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EXPLORING THE IMPACT OF CSR ON SUSTAINABILITY PERFORMANCE: THE ROLE OF GSCM AS A MEDIATOR

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ABSTRACT

Purpose: This study aims to explore the role of Corporate Social Responsibility and Green Supply Chain Management (GSCM) in achieving Sustainability Performance in mining companies in Indonesia. Specifically, this study aims to analyze the extent to which CSR contributes to Sustainability Performance and how GSCM acts as a mediator in the relationship between CSR and Sustainability Performance. With a focus on the mining sector in Indonesia, this study aims to strengthen the understanding of the strategic role of CSR and GSCM in supporting the sustainability of company operations.

Methodology/approach: This research uses quantitative methods. The research population includes 71 companies that fulfil the sustainability criteria, with a total sample of 183 purposively selected companies. Secondary data from financial reports on the IDX were analysed using Stata.

Findings: The results showed that CSR and Green Supply Chain Management have a significant effect on Sustainability Performance. CSR also has a significant influence on Green Supply Chain Management. However, Green Supply Chain Management is not proven to have a mediating effect on Sustainability Performance.

Practical implications: The practical implications are emphasis on statutory compliance, integration of sustainability in company operations, and continuous innovation.

Originality/value: Different from previous research that focuses more on Small and Medium Enterprises (SMEs) in other countries such as Vietnam, this research specifically focuses on the mining sector in Indonesia, given the

significant environmental and social impacts of mining activities on surrounding communities.

Keywords: Corporate Social Responsibility; Green Supply Chain Management; Sustainability Performance.

ABSTRAK

Tujuan penelitian: Penelitian ini bertujuan untuk mengeksplorasi peran *Corporate Social Responsibility* (CSR) dan *Green Supply Chain Management* (GSCM) dalam mencapai *Sustainability Performance* pada perusahaan pertambangan di Indonesia. Secara khusus, penelitian ini bertujuan untuk menganalisis sejauh mana kontribusi CSR terhadap *Sustainability Performance* dan bagaimana GSCM berperan sebagai mediator dalam hubungan antara CSR dan *Sustainability Performance*. Dengan fokus pada sektor pertambangan di Indonesia, penelitian ini bertujuan untuk memperkuat pemahaman mengenai peran strategis CSR dan GSCM dalam mendukung keberlanjutan operasi perusahaan.

Metode/pendekatan: Penelitian ini menggunakan metode kuantitatif. Populasi penelitian mencakup 71 perusahaan yang memenuhi kriteria keberlanjutan, dengan total sampel 183 perusahaan yang dipilih secara *purposive*. Data sekunder dari laporan keuangan di BEI dianalisis dengan menggunakan Stata.

Hasil: Hasil penelitian menunjukkan bahwa CSR dan Manajemen Rantai Pasokan Hijau berpengaruh signifikan terhadap Kinerja Keberlanjutan. CSR juga memiliki pengaruh signifikan terhadap Manajemen Rantai Pasokan Hijau. Namun, Manajemen Rantai Pasokan Hijau tidak terbukti memiliki efek mediasi terhadap Kinerja Keberlanjutan.

Implikasi praktik: Implikasi praktisnya adalah penekanan pada kepatuhan hukum, integrasi keberlanjutan dalam operasi perusahaan, dan inovasi berkelanjutan.

Orisinalitas/kebaharuan: Berbeda dengan penelitian sebelumnya yang lebih berfokus pada Usaha Kecil dan Menengah (UKM) di negara lain seperti Vietnam, penelitian ini secara khusus berfokus pada sektor pertambangan di Indonesia, mengingat dampak lingkungan dan sosial yang signifikan dari kegiatan pertambangan terhadap masyarakat sekitar.

Kata kunci: Tanggungjawab Sosial Perusahaan; Manajemen Rantai Pasokan Hijau; Kinerja Keberlanjutan.

INTRODUCTION

The more businesses that develop in the world, the more resources that must be managed. Not only human resources, but also natural resources are very important for the continuity of a business (Handoyo et al., 2023). Many companies utilise natural resources for their business development. In addition to the interests of the Company, this also concerns the Indonesian Government's goal of realising a green economy. This green economy is a new economic paradigm that minimises environmental damage factors and is expected to realise sustainable development (Widayanto & Nurrahma, 2022).

Studies conducted by the Forest Ecosystem Valuation Study reveal that the implementation of green economy contributes more benefits to a country. There is an expectation that by encouraging efficient use of natural resources, sustainable land use practices, sustainable urbanisation and adoption of green technologies to ensure sustainable development through green growth (Fan & Wang, 2024). This green growth can be realised by companies through Corporate Social Responsibility (CSR) activities.

Corporate Social Responsibility (CSR) has become a worldwide trend . Europe has evidently passed from a stage of full growth to a stage of decline in recent years (Halkos & Nomikos, 2021). A similar but less pronounced trend is seen in the case of Oceania and North America, while Asia appears to be in the deployment stage with steady expansion. Latin America, the Caribbean and Africa have reached the full growth stage. The realisation of global reporting diffusion (spreading, full-growth and declining) along with the proposed national CSR indices can help decision-makers to recognise companies' understanding of their activities in the areas of economy, environment and society and thus potentially link them to the UN reports (Halkos & Nomikos, 2021).

The vital role of green supply management is evident in the context of the modern enterprise. By incorporating sustainable practices throughout the supply chain, companies can reduce environmental impacts, improve operational efficiency, and meet the expectations of consumers who are increasingly concerned about environmental issues (Nazir et al., 2024). This includes efforts to reduce carbon emissions, manage energy more efficiently, select sustainable raw materials, and collaborate with suppliers who embrace sustainable practices. Green supply management is not just about complying with increasingly stringent environmental regulations; it is also an opportunity to create competitive advantage, reduce risk, and drive product innovation. Overall, green supply management is a crucial step towards corporate sustainability.

This research was conducted to address limitations in studies of T. T. Le (2023) that emphasise the role of Small and Medium Enterprises (SMEs) in Vietnam's growing economy. Previous research recommended an approach from a corporate perspective as the focus of research. In this study, mining companies in Indonesia were chosen as the object, as mining projects have significant impacts on communities, including educational opportunities, health, environmental impacts, as well as socio-economic and employment aspects.

This research contributes to three main aspects: theoretical, policy, and practical. Theoretically, it supports Stakeholder Theory, NRBV and Legitimacy Theory by providing a conceptual framework for sustainability management through CSR, green competitive advantage, and environmental management. From a policy perspective, this study offers a reference for corporate management and government bodies to formulate more stringent sustainability regulations, support environmental protection, and promote the implementation of the SDGs. Practically, it recommends the adoption of measurement systems based on SDGs and ESG, strengthens a sustainability culture, and provides insights

to management on factors influencing sustainability performance to enhance the effectiveness of implemented strategies.

This study aims to investigate, test, and provide empirical support to the role of green supply management as a mediator in the relationship between Corporate Social Responsibility (CSR) and sustainability performance. In addition, the contribution of this study involves the development of stakeholder theory and legitimacy theory. This study also contributes to corporate management practices by encouraging compliance with legislation to improve energy conservation and maintain sustainable environmental sustainability.

Previous studies have extensively explored the role of Corporate Social Responsibility (CSR) in promoting sustainability across various industries. For instance, Halkos and Nomikos (2021) examined the global diffusion of CSR practices, while T. T. Le (2023) highlighted the significance of CSR for SMEs in Vietnam, without delving into larger corporate perspectives or specific industries with high environmental impacts. Moreover, Fan and Wang (2024) emphasized the broader macroeconomic benefits of green economy practices but did not analyze specific mechanisms through which green initiatives influence corporate sustainability. This research addresses these gaps by focusing on the Indonesian mining sector, a context with profound environmental and socio-economic implications. It uniquely explores the role of green supply management as a mediator between CSR and sustainability performance, which remains underexplored in the literature.

The novelty of this study lies in its integration of green supply management as a mediating variable in the relationship between CSR and sustainability performance, offering a novel perspective that bridges corporate practices with environmental and stakeholder outcomes. Furthermore, by concentrating on the Indonesian mining sector, this research expands the scope of CSR and green supply management studies to an industry with critical environmental and social impacts. Additionally, the study advances stakeholder theory and legitimacy theory by providing empirical evidence on how sustainable practices align corporate objectives with societal and environmental expectations, thereby enhancing both theoretical understanding and practical implementation strategies.

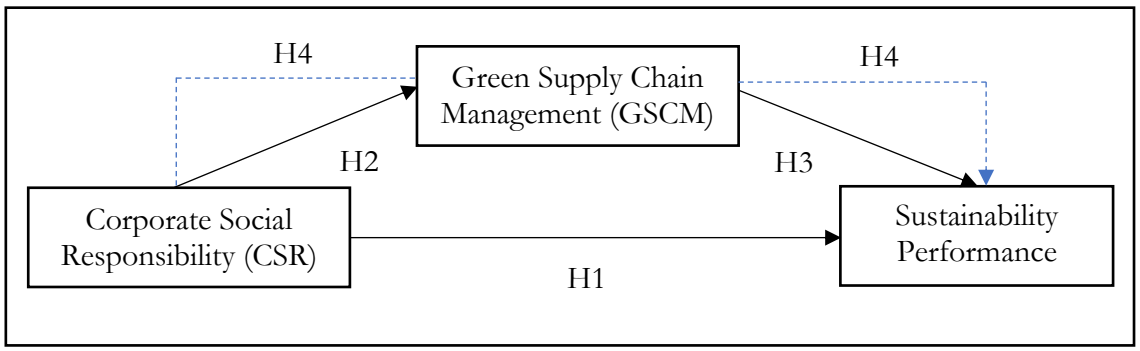

Figure 1. Conceptual Framework

Source : Researcher (2024)

Legitimacy theory provides a robust foundation to explain why CSR activities are critical to sustainability performance. This theory posits that organisations strive to align their operations with societal norms, values, and expectations to secure legitimacy, which is essential for long-term success (Suchman, 1995). Organisations in these sectors often use CSR to communicate their commitment to mitigating negative environmental effects and contributing to societal welfare, ultimately reinforcing their legitimacy and improving sustainability outcomes (Deegan, 2019). Previous research has revealed that the implementation of CSR (Corporate Social Responsibility) activities encourages organisations

to engage in environmentally friendly practices, which in turn facilitates performance sustainability (Bacinello et al., 2021). These CSR activities motivate environmental protection in the production process, either as a strategic initiative undertaken voluntarily by the organisation or in response to customer demands and environmental regulations. The importance of CSR activities is not only limited to improving social performance, but is also considered crucial to overall business success (Bacinello et al., 2021). Rehman et al. (2022) highlights that organisations need to focus attention on multiple stakeholders when evaluating their performance. Therefore, it is important to assess the impact of CSR activities on society and the environment in the context of sustainable performance. On this basis, the hypotheses are formulated as follows.

H_1: Corporate Social Responsibility has a positive effect on Sustainability Performance

The Natural Resource-Based View (NRBV) theory provides a compelling explanation for the positive impact of Corporate Social Responsibility (CSR) on Green Supply Chain Management (GSCM). As an extension of the Resource-Based View (RBV), NRBV emphasizes the strategic value of environmental resources and sustainable practices as a source of competitive advantage (Hart, 1995). Through collaborative efforts across the value chain, organizations can minimize environmental impacts, which is a core objective of GSCM. By leveraging internal and external CSR to align with the principles of NRBV, organizations transform environmental resources into strategic assets, achieving both sustainable supply chain practices and improved firm performance (Hart, 1995; T. T. Le, 2023; Wang & Zhang, 2020). Research conducted by Wang and Zhang (2020) resulted in the finding that internal CSR (management practices towards employees) and external CSR (management practices towards external stakeholders) have a positive impact on green supply chain management. Green supply chain management, in turn, has a positive impact on firm performance. In addition, it was found that big data analytics capabilities have a positive moderating effect on the relationship between external CSR and green supply chain management. These findings not only have theoretical contributions, but also have significant practical implications (T. T. Le, 2023). The implications of this study provide further understanding of how CSR practices, both internal and external, can positively impact aspects of green supply chain management, strengthening the concept of integrating sustainable practices in a business context.

H_2: Corporate Social Responsibility has a positive effect on Green Supply Chain Management

According to the stakeholder theory, businesses operate within a network of relationships with various stakeholders, including regulators, customers, employees, and communities, whose expectations shape corporate strategies and practices (Freeman, 1984). The adoption of GSCM practices aligns with the demands of these stakeholders for sustainable operations, particularly under environmental and regulatory pressures. By adopting GSCM, companies not only reduce their environmental impact but also demonstrate their commitment to stakeholders' expectations, such as compliance with environmental regulations, efficient resource use, and sustainable practices in supply chain operations. Previous research reveals that there is a positive relationship between environmental orientation and environmental performance, which is mediated by the adoption of green supply chain management practices. It is important to note that this mediation was not observed in the context of economic performance (Agyapong et al., 2023). The results highlight that the positive indirect correlation between environmental orientation and environmental performance,

facilitated by the adoption of green supply chain management practices, remains significant within the constraints of regulatory institutional pressures. This research makes a significant contribution by presenting empirical evidence from the African economic context. The findings provide valuable insights into the effectiveness of institutional pressures and environmental orientation in influencing economic and environmental performance (Agyapong et al., 2023). It provides further understanding of how these factors may interact and influence outcomes in business environments that may differ from other contexts.

H_3: Green Supply Chain Management has a positive effect on Sustainability Performance

According to the stakeholder theory, companies operate within a network of relationships with various stakeholders including employees, customers, suppliers, communities, and regulators whose expectations shape corporate strategies and practices (Freeman et al., 2008). CSR practices address these stakeholder expectations by promoting ethical, social, and environmental responsibility, which, in turn, fosters the adoption of GSCM practices. Based on stakeholder theory, companies implement CSR Practices towards various stakeholders as one way to promote green supply management. This approach aims to positively impact stakeholders and encourage sustainable managerial behaviour, while leveraging resources from collaboration and cooperation with stakeholders (Freeman et al., 2008). Wang and Zhang (2020) revealed that CSR is closely related to green supply chain management, emphasising the importance of employees' beneficial attitudes towards the business. This can motivate employees to optimise business processes to achieve sustainable development goals in the future. Rajabion et al. (2019) provides evidence supporting this claim, stating that CSR has a positive relationship with the likelihood of realising green supply management. In addition, research also shows that CSR encourages the tendency to create added value and innovate management more efficiently, towards sustainable values. This approach reflects companies' efforts to not only fulfil stakeholder demands, but also to integrate sustainability principles in all aspects of their operations and strategies.

H_4: Corporate Social Responsibility has a positive effect on Sustainability Performance through Green Supply Chain Management.

METHODS

This research is explanatory in nature, which aims to explain the position of the variables studied and the impact between one variable and another. The main reason for using an explanatory approach is to test the proposed hypothesis. This research is expected to provide an in-depth explanation of the relationship and influence between the independent variable and the dependent variable included in the hypothesis. This approach allows researchers to understand the extent to which these variables interact and how they affect the results of the study.

The population in this study includes mining sector companies operating in Indonesia and registered in the mining sector during 2021-2023. The number of companies that became the subject of the study was 75, and this selection was based on the guidelines for ecosystem and environmental conservation in Indonesia for mining sector businesses published by the IBCSD (Indonesia Business Council for Sustainable Development) in 2020. These guidelines highlight that mining activities that have high risks and significant impacts on the physical and social environment require the application of sustainable mining concepts. Law

No.4/2009 on Mineral and Coal Mining also stipulates that sustainable mining activities cover the entire range of activities, from exploration, exploitation, processing, to post-mining activities. A total of 71 companies fulfilling these criteria became the relevant population for this study.

The method used to determine the research sample is purposive sampling. Purposive sampling is a sampling technique that considers certain factors relevant to the research objectives. Some considerations in determining the sample in this study are:

1. Mining companies listed on the IDX in the 2021-2023 period
2. Mining companies that are not listed on the IDX in the 2021-2023 period consecutively
3. Mining companies that are not listed on the IDX on the main board for the 2021-2023 period
4. Companies that do not publish Sustainability Report in 2021-2023 consecutively
5. Mining companies that have not disclosed greenhouse emission.

The total sample in this study if obtained from the characteristics is 183.

The data used in this research is secondary data. Secondary data refers to information that is not obtained directly by researchers from primary sources or research objects, but has existed before (Sekaran & Bougie, 2016). Data collection is done through documentation techniques, which is obtaining data from documents, live images, photographs, sketches, or other types of data that are relevant and support the research (Sekaran & Bougie, 2016). In the context of this study, data was obtained from the financial statements of mining sector companies listed on the Indonesia Stock Exchange (IDX) during the 2021-2023 period. The source of this data is the IDX.co.id page. The use of secondary data, especially financial reports, allows researchers to analyse financial information that has been published and verified by competent parties.

The regression linear equation is as follows:

$$\boldsymbol{SP_{it} = \alpha + \beta_1 . CSR_{it} + \epsilon_{it}}$$

Here, β_1 represents the total effect of CSR on Sustainability Performance.

$$\boldsymbol{GSCM_{it} = \alpha + \beta_2 . CSR_{it} + \epsilon_{it}}$$

Here, β2β2 represents the effect of CSR on GSCM.

$$\boldsymbol{SP_{it} = \alpha + \beta_3 . CSR_{it} + \beta_4 . GSCM_{it} + \epsilon_{it}}$$

In this equation:

β_3 represents the direct effect of CSR on Sustainability Performance (when GSCM is included in the model).

β_4 represents the effect of GSCM on Sustainability Performance, which is part of the indirect effect of CSR on Sustainability Performance via GSCM.

Corporate social responsibility is the commitment of companies or the business world to contribute to sustainable economic development by emphasising on the balance between attention to economic, social and environmental aspects. The CSR disclosure index is based on the GRI (Global Reporting Initiative) standard. Researchers consider the level of adaptation of CSR reports to GRI guidelines. The level of adaptation used in this study is level C, which is for very basic reports with minimum indicators. CSR is measured by CSRDI (Corporate Social Responsibility Disclosure Index) which takes a value of 0 for companies that have disclosed CSR but have not implemented GRI standards and 1 for companies that

have disclosed with GRI standards, whose provisions are based on the GRI version 3 guidelines (Cuadrado-Ballesteros et al., 2015).

GSCM includes a set of sustainability-focused activities used at every level of the supply chain, from product design to the post-sale phase (Chan et al., 2012). This procedure incorporates environmental concerns into supply chain management. Studies examining the elements that influence the implementation of green supply management show that internal elements such as capabilities and resources are significant (Wu et al., 2012). To improve the long-term economic performance of each company and supply chain, Carter and Rogers (2008) define green supply management as the strategic, transparent integration and achievement of a company's social, environmental, and economic objectives in the systematic coordination of key inter-organisational business processes. The measurement of this variable is based on greenhouse emissions measured in tonnes of CO2.

A company's performance is a reflection of the environment, social progress, and economic conditions. According to Spillan and Parnell (2006), this performance is the result of a network of relationships, the combined efforts of employees, and the regular implementation of social responsibility activities. On the other hand, sustainability performance measures include initiatives to minimise pollutants and carbon emissions, eliminate degradation practices, and improve the environment (Testa et al., 2016). In this study, CSP is measured using ESG performance scores obtained from the Thomson Reuters ESG database (Ho et al., 2021).

Data analysis in this study used Stata. The use of Stata for panel data is an approach that makes it possible to extract information from data in the form of cross sectional and time series. Stata allows researchers to apply various estimation techniques specific to panel data such as fixed effects, random effects, or dynamic panel models depending on data characteristics and research objectives. Model specification testing, such as the Hausman test to choose between fixed and random effects, can also be done easily. Stata's advantage in handling panel data lies in its ability to correct for heteroscedasticity, autocorrelation and endogeneity problems that often arise in longitudinal data. In addition, Stata allows for comprehensive panel data visualisation and interpretation of results, helping researchers uncover complex patterns and relationships in cross-sectional and time series data.

RESULT AND DISCUSSION

Table 1. Descriptive Statistical Results

	N	Minimum	Maximum	Mean	Std. Deviation
CSR	183	0	1	0.579235	0.4950363
GSCM	183	6.101311	5649.296	474.1071	598.8947
SP	183	0.1570037	2.197225	1.520835	0.3495291
Valid N (listwise)	183				

Source : Data processed by Stata

The table above shows that there is a total of 183 data from the 3 research variables used. The standard deviation of CSR, Green Supply Chain Management, and Sustainability Performance has a smaller value than the mean value, indicating that the average value of the three variables has a small deviation. The smaller the deviation value, the smaller the deviation or variation of the data from the mean value.

Based on the descriptive statistical test results in Table 1, information is obtained about the three research variables, namely CSR, Green Supply Chain Management and Sustainability Performance. The CSR variable is a dummy variable with a minimum value of 0 and a

maximum of 1, which shows an average of 0.5792 and a standard deviation of 0.4950. This shows that most of the CSR data has a value of 1, which can be interpreted that mining sector companies have an awareness to report CSR and also GRI standards. Furthermore, the Green Supply Chain Management variable has a minimum value of 6.1013 and a maximum of 5649.296, with an average of 474.1071 and a standard deviation of 598.8947. The large range in this variable indicates a significant variation in Green Supply Management data. The Sustainability Performance variable has a minimum value of 0.1570 and a maximum of 2.1972, with an average of 1.5208 and a standard deviation of 0.3495. These values indicate that the distribution of Sustainability Performance data is relatively more stable than MRPH, with a smaller degree of dispersion around the mean. A total of 183 valid data points were used in this analysis, indicating that there was no missing data on the three variables. This data was processed listwise to ensure data completeness in the analysis.

Table 2. Regression Model Test Results

Pengujian	Hasil	Keputusan
Chow Test	Prob. > 0.05	CEM
	0.0036 < 0,05	**FEM**
Hausman Test	Prob. > 0.05	REM
	0.0016 < 0,05	**FEM**
Legrange Multiplier Test	Prob. > 0.05	CEM
	0,000 < 0,05	**REM**

Source: Data processed by Stata

Based on the regression model test results in Table 2, different decisions were obtained based on the three main tests, namely the Chow Test, Hausman Test, and Lagrange Multiplier Test. The Chow Test results show a probability value of p=0.0036, which is smaller than 0.05, so the model chosen is the Fixed Effect Model (FEM) because it is considered better than the Common Effect Model (CEM). Furthermore, the Hausman Test results also provide a probability of p = 0.0016, which is smaller than 0.05, thus again supporting the decision to choose the Fixed Effect Model (FEM) over the Random Effect Model. However, the Lagrange Multiplier Test results show a probability of p = 0.000, which is also smaller than 0.05, thus suggesting the use of the Random Effect Model over the Common Effect Model (CEM). Considering the results of these three tests, the most appropriate model to use is the Fixed Effect Model (FEM), as it is supported by the results of the Chow Test and Hausman Test, which suggest that fixed effects are more appropriate to explain the relationships in the data. This model is considered most appropriate for capturing individual variation in panel data.

Table 3. R-square

	R square
Sustainability Performance	0,0503

Source : Data processed by Stata

There is an R Square value of 0.0503 for the Sustainable Performance variable (Y). The R Square value reflects the proportion of variation in the response variable that can be explained by the predictor variables in the model. In this context, the value of 0.0503 indicates that about 5,03% of the variation in the Sustainable Performance variable can be explained by the variables in the research model.

Table 4. Hypothesis Test

	Coefficient	Std. Error	P Values	Result
CSR -> Sustainability Performance	-0.1971617	0,0708664	0,006	Accepted
CSR -> GSCM	188.5023	87.27175	0.031	Accepted
GSCM -> Sustainability Performance	0.0001239	0.0000591	0,038	Accepted
CSR -> GSCM -> Sustainability Performance	0.0000712	0.0000435	0,102	Rejected

Table 4. Hypothesis Test

Source : Data processed by Stata

Based on the results of the analysis, CSR has a significant effect on Sustainability Performance, as indicated by a coefficient of -0.1971, a standard error of 0.0709 and a P-value of 0.006 (<0.05). This demonstrates that CSR directly influences Sustainability Performance significantly. Furthermore, CSR has a significant effect on Green Supply Chain Management (GSCM), with a coefficient of 188.5023, a standard error of 87.2718 and a P-value of 0.031 (<0.05), showing a strong relationship between CSR and GSCM. In addition, GSCM significantly affects Sustainability Performance, as evidenced by a coefficient of 0.0001239, a standard error of 0.0000591 and a P-value of 0.038 (<0.05), confirming that GSCM plays a role in improving Sustainability Performance. However, when evaluating the mediating role of GSCM, the results indicate that CSR does not significantly affect Sustainability Performance through GSCM, with a coefficient of 0.0000712, a standard error of 0.0000435 and a P-value of 0.102 (>0.05). This suggests that while both CSR and GSCM individually influence Sustainability Performance, GSCM does not serve as a significant mediator in the relationship between CSR and Sustainability Performance.

DISCUSSION

Effect of CSR on Sustainability Performance

Responding to the needs and expectations of the society in which one conducts business is an important part of responsibility, so CSR (Corporate Social Responsibility) has developed into a very useful tool for business sustainability in recent years (Brown & Dacin, 1997; Sen & Bhattacharya, 2001; Varadarajan & Menon, 1988). Business sustainability principles and international trends, encourage companies to account for their performance through three dimensions, namely economic, social, and environmental (Gunawan et al., 2022). This study found that there is a significant influence of CSR activities on Sustainability Performance. These results are consistent with stakeholder theory and legitimacy theory.

Stakeholder theory emphasises that companies are not only responsible to shareholders, but also to various stakeholders, such as employees, customers, suppliers, and the general public (Freeman et al., 2008). Companies can build better relationships with stakeholders by implementing CSR, which means social and environmental responsibility, and transparent communication (Etikan, 2023). According to Pfajfar et al. (2022) CSR can improve the sustainability of the company by strengthening relationships with stakeholders and creating long-term value. This will help the continuity of the company's operations.

Legitimacy theory focuses on the importance of companies maintaining legitimacy or societal acceptance (Suchman, 1995). CSR can be defined as a company's efforts to fulfil the expectations of stakeholders and society, showing that the company is acting in a way that is

considered legitimate and desirable by society. Companies can maintain legitimacy in the long term by fulfilling society's hopes and expectations through CSR. This can help in supporting the sustainability of the company by creating trust and support from society.

The results of this study are in line with research conducted by Bacinello et al. (2021) which reveals that CSR activities motivate organisations to engage in environmentally friendly practices that facilitate performance sustainability (Feng et al., 2021; Yi et al., 2023). Other research by Sardana et al. (2020) also concluded that CSR has a positive impact in encouraging environmental protection in the production process. CSR activities can also improve social performance and are critical to overall business success and performance (Bacinello et al., 2021).

Effect of CSR on Green Supply Chain Management

The results showed that Corporate Social Responsibility (CSR) has a positive influence on Green Supply Chain Management (GSCM). This finding supports the Natural Resource-Based View (NRBV) theory that emphasises the importance of strategically managing natural resources to create a sustainable competitive advantage (Hart, 1995). In this context, CSR implementation serves as a strategic framework to integrate environmentally friendly practices, such as waste management, energy efficiency, and the use of renewable raw materials into the supply chain (Okogwu et al., 2023; Santiago et al., 2025). In addition, these results also align with stakeholder theory, which highlights that companies have responsibilities towards various stakeholders, including the government, society, and the environment. By meeting stakeholder expectations through environmentally-oriented CSR programmes, companies not only strengthen GSCM practices but also build a positive reputation and image that supports long-term sustainability (Okogwu et al., 2023).

This research is also consistent with previous studies that found a positive relationship between CSR and GSCM. Research by Okogwu et al. (2023) revealed that the practical application of concepts such as CSR, SSCM, and CE emphasise ethical principles such as autonomy, dignity, integrity, and vulnerability, aiming to involve stakeholders in the decision-making process. This transition from I4.0 to I5.0 highlights the importance of new business models that are responsive to societal needs and environmental sustainability, driven by political and ethical considerations. By adopting sustainable practices and upholding social responsibilities, companies can not only mitigate risks but also create value, drive innovation, and achieve competitive advantages in an increasingly conscious market (Smith, 2024).

With reference to the NRBV, the implementation of CSR enables companies to utilise environmental resources efficiently, thereby creating sustainable business processes. Meanwhile, stakeholder theory confirms that support from stakeholders is essential to ensure the successful implementation of GSCM (Das et al., 2023). These findings emphasise that CSR is not only a moral or legal obligation, but also an essential strategic element in improving a company's environmental performance through the implementation of GSCM. Therefore, companies that want to achieve long-term sustainability should make CSR an integral part of their business and operational strategies.

Effect of Green Supply Chain Management on Sustainability Performance

The results of this study reveal that Green Supply Chain Management (GSCM) has a positive influence on Sustainability Performance. Based on the Natural Resource-Based View (NRBV) perspective, strategic management of natural resources can increase the efficiency of the company while providing sustainable benefits (Appannan et al., 2020; Hart, 1995). According to Nazir et al. (2024), that the implementation of GSCM, such as carbon emission

reduction, energy optimisation, and the application of environmentally friendly materials, contributes significantly to improving sustainability performance. In addition, these findings also support legitimacy theory, which emphasises the importance of companies gaining recognition and support from society and stakeholders through the implementation of socially and environmentally responsible practices (Crossley et al., 2021). By adopting GSCM, companies demonstrate a commitment to sustainability that can increase public trust and strengthen their legitimacy in the marketplace.

This finding is in line with previous research that shows the positive impact of GSCM on Sustainability Performance. Yildiz Çankaya and Sezen (2019) revealed that Green Supply Chain Management (GSCM) has an influence on Sustainability Performance. Research conducted by Yildiz Çankaya and Sezen (2019) revealed that there are five dimensions of GSCM, namely green purchasing, green manufacturing, green marketing, green distribution and green packaging. All dimensions affect sustainability performance except the green purchasing dimension. In addition, the results of this study are in line with research conducted by Chin et al. (2015); (Firmansyah et al., 2021) which explains that GSCM has an influence on sustainability performance.

Green Supply Chain Management in Mediating the Effect of CSR on Sustainability Performance

The results showed that the hypothesis stating the effect of Corporate Social Responsibility (CSR) on Sustainability Performance mediated by Green Supply Chain Management (GSCM) was not significant. This finding indicates that although CSR has the potential to influence Sustainability Performance, the mediating role of GSCM in this context does not work as expected. Based on the Natural Resource-Based View (NRBV), this result suggests that companies may not have fully integrated sustainability principles into their supply chain management, so the potential benefits of CSR are not fully realised through GSCM practices (Guang Shi et al., 2012). In the context of stakeholder theory, companies do not appear to have met stakeholder expectations regarding the effectiveness of CSR integrated with GSCM to achieve sustainability performance. Meanwhile, from a legitimacy theory perspective, this failure to mediate GSCM suggests that although companies are implementing CSR, their green supply chain practices not be sufficient to strengthen social legitimacy or improve sustainability performance (Jabbour et al., 2017).

This finding contradicts some previous studies which found that GSCM can be an effective mechanism to bridge the relationship between CSR and Sustainability Performance. Thanh Tiep Le (2023) revealed that CSR (both internal and external) has a significant and beneficial influence on GSCM and Sustainability Performance. In addition, the findings show that GSCM is positively and significantly related to Sustainability Performance. Other studies that prove the mediating relationship of GSCM on CSR and sustainability performance are (Novitasari & Agustia, 2022; Novitasari et al., 2023).

A possible explanation for this result is that the implementation of GSCM within the company is still partial or not fully integrated with CSR initiatives. Based on NRBV theory, this suggests that companies may not have been able to strategically utilise their environmental resources (Andersén, 2021). From the perspective of stakeholder theory, the absence of significant influence may mean that companies have not fully understood or fulfilled the needs of stakeholders related to sustainability (Khatter et al., 2021). Meanwhile, from a legitimacy theory perspective, suboptimal CSR and GSCM practices may reduce the company's legitimacy in the eyes of the public and regulators (Crossley et al., 2021).

Overall, these results suggest that CSR alone is not enough to improve Sustainability Performance if it is not supported by effective GSCM implementation. Companies need to ensure that CSR programmes are strategically integrated with GSCM to create stronger synergies in an effort to improve sustainability performance. Therefore, concrete steps are needed to strengthen the linkage between CSR and GSCM so that companies can be more effective in achieving optimal Sustainability Performance.

CONCLUSION

The study concludes that Corporate Social Responsibility (CSR) has a significant positive impact on Sustainability Performance, consistent with stakeholder theory and legitimacy theory. CSR allows companies to build stronger relationships with stakeholders and gain societal acceptance, supporting long-term sustainability. Similarly, CSR positively influences Green Supply Chain Management (GSCM), aligning with the Natural Resource-Based View (NRBV) by enabling companies to integrate environmentally friendly practices into their operations.

However, the mediating effect of GSCM on the relationship between CSR and Sustainability Performance was found to be insignificant. This suggests that companies may not have fully integrated sustainability principles into their supply chain management or effectively aligned CSR initiatives with GSCM. While previous studies highlight the potential of GSCM as a bridge between CSR and Sustainability Performance, the findings of this study indicate a gap in achieving this synergy. To maximize Sustainability Performance, companies must ensure strategic alignment between CSR and GSCM, emphasizing the importance of holistic and integrated approaches to sustainability. This integration is critical for leveraging CSR initiatives and green supply chain practices to their full potential, fostering environmental, social, and economic benefits.

Future research is expected to expand and further test the conceptual framework that has been proposed in this study. Researchers can explore various industries and business contexts, as well as involve larger samples to increase the generalizability of the findings. The introduction of additional variables such as Green Capability may provide a deeper understanding of the factors that mediate the relationship between CSR and Sustainability Performance. The use of primary data, both through questionnaires and experimental research, can provide direct insights from the company's perspective regarding green supply chain management practices. In addition, this study provides impetus for further research focusing on corporate governance practices, Green Supply Chain Management implementation, sustainability reporting, and corporate value measurement. Involving academics, practitioners, and industry stakeholders in collaboration can have a more significant impact and lead to improved sustainable practices in the future.

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