PAPER SUBMITTED

The role of green supply chain management and green innovation in the effect of corporate social responsibility on firm performance

O papel da gestão da cadeia de suprimentos verde e da inovação verde no efeito da responsabilidade social corporativa no desempenho da empresa

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Summary

The application of social performance as a material for transparency of environmental commitments that drive company management on company performance is required in the firms. The purpose of this study was to look into the environmental implications of the firms, specifically the role of green supply chain management and green innovation as intervening variables between the effect of corporate social responsibility on firm performance and the effect of corporate social responsibility on firm performance. This was quantitative research. PROPER companies listed on the Indonesia Stock Exchange from 2015 to 2019 comprised the study's population. Research data was obtained from the Indonesia Stock Exchange. The sample for this study was 211 companies' annual reports and financial statements, which were obtained through a purposive sampling method. STATA was used to test the data in this study. The results of the study revealed that green supply chain management mediated the effect of corporate social responsibility on firm performance, green innovation did not mediate the effect of corporate social responsibility on firm performance, green supply chain management mediated the effect of corporate social responsibility on green innovation, and green innovation did not mediate the effect of green supply chain management on firm performance.

Keywords*: Corporate Social Responsibility, Green Supply Chain Management, Green Innovation, Firm Performance, Sustainability*

INTRODUCTION

The achievement of the gold performance level (beyond compliance) of the Company's Performance Rating Program in Environmental Management (PROPER) has an up to the pipe nature. Management is carried out in all aspects of the company, from top management to production staff to logistics, to develop innovation and excellence in environmental and business management, as well as empowering local communities' potential (Ministry of Environment and Forestry, 2021). Various efforts to reduce the challenges of global warming, control pollution, and improve environmentally friendly policies cannot be separated from the industrial environment that plays a role and evolves in achieving sustainable development (UN Global Compact, 2020). In the industrial world, companies are required to implement social performance as a material for transparency from environmental commitments which are expected to be a driving force for company management on company performance (Corsi & Arru, 2021).

Corporate social responsibility has several alternative concepts that cannot be separated from the existence of citizenship from the core of the company, sustainability or a sustainability system, the management of stakeholders, the application of proper business ethics, the implementation of awareness of capitalism, value creation in the eyes of the community and the company, having a purpose in its movement (Carroll & Brown, 2018). By revealing the sustainable social and economic environment, the corporate social responsibility program becomes information on the reliability of performance during the company's operations (Hassan, 2019). In general, it can be said that corporate social responsibility has risen over time (Frimpong et all.,

2021; Nyeadi, 2018). The impact of economic growth is identified through corporate social responsibility, which is also focused on the operational maturity of the strategy implemented with environmental awareness from both parties (Pablo & Benito, 2020). The principle of moral branding for honest attitude toward complying with legal regulations and in line with company management, professional integrity, and the absence of an abuse of office and performance monitoring can be viewed as specific evidence of the existence of corporate social responsibility (Hou, 2019; Welford, 2007).

The efficiency of cost savings related to applicable regulations and human resource processing is referred to as firm performance (Acquah et all., 2021). The manifestation of the development of environmental and product quality, like the optimal role of human resources, is an effort to attract future economic generalization (Jabbour et al., 2019; Lyu et all., 2019). Aside from that, operational practice is a response to structural and management pressure (Qorria et all., 2018). According to Maldonado-guzman (2017), performance aspects must be in line with operations in terms of waste recycling, waste management, and renewable energy consumption. The competitiveness of environmental regulation policies that are applied to obtain quantity as the mobility of the company's growth rate is aided by firm performance (Zhang et all., 2019). Environmental performance through multi-sector companies aimed at improving aspects of sustainability can be measured by the firm performance at a strategic environmental level (Qiu & Wang, 2020; Zhou et all., 2019).

Several studies have examined the relationship between corporate social responsibility and firm performance (Jang et al., 2019; Yang et al., 2019). However, research findings on the relationship between corporate social responsibility and firm performance are still lacking (Al-Shammari et al., 2021; Úbeda-García et al., 2021). Previous research has shown that corporate social responsibility has a positive impact on firm performance, demonstrating the benefits of investing in CSR, which leads to increased market share and firm performance, ultimately strengthening the company's financial growth (Anser et al., 2018; Javeed & Lefen, 2019; Saha et al., 2020). This finding is contrary to other studies which found that corporate social responsibility does not affect firm performance because in the implementation of corporate social responsibility there are still different desires and needs of stakeholders to fulfill the company's activities and understand the external environment (Buallay et al., 2020; Riyadh et al., 2019). As a result, companies in Indonesia still have a high level of understanding of corporate social responsibility, green supply chain management, green innovation, and firm performance. Previous studies found a gap in the results, indicating that corporate social responsibility must go through a mediating effect to achieve firm performance.

The direct and indirect relationship will be empirically examined in this study. Green supply chain management and green innovation, in an indirect relationship, act as mediating variables in the relationship between corporate social responsibility and firm performance. Corporate social responsibility has a positive impact on green supply chain management, and businesses must improve green supply chain management in a competitive environment by pursuing corporate social responsibility (Huang et al., 2021; Michalski et al., 2018). Green supply chain management has an impact on firm performance, demonstrating that green supply chain management practices can improve quality while lowering production costs, resulting in improved firm performance (Jiwa et al., 2021; Samad et al., 2021). Green innovation is influenced by corporate social responsibility. Corporate social responsibility practices can encourage green innovation, which can help companies save energy and resources while increasing productivity (Kraus et al., 2020; Padilla-Lozano & Collazzo, 2021). Green innovation has a positive impact on firm performance, indicating that the practice can demonstrate a company's ability to improve performance (Frempong et al., 2021; Junaid et al., 2022). Because the evidence from previous studies differs, this study can answer the following research questions:

1. Is green supply chain management able to mediate the effect of corporate social responsibility on firm performance?
2. Is green innovation able to mediate the effect of corporate social responsibility on firms' performance?
3. Is green supply chain management able to mediate the effect of corporate social responsibility on green innovation?
4. Is green innovation able to mediate the effect of green supply chain management on firm performance?.

The goal of this research was to examine the effect of a corporate social responsibility and firm performance with green supply chain management and green innovation as a mediation.

This research contributes, among other things, to environmental empowerment efforts that are committed to adjusting the performance contribution of corporate social responsibility and green innovation management while increasing firm performance profits. The company's implementation of corporate social responsibility in this case needs to pay attention to aspects of the surrounding environment so that the sustainability of the program is expected to be mutually beneficial. Green Innovation controls the performance of technology that can be applied by the community as a development strategy for firm performance. The results from the implementation of CSR are also expected will always be maintained following the policy program stated on the company's excellence that blends with the company's environment and also the community's environment. Green supply chain management itself is a supply chain that pays attention to environmental health which includes the initial stage of the product to the end of the product even after the product is used. This research can help companies in improving firm performance.

LITERATUR REVIEW

Corporate Social Responsibility

Corporate social responsibility is a multifaceted concept that necessitates managers' undivided attention and efforts in its implementation. Employees, customers, the environment, the media, and partnerships are all part of corporate social responsibility (Agan et al., 2016). Halkos & Nomikos (2020) stated that corporate social responsibility refers to actions taken by businesses to address environmental and social issues. Corporate social responsibility is a valuable investment and business strategy for businesses (Cheng et al., 2016). Corporate social responsibility has both internal and external benefits for a company. Internally, corporate social responsibility can boost short-term profits, while externally, it can boost benefits for long-term market value (Yoon & Chung, 2018). Environmental corporate social responsibility can help companies attract more environmentally conscious investors (Yang et al., 2019). One way to demonstrate corporate social responsibility is to assist suppliers in developing environmentally friendly products, processes, and technologies (Agan et al., 2016). Shareholders, employees, customers and suppliers, the environment, and society are the five dimensions that can be used to evaluate corporate social responsibility performance (Yang et al., 2019). Corporate social responsibility can be defined as a company's commitment to consider environmental and social impacts when conducting business operations, according to several definitions proposed by these researchers.

Green Supply Chain Management

Green supply chain management is a practice that businesses use in their day-to-day operations to help the environment (Laari et al., 2016). Green supply chain management, according to Min & Kim (2012) is the integration of environmentally friendly initiatives into every aspect of the supply chain, from sourcing design to final product management services. Green supply chain management is divided into four categories: supplier inventory, marketing, and management orientation (Minh et al., 2020). Green supply chain management encompasses not only the manufacturing of products and the distribution process to customers but also the initial stages of product design until the product is used (Chiu & Hsieh, 2016). Internal environmental management, eco-design, green supply chain external practices, green purchasing, and customer collaboration are some of the practices used by businesses to implement green supply chain management (Ahmed et al., 2019). Even though green supply chain management practices can cost more than a company's investment budget, green supply chain management has many advantages for businesses that want to implement environmental management initiatives like green supply chain management (Choi et al., 2017). Some of them include stakeholder support, legitimacy, and resources, which will be easier to obtain if companies focus on green supply chain management strategies (Bu et al., 2020). Customers, internal management, government regulations, and pressure from industry competitors are all factors that can encourage companies to implement green supply chain management (Choi et al., 2017).

Green Innovation

Green innovation is a method for company stakeholders to use technology to promote and achieve company goals while minimizing environmental impact (Xue et al., 2019). Green

innovation focuses on cost-cutting and product differentiation activities and processes (A. M. Sellitto et al., 2020). Green innovation that is implemented holistically is more likely to assist businesses in lowering production costs and reducing the environmental impact of products, processes, services, and organizational innovation (Khan & Johl, 2019). The existence of appropriate environmental standards and strict environmental supervision can trigger the application of green innovation that can reduce the cost of meeting company needs (Li et al., 2017).

Firm Performance

The first step for investors all over the world will do is to assess the company's performance. According to (Al-Matari et al., 2014), firm performance refers to how a company achieves its objectives, including financial goals (Minh et al., 2020). Abeysekara et al., (2019), stated that firm performance refers to how well a company has met its product, human resource, and financial goals. The performance of a company as measured by various company performance indicators can be used by company stakeholders to make decisions (Minh et al., 2020). Return on Assets (ROA), Return on Equity (ROE), Return on Sales (ROS), Profit Margin (PM), Earnings per Share (EPS), Tobin -Q, Market Value Added (MVA), and Market-to-Book Value (MTBV) can be used to assess a company's performance (Al-Matari et al., 2014).

Corporate Social Responsibility, Green Supply Chain Management*, and *Firm Performance

Several previous studies have found a correlation between corporate social responsibility and firm performance. However, another variable must be included as a mediator in the relationship between corporate social responsibility and firm performance. As a result, green supply chain management is used as a mediating variable in this study. As a result of various corporate social responsibility initiatives, such as reducing negative environmental impacts and improving stakeholder and community welfare, the company is implementing green supply chain management (Chenxiao Wang et al., 2020). The effective implementation of a green supply chain management strategy can help companies reduce stakeholder pressure, gain support and resources, and improve firm performance (Bu et al., 2020). Thus, the researcher wrote the following hypothesis:

H_1: *Green supply chain management mediates the effect of corporate social responsibility on firm performance*

Corporate Social Responsibility, Green Innovation*, and *Firm Performance

Several previous studies have stated that there is continuity between corporate social responsibility and firm performance. In this study, we added green innovation as a mediating variable. Corporate social responsibility has a significant effect on green innovation (Kraus et al., 2020). Corporate social responsibility initiatives are very essential for companies to achieve environmentally friendly business goals so that they can encourage the implementation of green innovation (Shahzad et al., 2020). Green innovation has a significant influence on firm performance (Tang et al., 2017). Green innovation can improve firm performance, namely increasing sales growth and company sales profit (D. Zhang et al., 2019). Thus, the researcher proposes the following hypothesis:

H_2: Green innovation mediates the effect of corporate social responsibility on firm performance

Corporate Social Responsibility, Green Supply Chain Management, and Green Innovation

Green innovation is greatly influenced by corporate social responsibility (Kraus et al., 2020). For companies to achieve environmentally friendly business goals and help increase green innovation, initiatives for corporate social responsibility activities such as the environment, community, consumers, and employees are critical (Shahzad et al., 2020). Furthermore, corporate social responsibility has a positive impact on green supply chain management, as it can increase the social and environmental benefits of green supply chain management implementation (Chenxiao Wang et al., 2020). Green supply chain management can increase the value of green innovation, so it has a positive impact on green innovation (Abu Seman et al., 2019). Therefore, the researcher proposes the hypothesis below:

H_3: *Green supply chain management mediates the effect of corporate social responsibility on green innovation*

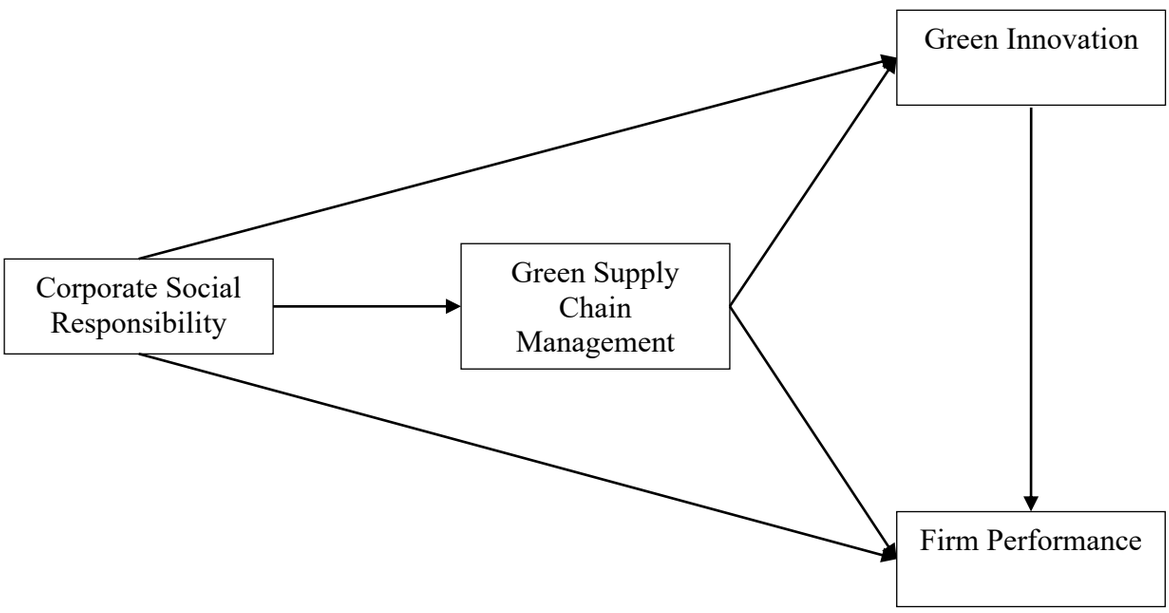
Green Supply Chain Management, Green Innovation, and Firm Performance

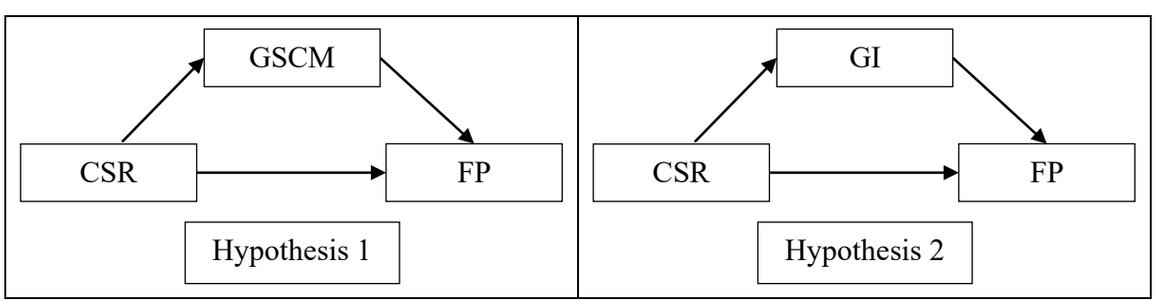
There is a correlation between green supply chain management and firm performance, according to several studies. Green supply chain management, according to some of them, has a positive impact on firm performance (Bu et al., 2020), as well as social, operational, and economic performance (Qorri, Mujkić, et al., 2018). Green supply chain management practices are knowledge and experience-based sources that can influence firm performance (Yildiz Çankaya & Sezen, 2019). However, in this study, a third variable, namely green innovation, was included as a mediating variable. The presence of green supply chain management can help companies improve their green innovation (Abu Seman et al., 2019). Green product innovation, according to Tang et al., (2017) has a positive impact on firm performance. Green innovation and environmental strategies can help businesses perform better by reducing air pollution, energy use, material use, and hazardous material use (Kraus et al., 2020). As a result, the researcher comes up with the following hypothesis:

H₄: Green innovation mediates the effect of green supply chain management on firm performance.

RESEARCH MODEL

Green supply chain management, green innovation, corporate social responsibility, and firm performance are all explored in this study. The objective of this research is to see how green supply chain management, green innovation, corporate social responsibility, and firm performance are linked. The following is a framework of thinking described as follows:





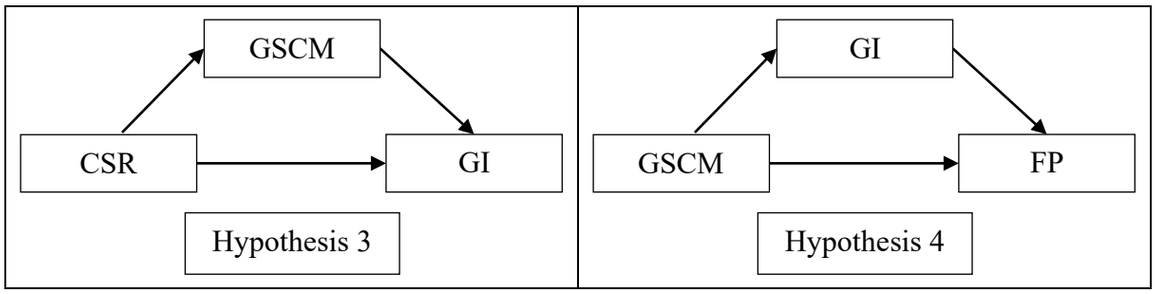


Figure 2.1 Thinking Framework

RESEARCH METHODOLOGY

Research Design

This study was quantitative and focused on empirical research on the effect of corporate social responsibility on business performance. The direct relationship was tested using STATA, and the indirect relationship was tested using the Sobel calculator (www.quantspsy.com) on the variables in this study (Novitasari & Agustia, 2021). The information used in this study was derived from secondary sources. The sample used in this study was chosen using a purposeful sampling method. The population in this study consisted of 211 PROPER companies that were listed on the Indonesia Stock Exchange between 2015 and 2019. The information used in this study came from the Indonesia Stock Exchange and the OSIRIS software. The following are three formulas used in this study:

$GSCM = \alpha_1 + \beta_1 CSR + e$

$GI = \alpha_2 + \beta_2 CSR + \beta_3 GSCM + e$

$FP = \alpha_3 + \beta_4 CSR + \beta_5 GSCM + \beta_6 GI + e$

DEFINITION OF VARIABLE OPERATING

Dependent Variable

Firm Performance

Financial performance, market expansion, product innovation, providing satisfaction guarantees, and providing fairness of responsibility are all factors that influence firm performance (Kitchot et all., 2020). The firm's performance will improve as long as the company's practice can provide quick action on the application of evaluation to the provision of appropriate training (Teixeira et all., 2016). As the level of corporate governance shapes the ownership plan and firm performance (Jabbouri & Almustafa, 2020), financial convenience can be obtained based on cash ownership to reduce transaction costs and the growth of internal costs (Kusnadi, 2019). The following formula can be used to calculate ROA in this study: return on assets divided by earnings before interest and taxes (Angel et al., 2018; Chan et al., 2019).

Independent Variable

Corporate Social Responsibility

Corporate social responsibility is a reliable and sustainable measure of the future that provides up-to-date ideas that lend credibility to the evaluation of plans that have already been implemented (Duan et all., 2018). The community's competency strategy, as well as the implementation of the ISO 26000 guidelines regarding the occurrence of social performance impacts, will be explored by implementing corporate social responsibility (Chakroun et al., 2020). The Global Reporting Initiative (GRI) standard measurement is used to calculate corporate social responsibility from 2015 to 2019. If a company follows standard GRI reporting, it is given a value of 1, but if the company does not follow GRI reporting standards, it is given a value of 0 (Vacca et al., 2020).

$$CSR = \frac{Total\ Items\ Revealed}{Total\ Indicators}$$

Green Supply Chain Management

Green supply chain management is a concept that incorporates environmental considerations, marketing, innovation, and logistics availability. Every aspect of the green supply chain necessitates a design and emphasis in the manufacturing process, as well as several budgets, which, if not calculated properly, can become an initial burden on the company (Younis & Sundarakani, 2020). The industrial world is beginning to understand the ramifications of modifying customer demands with environmentally friendly production and services that are based on environmental preservation (Green et all., 2019). Green supply chain management is determined by analyzing the company's annual report and calculating several indicators in ratios. Some of the indicators used in this study are as follows: (1) There is an ISO 9000 or ISO 14000 certificate, (2) Implementing green distribution and marketing, (3) Products using reverse logistics, packaging can be reused and recycled, (4) Establishing supplier relationship closeness to determine purchasing criteria and materials from suppliers, and (5) Product quality meets customer needs (Asif et all., 2020; Sharma et all., 2017; Yildiz et all., 2019). Each indicator that is disclosed in the annual report is given a score of "1" and those that are not disclosed in the annual report are given a score of "0" in the measurement of green supply chain management.

$$Green\ Supply\ Chain\ Management = \frac{Total\ Items\ Revealed}{Total\ Indicators}$$

Green Innovation

Green Innovation is a complex development of innovation with various challenges in it where each character is the right solution related to technological development innovation, connectivity to innovation collaboration (Melander & Pazirandeh, 2019). Every sub-sector of the company requires the application of green innovation as a step to minimize waste. This method refers to the implementation of a management system based on a basic strategy that can overcome external interests, both consumers and business competitors (Soewarno et all., 2019). Green Innovation is obtained from an analysis of the company's annual report using several indicators and is measured in ratios. The indicators used in this research are as follows: ((1) New technology is used in the manufacturing process to reduce energy, water, and waste; (2) The product contains fewer non-polluting or harmful substances (environmentally friendly materials); (3) Environmentally friendly products are used (for example, recycled paper and easily destroyed plastic); (3) Components or materials used in the manufacturing process can be recycled or reconditioned (Agustia et all., 2019). Each indicator that is disclosed in the annual report is assigned a score of "1," while those that are not disclosed in the annual report are assigned a score of "0."

$$Green\ Innovation = \frac{Total\ Items\ Revealed}{Total\ Indicators}$$

RESULTS AND DISCUSSION

Correlation and descriptive statistics

The descriptive statistics for the independent and dependent variables are shown in Table 1. The sample in this study consisted of PROPER companies listed on the Indonesia Stock Exchange for the 2015-2019 periods. The descriptive statistical table below shows that the minimum and maximum for each firm's performance is -0.115 and 0.235, corporate social responsibility is 3,000 and 85,000, green supply chain management is 0.000 and 1,000 and green innovation is 0.000, and 1,000.

Table 1. Descriptive Statistics

	N	Mean	Median	Std	Minimum	Maximum
FP	211	0.078	0.075	0.058	-0.115	0.235
GSCM	211	0.584	0.600	0.177	0.000	1.000
GI	211	0.541	0.500	0.295	0.000	1.000
CSR	211	45.858	43.000	22.069	3.000	85.000

Source: STATA data processing

The normality test is shown in Table 3. The One-sample Kolmogorov-Smirnov test was used to check for normality in this study. The K-S normality test indicates that the data in this study are normally distributed, with a significant value of 0.559 (sig >5%).

Table 2. One-sample Kolmogorov Smirnov

	P-Value
Combined K-S	0.559

Source: STATA data processing

The Pearson correlation test results are shown in Table 2. With a significant level of 1%, there is a positive correlation between corporate social responsibility and green supply chain management. Similarly, there is a positive correlation between green supply chain management and firm performance, with a significant level of 1%. The correlation between corporate social responsibility and firm performance is also positive, with a statistically significant level of 1%. Green innovation and corporate social responsibility have a positive correlation with a significant level of 5%, but there is no relationship found between green innovation and firm performance.

Table 2. Pearson Correlation

	FP	GSCM	GI	CSR
FP	1.000			
GSCM	0.291***	1.000		
	(0.000)			
GI	0.108	0.410***	1.000	
	(0.118)	(0.000)		
CSR	0.278***	0.242***	0.173**	1.000
	(0.000)	(0.000)	(0.012)	

, **, * show significance levels at the 10,5,1 percent levels, respectively*

Source: STATA data processing

Model 1

Model 1 in this study used simple linear regression to examine the effect of corporate social responsibility, green supply chain management, green innovation, and firm performance. Table 3 shows the results of this simple linear regression. The impact of green supply chain management on firm performance was determined using the t-test and found to be 3.46 with a significant value of 0.001 (sig 1%). Green supply chain management, in other words, has a positive impact on business performance. Green innovation has a negative effect on firm performance, with a t value of -0.47 and a significant value of 0.641, indicating that green innovation has a negative effect on firm performance. The t value of corporate social responsibility in terms of firm performance is 3.32, with a significance level of 0.001 (sig 1%). This finding demonstrates that corporate social responsibility improves firm performance.

Model 2

Multiple linear regression was used in Model 2 to test the effects of corporate social responsibility, green supply chain management, and green innovation in this study. The t value for the corporate social responsibility variable on green innovation is 1.21 with a significant value of 0.228 as shown in table 3, indicating that corporate social responsibility has no effect on green innovation. The t-test value for green supply chain management versus green innovation is 6.02, with a significant value of 0.000 (sig 1%). This value implies that corporate social responsibility has a significant effect on firm performance.

Model 3

The effect of corporate social responsibility on green supply chain management was tested using a simple linear regression test in Model 3 of this study. Table 3 shows that the t value for the corporate social responsibility variance on green supply chain management is 3.61, with a

significant value of 0.000 (sig 1%), indicating that corporate social responsibility has an effect on green supply chain management.

Table 3. Firm Performance Regression Results and Green Supply Chain Management

	(1) *Firm Performance*	(2) GI	(3) GSCM
CSR	0.000**	0.001	0.002***
	(3.32)	(1.21)	(3.61)
GI	-0.007		
	(-0.47)		
GSCM	0.083***	0.654***	
	(3.46)	(6.02)	
_cons	0.007	0.111	0.495***
	(0.46)	(1.62)	(18.12)
R^2	0,1310	0.1740	0.0587
Ajd R^2	0,1185	0.1660	0.0542
N	211	211	211

, **, * show significance levels at the 10,5,1 percent levels, respectively*

Source: STATA data processing

Mediation Effect

Table 4 shows the results of the mediation test in this study. It is presented that the indirect relationship between green supply chain management and corporate social responsibility and firm performance has a t-value of 2.55 and a significant value of 0.011 (sig 5%). Green supply chain management can mediate the effect of corporate social responsibility on firm performance, indicating that H_1 is accepted. The indirect relationship between green innovation and corporate social responsibility and firm performance has a t-value of 0.87 and a significant value of 0.386 (sig > 10%), indicating that green innovation cannot mediate the effect of corporate social responsibility on firm performance, or H_2 is rejected. The indirect relationship between green supply chain management, corporate social responsibility, and green innovation has a t-value of 3.11 and a significant value of 0.002 (sig 5%). This value implies that green supply chain management can mediate the effect of corporate social responsibility on green innovation, allowing H_3 to be accepted. The indirect relationship between green innovation and green supply chain management and firm performance has a t-value of -0.19 and a significant value of 0.851 (sig > 10%) which means that green innovation cannot mediate the effect of corporate social responsibility on firm performance so that H_4 is rejected.

Table 4. Mediation Test Results

	Coefficient	**Std. Err.**	**T**	**P > | t |**	**Description**
CSR – GSCM – FP	0,000	0,000	2,550	0,011**	Accepted
CSR – GI – FP	0,000	0,000	0,870	0,386	Rejected
CSR – GSCM – GI	0,001	0,000	3,110	0,002***	Accepted
GSCM – GI – FP	-0,002	0,098	-0,190	0,851	Rejected

, **, * show significance levels at the 10,5,1 percent levels, respectively*

Source: STATA data processing

Discussion and Conclusion

This study examined the direct and indirect relationship between corporate social responsibility, green supply chain management, green innovation, and firm performance. Based on the results of the study, it was found that in the first hypothesis, green supply chain management mediates the effect of corporate social responsibility on firm performance. Corporate social responsibility in this case has an impact on the company's development process in terms of environmental awareness. This is in line with the research of Nirino et all., (2020) which suggests that companies through CSR will be able to pay attention to environmental impacts and improve supply chain management optimally which in turn will affect performance so that awareness of the resources around the company will increase while still paying attention to the firm performance.

The tests conducted in this study did not show a correlation between green innovation, corporate social responsibility, and firm performance in the second hypothesis. According to Ahmed et al., (2019); Zhang et al., (2019), the decrease in green innovation, as well as the closure of manufacturing companies due to various constraints, will show price-fixing obtained from the company's production as an accumulation of new products with declining prices in the coming period.

Green supply chain management was found to be able to mediate the effect of corporate social responsibility on green innovation in the third hypothesis. Green supply chain management focuses on suppliers, distributors, retailers, and consumers to provide environmental control while considering product continuity and measuring the operational intensity of management practices. According to the research of Sellitto, (2018), the supply chain industry's sustainability of environmental-based efficiency is an effort to improve social problems in the environment for conditions affected by activities.

The fourth hypothesis revealed that green innovation does not mediate the relationship between green supply chain management and firm performance. Companies interpret environmental investment as a cost that is less profitable for competitive business operations, according to Wang, (2019); Çankaya & Sezen, (2019). In this case, the profits generated by implementing a green innovation strategy will be recalculated in the company's budget.

The findings of this study are expected to be useful for companies in the PROPER category in Indonesia, as well as practitioners, in improving corporate social responsibility, green supply chain management, green innovation, and firm performance. Furthermore, as a developing country, this research expands the horizons of corporate social responsibility, green supply chain management, green innovation, and firm performance in Indonesia.

Implications, Limitations, and Future Research

This research has two major theoretical implications. The findings of this study answer research questions and add to the literature in the fields of corporate social responsibility, green supply chain management, green innovation, and firm performance. Green supply chain management and green innovation, according to the findings obtained, mediate the effect of corporate social responsibility on firm performance. Corporate social responsibility is a kind of social, economic, and environmental responsibility that can help businesses implement green supply chain management practices. The findings of this study support the theory that corporate social responsibility can assist companies in increasing green innovation through environmentally friendly innovation technology. Furthermore, the findings of this study demonstrate that to improve firm performance, a "green solution" in the environmental strategy is required to generate economic benefits.

This study's managerial implications show that implementing corporate social responsibility can help businesses implement green supply chain management and green innovation. Companies in this situation can recognize that corporate social responsibility is a tool for improving a company's customer reputation. Such efforts can aid environmental management companies in implementing green supply chain management and green innovation practices to increase customer satisfaction. As a result, managers must recognize the importance of corporate social responsibility in achieving the goals of green supply chain management and green innovation to improve company performance.

However, there are some limitations to this study. The first limitation is that only PROPER companies listed on the Indonesia Stock Exchange were used in this study, with gold, green, and blue companies being the three criteria used. Because PROPER companies (Program for Assessment of Company Performance Ratings in Environmental Management) is a ranking of companies in environmental management, this study of corporate social responsibility and green innovation is skewed and subjective. Furthermore, the sample used consists solely of Indonesian businesses. It is recommended for further research to use company variations across countries with the environmental context applied in Indonesia. This study also focused solely on the manufacturing industry, excluding other industries such as plantation and mining (Raut et all., 2018).

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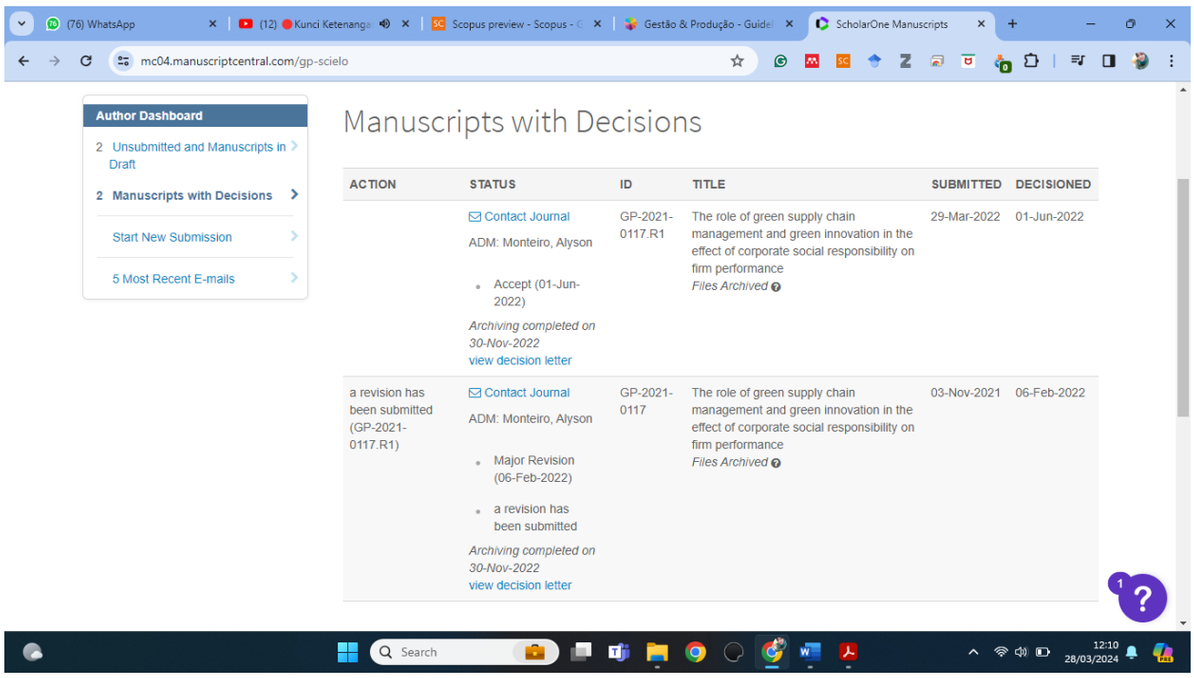

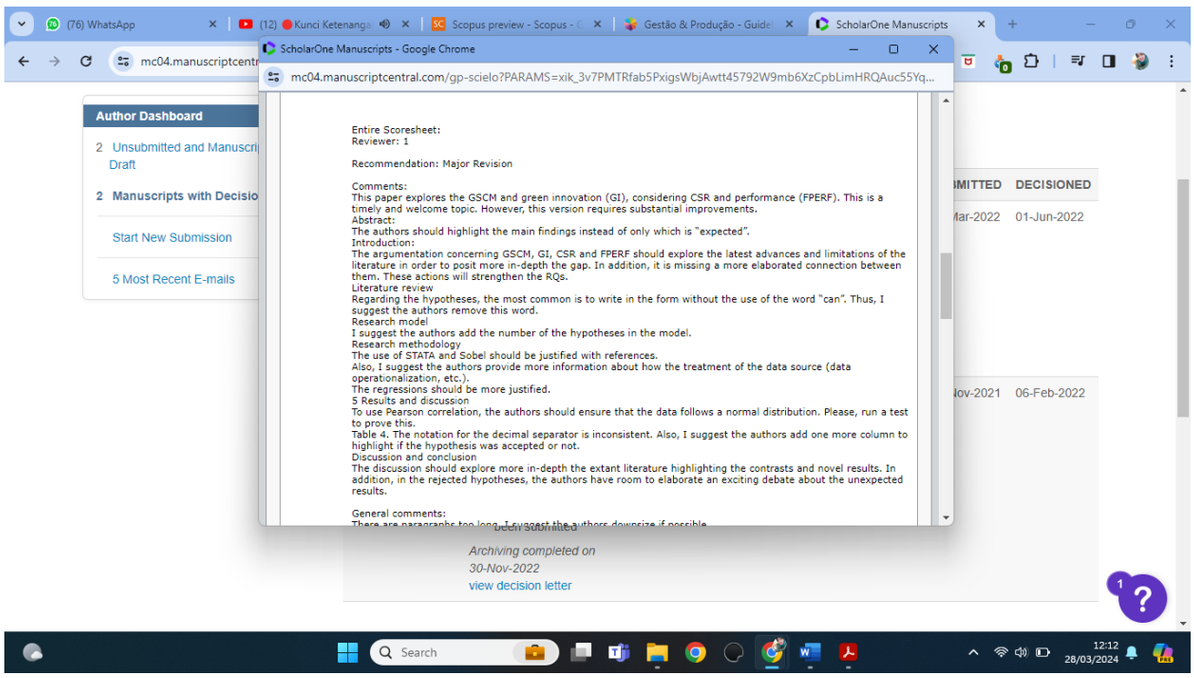

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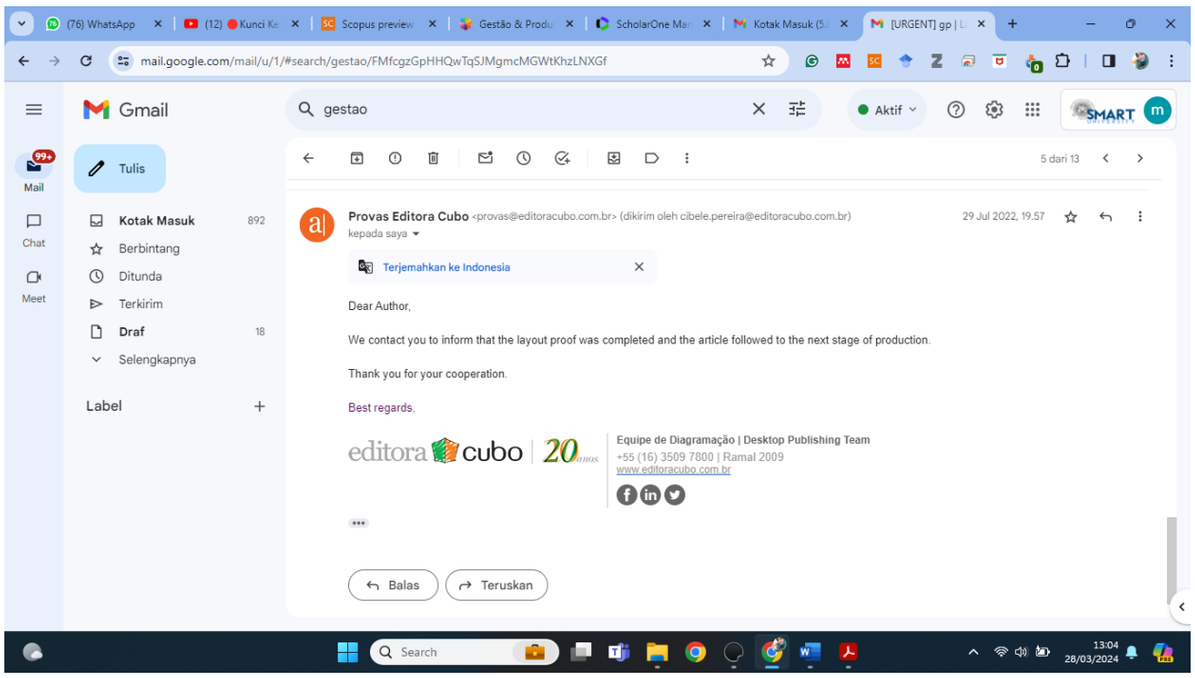

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