incur additional costs (Welling & Chavan, 2010). Also, the concept of environmentally friendly marketing in developing countries such as Indonesia may still be in its infancy (Aslan & Çinar, 2015), so this concept has not been optimized.

This study suggests that green education is positively associated with economic performances. The result is relevant to Cankaya and Sezen (2019). Environmentally friendly education, either given to employees at all levels or suppliers, can improve its economic performance. Environmentally friendly education provided to employees is a standard that should be carried out by stakeholders (Cankaya & Sezen, 2019). Also, environmentally friendly educational activities integrated with government activities strengthen its position both in programs and in substance provided to stakeholders. Green education is one of the company's efforts to improve employees' abilities related to environmental protection and environmentally friendly innovations. The organization should provide enough training to its employees, particularly in environmental protection, to obtain specific skills that produce products or services that meet customer perspective (Yusoff et al., 2019). Thus, companies can gain a competitive advantage as natural resource-based theory; therefore, if a company in Indonesia has implemented environmental education to employees, its benefits are that employees can develop environmentally-friendly innovations.

This study finds that green purchasing is not associated with social performances. The result is in line with Cankaya and Sezen (2019). Companies that have adopted green purchasing are still considered unable to develop better relations with the community. It is due to the quality carried out by the company and public awareness of these activities. Companies that have adopted the concept of environmentally friendly purchasing raw materials do not result in good relations with the community. It might occur due to the lack of public knowledge in distinguishing companies that have applied environmental activities in purchasing raw materials and who have not applied that concept.

According to the result, we also conclude that the green manufacturing is not associated with social performance. The result differs from Cankaya and Sezen (2019). Companies that have applied the concept of environmentally friendly production, eliminating hazardous chemicals, preventing workers from exposure to pollutants and hazardous substances in Indonesia are still unable to meet

good relations with their communities. It is possible because people in Indonesia still have not differentiated companies that have implemented environmentally friendly production. Even though the company's production process is not environmentally friendly, it can endanger the community, especially those around the industrial location. The low level of knowledge associated with knowledge of environmentally friendly production process activities results in companies in Indonesia not always having the right name in society. The community still considers that the company's environmental activities are only related to activities directly felt by the community. Also, companies that have implemented environmentally friendly production process activities still lack public education.

Another finding is that green distribution and packaging are positively associated with social performance. The result is in line with Cankaya and Sezen (2019). People in Indonesia can more easily identify distribution and packaging activities because they can be seen in plain view. Therefore, green distribution and packaging activities have succeeded in developing company relations, both with its private parties and the community. Also, many parties saw this activity directly to give a positive response to the company.

Another finding in this study is that internal environmental management is not associated with social performance. The result differs from Cankaya and Sezen (2019). The company's internal activities related to environmental management cannot be seen directly by the community. It is possible that companies in Indonesia still cannot provide information and education to the public regarding these activities. Therefore, the community considers no difference between companies that have implemented internal environmental management and companies that have not implemented it.

This study also finds that the green marketing is positively associated with social performance. The result differs from Cankaya and Sezen (2019). Green marketing is one of the strategies the company can do in developing relationships with all of its stakeholders in Indonesia, especially society. Companies that have implemented this concept obtain benefits from positive responses from companies from their customers. With the information provided by the company through green marketing activities, stakeholders in Indonesia, especially consumers, are increasingly feeling safe about environmentally friendly products released by the company. Issues related to environmental sustainability implemented by the company can provide a positive outlook for the community, who are consumers in determining products' choice to be used (Onsrud & Simon, 2013). This study's results are in line with the concept of natural resource-based theory in applying green marketing, and companies gain public confidence in better excellence that competitors may not obtain.

In this study, we also suggest that green education is not associated with social performances. The result is in line with Cankaya and Sezen (2019). The company may currently provide education to employees, managers, and company partners regarding environmental issues and increase environmental pollution. However, this activity may only be carried out by the company in its initial stages and is not an activity that has long been carried out. Environmental education can increase environmental awareness and achieve green strategies adopted by companies to achieve broader stakeholders (Cankaya & Sezen, 2019). The education of employees, managers, and company partners related to environmental protection is not an activity whose results can be observed quickly. This activity provides a process that can last a long time in improving the company's relationship with various stakeholders so that the impact is still not felt by stakeholders, especially consumers and the community, in a short time.

Another conclusion from this study is that the green purchasing is not associated with environmental performance. The result is in line with Cankaya and Sezen (2019), but it differs from Green et al.'s (2019). This finding concludes that green purchasing practices by companies have not been able to improve the company's environmental performance. Companies that have undertaken green purchasing activities have not yet thoroughly carried out these activities in substance so that these activities have less impact on improving the company's environment. On the other hand, companies that have not undertaken green purchasing activities still do not realize the importance of environmentally friendly activities that can impact environmental quality.

This study concludes that green manufacturing is not associated with environmental performance. The result differs from Cankaya and Sezen (2019) and Green et al. (2019). Probably, Indonesian companies do not have a genuinely environmentally friendly production concept, so that they have not been able to achieve excellent environmental performance. This activity may not be fully understood as an essential activity by the company. The company may also consider applying an environmentally friendly production process that could burden the company, reducing its profit. This condition is still not understood that if the company has an environmental performance that comes from environmentally friendly production process activities, it can provide long-term corporate benefits.

This study finds that green distribution and packaging are positively associated with environmental performances. The result is relevant to Cankaya and Sezen (2019) and Green et al. (2019). Green packaging is closely related to its product/service packaging, which shows that it applies the environmental concept in this activity. The policy can reduce the environmental impact caused by product/service packaging. One possible process is to reduce hazardous materials on the packaging or use recyclable packaging materials. In this way, fewer resources will be consumed, and the amount of waste generated will be reduced. Also, the company produces product/service packaging that can be recycled. This activity might initially have consequences that could incur higher costs for Indonesia than a single-use package, but this step can reduce procurement and waste costs because it can be used several times. Through packaging activities that can be recycled, a company's amount of waste can be reduced (Zsidisin & Siferd, 2001). The organization that provides enough training to its employees,

particularly in environmental protection, will provide a customer perspective, especially in environmental criteria (Yusoff et al., 2019).

Meanwhile, green distribution activities carried out by the company can minimize the environmental impact. Green distribution contributes to improving environmental performance by reducing fuel consumption, optimizing distribution routes, and ensuring distribution following the company (Cankaya & Sezen, 2019). Environmentally friendly distribution and packaging activities can reduce the costs incurred by the company. On the other hand, consumers believe that the company's products are environmentally friendly products and services (Green et al., 2019). Therefore, this activity has supported the natural resource-based theory, where a company can have a competitive advantage compared to other companies.

Our result also shows that internal environmental management is not associated with environmental performance. This study's result differs from Cankaya and Sezen's (2019) and Green et al.'s (2019). Although companies have implemented internal company activities related to environmental management, this activity is still not optimal to improve the company's environmental performance. Companies are still in the early stages in Indonesia to meet environmentally friendly environmental management in their internal environmental management activities. Also, there may still be many companies that have not implemented this policy in their companies because this activity can increase the company's burden and increase the complexity of standard operational procedures.

According to our result, we suggest that the green marketing is positively associated with environmental performance. The result differs from Cankaya and Sezen (2019) and Green et al. (2019). Environmentally friendly marketing activities can directly improve the environmental performance produced by the company. In Indonesia, this activity directly impacts companies in reducing various pollutants and waste that reduce environmental quality. This activity supports the company in creating environmental protection. In Indonesia, green marketing activities may have met the substance of environmental protection following global standards. Through this activity, consumers believe that the company's products are environmentally friendly products and services (Green et al., 2019). Therefore, the company gets consumers' attention to its environmental activities to get a competitive advantage as a natural resource-based theory.

Finally, we also conclude that the green education is not associated with environmental performances. The result is in line with Cankaya and Sezen (2019) and differs from Green et al. (2019). In Indonesia, the education phase related to environmental protection to employees, managers, and company partners is still in the initial stages or is still low. It is not easy for employees, managers, and company partners to apply the environment's concept in their daily activities despite this education from the company management. The impact of education on employees, managers, and corporate partners related to environmental protection can be applied quickly. This activity requires a process that may take a long time to benefit from this educational investment.

6. CONCLUSION

Based on the result, we conclude that green purchasing, green manufacturing, internal environmental management are not associated with economic performances, social performances, and environmental performances. Meanwhile, green education is not associated with social performance and environmental performance; green marketing does not affect economic performance. Furthermore, green distribution and packaging positively affect economic, social, and environmental performance. Green education positively affects economic performance. Green marketing is positively associated with social performances and environmental performances.

We have identified several limitation in our study. Respondents used in this study have varied work experience fields, not focus on the same field, such as in the manufacturing field, especially managerial skills in manufacturing companies, so the information used is still not wholly accurate to capture the real conditions that occur in Indonesia organizations. Another limitation, the number of respondents with established criteria is still relatively small to depict Indonesia's condition. Therefore, for future research, managers as respondents in manufacturing companies are needed to better describe the real conditions with a more significant and more varied number. Further research can use a structural equation model to prove which construct has the most influence in representing the independent variable.

To sum up, our study suggests that the green supply chain activity is still low in Indonesia as a developing country, even though this activity is closely related to supporting its sustainability performance in the future. Therefore, the government authorities need to regulate policies related to environmental activities carried out by companies, especially related to green supply chain activities. The policy is expected to guide companies in increasing internal and external activities that support environmental protection.

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