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Impact of Corporate Social Responsibility between Green Accounting and Sustainable Development Goals

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Abstract
Objective: This study aims to test and analyze the impact of CSR on SDGs, Green Accounting's link with SDGs, and CSR's moderating effect on this relationship. Next, it will test and analyze company value as a mediating variable in the relationship between Green Accounting and CSR.
Methods: This study uses a quantitative approach. The data included in this study comprises secondary sources, including annual reports and sustainability reports of energy transportation and logistics companies that were listed on the IDX and maintained on corporate websites between 2017 and 2021. This research uses WarpPLS 7.0 software for hypothesis testing and analyzing statistical data. The population of this research is companies that contribute the most significant greenhouse gas emissions in Indonesia. Purposive sampling resulted in a total of 380 samples. Data was collected from annual and sustainability reports from 76 energy, transportation, and logistics companies listed on the Indonesia Stock Exchange (BEI) in 2017-2021. Data were processed and analyzed using WarpPLS 7.0 software.
Findings: The results of this study show that green accounting has a positive effect on SDGs, and CSR has a significantly positive impact on SDGs. Furthermore, CSR can strengthen the influence of green accounting on the SDGs, and company value can mediate the relationship between green accounting and CSR.
Novelty: This research contributes to placing CSR as a moderating variable in the relationship between green accounting and SDGs and placing company value as a mediating variable in the relationship between green accounting and CSR in energy transportation and logistics sector companies in Indonesia.

Keywords*: Corporate social responsibility, Green accounting, Sustainable development goals, Firm value*
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INTRODUCTION

Human needs for energy and means of transportation continue to increase along with changes in human needs, especially in efforts to support mobilization activities and productivity. This creates new problems, especially in social and environmental aspects. The high production activity of energy supplies and the level of mobility supplied by companies from the energy, transportation, and logistics sectors have significantly impacted environmental aspects. According

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to the greenhouse gas inventory report published by Kementerian ESDM RI (2020), the energy and transportation sectors have an average contribution of greenhouse gas emissions of 271,394 and 152,229 Gg CO2e, respectively, per year from 2017 to 2019. Emissions endanger environmental sustainability and prevent world citizens from achieving Sustainable Development Goals (SDGs). Increased awareness of the SDGs can be seen in various fields, increasing the visibility of human actions' adverse social and environmental impacts (Bebbington & Larrinaga, 2014). Many companies believe it is crucial to recognize the current phenomenon and change the direction of their corporate activities due to global warming and pollution worsening yearly (Obbard et al., 2014; Tardivo et al., 2017). In this situation, too, many businesses are being encouraged by stakeholders and the wider community to reconsider how adaptation strategies are prepared to face current world conditions (Bogers et al., 2020).

Governments and shareholders, among other stakeholders, are pushing more vigorously for moral business practices and a sustained commitment to environmental sustainability. It takes unique methods to accomplish environmentally and morally responsible company management, especially when controlling ecological effects. Tight supervision is necessary. By implementing green accounting practices, businesses and society can lessen their detrimental effects on social and environmental issues. The Sustainable Development Goals are advanced through green accounting, created to replace conventional techniques (SDGs). This strategy seeks to more clearly differentiate between green accounting and classical accounting assumptions for the SDGs (Bebbington & Larrinaga, 2014). So far, economic activities have only been oriented towards profit, without paying attention to social and environmental aspects. The inception of green accounting, which encompasses endeavors such as corporate social responsibility (CSR), was motivated by the desire to redirect attention away from negative social and environmental issues to optimize firm value and guarantee the long-term viability of the business.

The novelty of this research is that it places the CSR variable as a moderating variable on the relationship between green accounting and SDGs and places firm value as a mediating variable in the relationship between green accounting and CSR in energy and transportation sector companies in Indonesia. The energy and transportation logistics sectors were chosen as the research items for Indonesia's first study on green accounting-related subjects. First, in the chosen sector, the relationship between the variables is consistent with the reality of the relevant industry in Indonesia. It is intended that industry participants and other parties will consider the findings and interpretation of this research when formulating long-term environmentally friendly strategies. Additionally, this study is designed to raise the public's awareness of the SDGs. This study examines whether green accounting and CSR contribute positively to achieving the SDGs. This study also tests whether CSR can moderate the relationship between green accounting and SDGs and whether firm value can mediate the relationship between green accounting and CSR.

This research uses agency theory and legitimacy theory to support explanations regarding the influence of the variables discussed. Various ideas provide descriptions of the interactions between management and shareholders. Agency theory is characterized as a relationship between agents identified as management, who function as servants for principals identified as shareholders (Jensen & Meckling, 1976). The most important thing that wants to be explained through agency theory is how to change the company paradigm, initially managed by a single management figure, into a complex interacting forum for a group of stakeholders (Raimi, 2017). This situation also causes pressure due to the differences in interests held by each party.

The pressure on company management or directors to understand the importance of their environmental impact is growing in the current situation. For future company operations' sustainability, there is a demand to start sustainable development and use green accounting. Companies develop corporate governance mechanisms using agency theory (Ghozali, 2018). Responsible shareholders emphasize to corporations the significance of implementing environmentally friendly strategies such as CSR and green accounting to ensure sustainable corporate governance. CSR not only prevents conflicts of interest but also fosters social and environmental accountability, thereby contributing to the long-term achievement of the Sustainable Development Goals. Agency theory posits that corporate social responsibility (CSR) is a mechanism organizations employ to promote sustainable practices and accomplish sustainable development goals (SDGs).

The interest often influences organizational decision-making and policies in improving and creating a positive company image. Shareholders and the general public are the parties who have the most significant influence on decisions in improving or building the company's image. On the one hand, management, rather than shareholders, has a specific vision for the company's future. Still, on the other hand, shareholders want the corporation to change its perspective on sustainable corporate governance. Gunningham et al. (2002) suggest that companies receive "social respect" from existing communities as a sign that they are accepted in their communities when companies operate based on the law (CSR) by existing interests. In this study, various policies that are much more environmentally friendly become an obsession that shareholders desire.

A positive reputation can improve business performance and a company's position in the eyes of society. Legitimacy theory aims to align corporate behavior with stakeholders' perceptions of desirable and acceptable behavior and societal norms (Deegan, 2002). The company strives to retain its favorable reputation, which may lead to the possibility of presenting itself to new groups. The corporation aligns its operations with society's expectations for sustainability, the environment, and social responsibility. As it provides a solid framework for organizations engaged in socially and environmentally responsible and sustainable initiatives, legitimacy theory is vital for enhancing the relationship between CSR, Green Accounting, and SDG performance. Environmental accounting entails a complete understanding of the enterprises and other organizations profiting from the environment. Ecological accounting, tied to CSR and Green Accounting for SDGs, aligns corporate practices with sustainability. The synergy of CSR impact enhances transparency, meets community expectations, and aids businesses in their sustainable journey.

Green accounting studies have experienced a lot of progress with evaluation performance, social, financial, and corporate social responsibility as room scope (Gonzalez & Mendoza, 2021). Green accounting was created to help the company learn about the solutions to environmental problems and conventional economic goals (Maama & Appiah, 2019). According to Dhar et al. (2022), engaging in green accounting can promote a sustainable future for the company. According to environmental accounting Jones's (2010) theory, green accounting supports achieving the SDGs by providing measurement and reporting frameworks that impact the environment from the activity economy. Various studies have investigated green accounting, and SDGs state that implementing green accounting has a positive connection to the SDGs (Padilla-Lozano & Collazzo, 2022; Elahi et al., 2022). The more companies implement green accounting, as shown in the number disclosure accountancy environment, the more they will develop the company's continuity.

H_1: Green accounting has a positive effect on SDGs

Large corporations are essential in driving economic growth in today's globalized environment. Indonesia's transportation and energy industries significantly influence the availability of energy and goods supplies and job opportunities. Pollution alongside social and environmental degradation go hand in hand with this beneficial effect. This effect has recently drawn attention from various groups, notably investors and impacted communities. According to Melinda & Wardhani (2020), the relationship between investors and consumers to issues continuity causes a change culture sustainable company. Every business is encouraged to focus more on the environmental effects of its operations as public awareness grows. Responsible performance and good social responsibility are possible for companies to obtain consumers' trust and attract investors' attention. Businesses can also receive incentives from the government for their assistance in preserving social and environmental elements. Environmental accounting theory explains that CSR holds an essential role in achieving the SDGs by encouraging companies to invest in contributing social and ecological initiatives directly to objective sustainable development (Jones, 2010). Businesses can be appraised based on more than just their short-term financial success and economic growth. Research results Dhar et al. (2022a) found that CSR significantly affected the SDGs.

H_2: CSR has a positive effect on SDGs

A company's size can often be estimated by measuring its financial resources, the use of capital, or cumulative profits. Several studies show an influence between firm value and CSR disclosure (Anggita et al., 2022). The larger the string value, the wider the level of CSR disclosures carried out by the company to highlight the audience (Ling et al., 2020). Implementing CSR programs in a company could be successful with sufficient financial resources. Even though the CSR program does not provide financial benefits, this program is thought to provide long-term benefits, mainly in the form of investor and consumer trust. This is to the theory of legitimacy, which states that the company carrying out CSR disclosure will get legitimacy from the public (Gunningham et al. 2002). Companies often use CSR to address several complex issues, such as public health or the environment. Generally, the greater the value of a company, the more complicated the challenges or obstacles it faces. With this level of complexity, internal and external parties often demand the use of the latest methods and technology to solve problems. Green accounting is starting to be used by several companies with high firm value in their accounting affairs. The complexity of companies dealing with environmental issues can be solved through the green accounting method of establishment. This method can also help determine priorities for the implementation of CSR programs. Numerous problems are brought about by business development, particularly those related to the environment, like pollution in the communities nearby. Emerging issues may give rise to unfavorable opinions that harm an organization's reputation over time. Enhancing relationships with the community can be facilitated by the corporation's implementation and publication of CSR. Additionally, this may boost prospective investors' trust in the business's commitment to social and environmental issues. This statement is supported by previous research, which says that Firm Value influences the performance of CSR (Carnevale et al., 2012; Ling et al., 2020; Anggita et al., 2022).

H_3: Firm value mediates the relationship between green accounting and CSR

The company's key CSR focus is to satisfy stakeholders' interests in fulfilling wishes, demands, and hopes. According to agency theory, there is a motivation in CSR implementation for corporations to establish image companies in society (Jensen & Meckling, 1976). Despite the voluntary aspect of CSR, businesses nonetheless hope to reap the positive effects of their efforts. At the same time, legitimacy theory explains CSR as demonstrating adherence to corporations to be recognized in the community (Gunningham et al. 2002). Several studies claim that CSR positively influences sustainable companies, and CSR and its publications can boost investor trust. The application of CSR promotes the expansion of green accounting's application in making financial decisions that consider the environment. With an approach utilized to reduce or replace expenses that hurt the environment, green accounting can also aid in the sustainability of business operations. Putting this strategy into practice will help minimize damage from waste and pollution from business operations.

Through CSR, companies are often expected to report transparently about their activities, including environmental impacts. This creates pressure on companies to use green accounting as a tool to coordinate and report their impact on the environment. Green accounting can help companies fulfill their SDG commitments by providing more accurate and transparent information. CSR encourages companies to seek innovative solutions to social and environmental challenges. In the context of green accounting, this can include developing new methods for measuring and reporting environmental impacts and integrating non-financial information into financial reports. This innovation can help companies achieve environmental and social SDGs more effectively. Companies can moderate the relationship between green accounting and the SDGs by utilizing CSR as a framework aimed at sustainable business practices. Furthermore, people

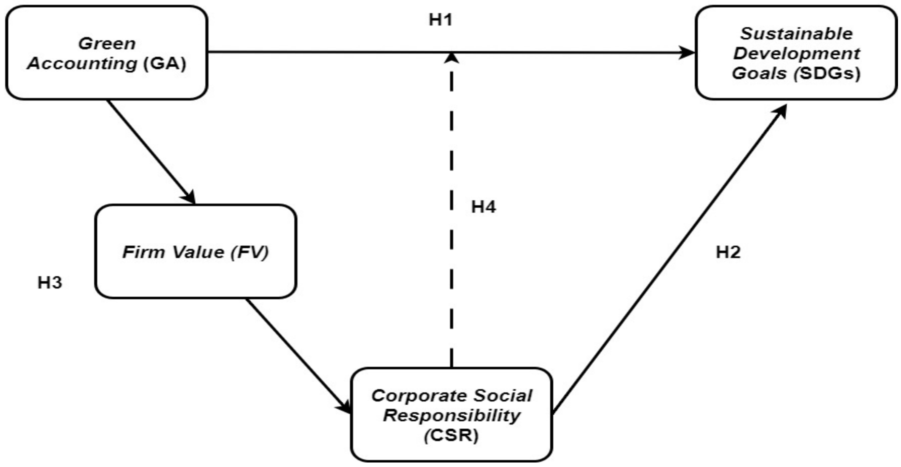

Figure 1. Conceptual Framework

can make judgments in general, which helps to boost trust with the organizations that look after them. According to Ikram et al. (2019), Ma & Yoo (2022), and Mensah (2019), stakeholder satisfaction with economic, social, and environmental factors improves corporate sustainability. Meanwhile, according to Suryaningtyas & Sari (2021), CSR has yet to have a simultaneous relationship with SDGs.

H_4: CSR moderates the relationship between green accounting and SDGs

METHODS

This study uses a quantitative approach. The data included in this study comprises secondary sources, including annual reports and sustainability reports of energy transportation and logistics companies that were listed on the IDX and maintained on corporate websites between 2017 and 2021. This research is limited to 2021 because not all of the 2022 financial reports will be released in early 2023 when this research was conducted. The research uses WarpPLS 7.0 software for

Table 1. Purposive sampling criteria

No.	Criteria	Excluded	Total
	Sample and Population		99
1.	Companies in the energy and logistics transportation sectors are listed on the IDX or Public Offering (IPO) before January 1, 2021	(5)	94
2.	Companies that do not have an annual report and sustainability report for the 2017-2021 period	(18)	76
	Total Sampling		76
	Observation Period (2017-2021)		5
	Total Observation (76 x 5)		**380**

Source: Secondary data processing results (2023) hypothesis testing and analyzing statistical data. According to Ghozali, (2016). the flexibility of WarpPLS 7.0 allows researchers to develop theories to test further and validate research models. The lack of normality and large sample size make the multivariate model suitable for our study.

The population of this research is companies that contribute the most significant greenhouse gas emissions in Indonesia. According to the "Greenhouse Gas Inventory Report and Monitoring, Reporting, Verification" published by the Ministry of Environment and Forestry, the corporate sectors that contribute the most significant greenhouse gas emissions in Indonesia include the energy and transportation and logistics sectors (Laporan IGRK MPV, 2021).

The sample selection process utilized purposive sampling, incorporating predetermined objectives and criteria. The purposive sampling technique was conceived to ensure distinct changes within the sample (Ghozali, 2016). Specific criteria are required to produce the desired information. Table 1 shows the sampling process. This study uses panel balancing data because Green accounting, or environmental accounting, is a field of study within accounting and science. As defined by Lako (2018), it entails the systematic recording, introduction, and dissemination of information and the identification of value and reporting of events, he cross-sectional units have the same number of time series observations. SDGs or corporate sustainability were chosen as the dependent variable for organizational performance. The concept of SDGs requires supporting tools in the accounting field, namely, environmentally-based accounting. SDGs measurement refers to a study by Marota (2017) that uses four dimensions and indicators that represent the sustainable development of a company, namely, economic, social, environmental, and technological (Azapagic, 2003).

SDGs = Economic + Social + Environmental + Technological

Economy	:	Investment, net profit, sales
Social	:	Corporate Social Responsibility, wages, and severance pay costs
Environment	:	Utility costs and K3 costs
Technology	:	Research and Development Costs

Green accounting, or environmental accounting, is a field of study within accounting and science. As defined by Lako (2018), it entails the systematic recording, introduction, and dissemination of information and the identification of value and reporting of events, transactions, and objects related to organizations' economic, social, and environmental activities. It aims to assist stakeholders in such entities' evaluation and decision-making processes. Green and conventional accounting differ (Dhar et al., 2022). Traditional accounting only uses one currency measurement scale.

In contrast, green accounting validates, records, and measures currency by considering environmental aspects and referring to research by Tiep Le et al. (2023), which uses a dummy method to measure green accounting variables. Suppose the company has components of environmental responsibility costs, renovation, maintenance, and ecological improvements in the annual report, or there are provision costs such as moving, demolition, and reclamation in the financial position report. If the company has one of the environmental cost categories, it gets a value of 1, but if it does not have this component, it is given a value of 0. Table 2 explains the five cost categories presented in financial reports to encourage green accounting practices (Hansen and Mowen 2005).

Table 2. Classification of Environmental Costs

Environmental Prevention Costs		Environmental Detection Costs	
1	Employee training costs	1	Environmental Activity Audit Fees
2	Supplier Evaluation and Selection Costs	2	Liquid Waste Inspection Fees
3	Product Design Costs	3	Chimney Inspection Costs
4	Product Recycling Costs	4	Emission Inspection Fees
5	Costs of Evaluation and Selection of Pollution Control Tools	5	Cost of Measuring Pollution Levels
6	Environmental Risk Audit Fees		
7	Management System Development Costs		
Internal Environmental Failure Costs		**Environmental External Failure Costs**	
1	Waste Management and Disposal Fees/toxic waste	1	Costs of Cleaning Polluted Rivers
2	Pollution Control Equipment Operating Costs	2	Costs for Cleaning Up Contaminated Soil
3	Pollution Control Equipment Maintenance Costs	3	Cost of Ecosystem Damage
4	Cost of Acquiring Facilities for Waste Production	4	Sales Downtime Costs Due to Bad Environmental Reputation
5	Remaining Day Cost of Remaining Materials	5	Inefficient Costs of Using Raw Materials and Electricity
Research and Development Costs			
1	Costs resulting from compliance with government regulations so that environmental problems do not arise in the future		
2	Company Maintenance Costs		
3	Costs of maintaining relationships with stakeholders and externalities		

Table 3. PROPER Criteria

Criteria	Predicate	Score
Gold	Very good	5
Green	Good	4
Blue	Enough	3
Red	Bad	2
Black	Very bad	1

Source: (Kementerian LHK RI, 2018)

Table 4. Definition of the operational variable.

No.	Variable	Measurement	Source
1.	Sustainable Development Goals	The four dimensions and indicators of sustainable company development are economic, social, environmental, and technological.	(Marota, 2017)
2.	Green Accounting	Using one of the environmental cost categories, give a score of 1; otherwise, 0	(Wahyuddin & Yuliana, 2018)
3.	Corporate Social Responsibility	PROPER use is grouped into five levels, with the highest value being five and the lowest being 1	(Tiep Le et al., 2023)
4.	Firm Value	$\text{ROA} = \frac{\text{Net profit}}{\text{Total asset}} \text{ x } 100\%$	(Aydoğmuş et al., 2022)

Source: Data processing result, 2023

Pujakesuma (2022) defines CSR as an action taken directly or indirectly by businesses as a type of corporate responsibility concerning the environment. CSR disclosure is governed by Article 66 Paragraph 2 of Law No. 40 of 2007, which mandates that companies provide this information in their annual reports. The CSR variable is assessed by a ranking system, namely the Ministry of the Environment's Company Environmental Performance Rating Program in Environmental Management (PROPER) (Tiep Le et al., 2023). PROPER Criteria are explained in Table 3.

Firm value is the value investors need to make investment decisions at market prices. The selection of this variable was intended to demonstrate if incorporating corporate social responsibility (CSR) can yield advantages for the organization in terms of enhancing its reputation, operational effectiveness, and efficiency. Firm value measurements using ROA are commonly used in research related to this variable, such as that carried out by (Aydoğmuş et al., 2022). The definition of operational variables is presented in Table 4.

RESULTS AND DISCUSSION

The descriptive statistical results of this research are presented in Table 5. Indonesia's energy and transportation sectors exhibit a comparatively limited capability for sustainable development, as evidenced by the average SDG value of 25,987. The extreme values are 14,770 and 33,090, respectively, meaning each company has a lower sustainable development capacity. On average, companies implement green accounting at 53.4%, with the extreme values being 0 and 1. The quality of disclosure of social responsibility information has an average CSR rating of 0.922, with 0 and 5 representing the severe extremes, respectively. As seen by the standard deviation of 1.6, big polluters are not entities that have given CSR information.

Table 5. Descriptive statistic results

	GA	SDGs	CSR	FV
Mean	0.534	25.987	0.921	0.002
SD	0.499	3.162	1.64	0.145
Min	0	14.770	0	-1.574
Max	1	33.090	5	0.29
Median	1	26.300	0	0.016

Source: Secondary data processing result (2023)

Table 6. Fit model test results

Model Fit and Quality Indices	Index	Criteria	Result
Average Path Coefficient (APC)	0.559	P<0.001	Fit Model
Average R-Squared (ARS)	0.577	P<0.002	Fit Model
Average Adjusted R-Squared	0.576	P<0.003	Fit Model
Average Block Variance Inflation Factor (AVIF)	2.284	if <= 5, ideally <= 3.3	Fit Model
Average Full Collinearity VIF (AFVIF)	0	if <= 5, ideally <= 3.4	Fit Model
Tenenhaus GoF (GoF)	0.76	small >= 0.1, medium >= 0.25, large >= 0.36	Fit Model
Simpson's Paradox Ratio (SPR)	1.000	acceptable if >= 0.7, ideally = 1	Fit Model
R-Squared Contribution Ratio (RSCR)	1.000	acceptable if >= 0.9, ideally = 1	Fit Model
Statistical Suppression Ratio (SSR)	1.000	acceptable if >= 0.7	Fit Model
Nonlinear Bivariate Causality Direction Ratio (NLBCDR)	1.000	acceptable if >= 0.7	Fit Model

Source: Secondary data processing result (2023)

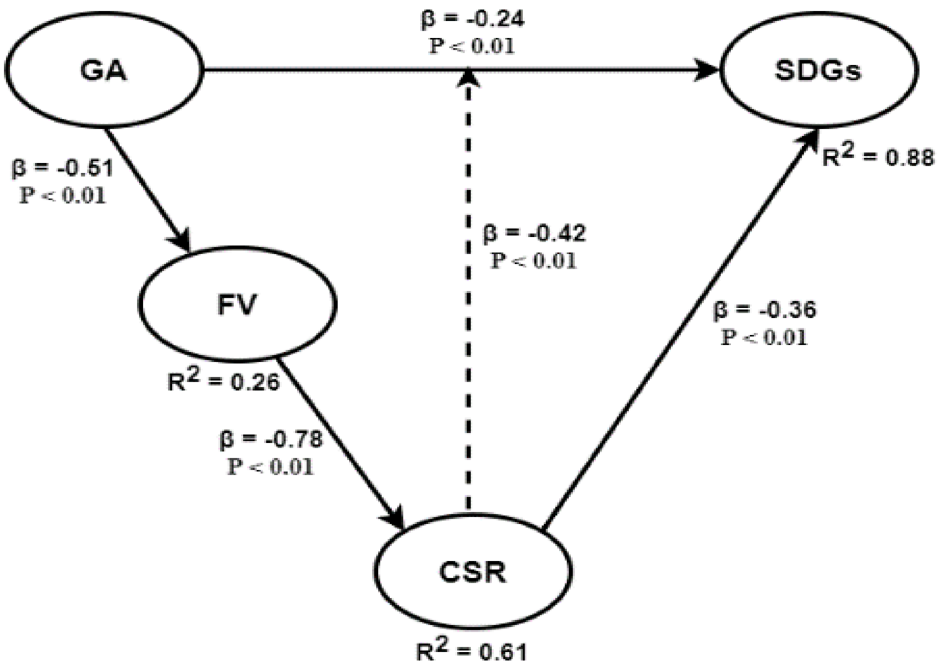

Figure 2. Research Model Results

The outcomes of the model fit test conducted on the acquired secondary data are presented in Table 6. The data was then processed and analyzed using WarpPLS 7.0. From processing this data, the results obtained were quite good in modeling the relationship between the variables studied. Following the outcomes of the model fit and quality index presented in Table 6, the research model satisfies every criterion for fit and is appropriate for explaining the population.

Green Accounting on SDGs

The data processing results in Figure 2 show that this research can prove the existence of a positive and significant influence between green accounting and SDGs. Hypothesis H1 is further supported and verified by a significant positive correlation between the variables. The positive research results, in line with the hypothesis, show that applying green accounting can positively affect and help achieve the SDGs' goals. As a result, using green accounting practices assists businesses in enhancing their environmental performance and can significantly boost their capacity for sustainable development.

Environmental performance can be measured and enhanced by organizations with the aid of green accounting, according to published research. Afsah et al. (2021) revealed that green accounting positively and significantly influences the achievement of the SDGs. This can be explained by the fact that green accounting practices can help companies reduce negative environmental impacts, encouraging sustainable development. Thus, implementing green accounting can help companies achieve SDGs related to the environment, such as reducing greenhouse gas emissions or improving water quality. In addition, green accounting may assist organizations in identifying new sustainable business prospects that contribute to attaining SDG objectives. Green accounting may help businesses create value for their clients, staff, and society. It can utilize green accounting to achieve sustainable development goals more effectively.

CSR on SDGs

Based on the relationship between CSR and SDGs, the results show that this research can prove the existence of a positive and significant influence, as indicated in Figure 2. A substantial positive association between sustainable development capacities supports and confirms Hypothesis H2. This is based on the results of research from Abdurrahman et al. (2022), which shows that the implementation of CSR positively influences the SDGs. Enhanced CSR performance by a corporation correlates with improved quality of SDG information disclosure, leading to increased public interest and access to a broader range of development resources. This, in turn, facilitates the achievement of sustainable development objectives.

Several studies support a positive relationship between corporate social responsibility and sustainability goals. Lee et al. (2020) show that companies implementing corporate social responsibility can significantly contribute to achieving environmental, social, and economic sustainability goals. Other research conducted by Yoon & Kim (2018) shows that companies that implement CSR effectively can improve their financial performance, which can help achieve economic sustainability goals. Besides that, (Trumpp et al., 2021) show that companies with a solid corporate social responsibility commitment also tend to have more initiatives related to sustainability goals and are better able to adapt to environmental and social changes. Thus, companies can use social responsibility to achieve sustainable development goals better.

Firm value mediates the relationship between green accounting and CSR.

The study results regarding green accounting, firm value, and CSR show that introducing green accounting can increase substantial value and CSR. The relationship between business value and CSR, mediated by green accounting, indicates that this research can demonstrate a favorable and significant impact, as shown in Figure 2. A substantial positive association exists, thereby furnishing additional validation and support for Hypothesis 3. The results of this study by research Suryaningtyas &

Sari (2021) show that firm value has positive effects and can be an essential mediator in the relationship between green accounting implementation practices and CSR. Effectively applying green accounting methods and exhibiting a high level of social responsibility can raise the firm value of a company, according to the science. In sustainable development, this can achieve environmental and social goals.

Several studies have shown a positive relationship regarding the relationship between firm value mediating green accounting so that it influences CSR. Supported by research conducted by Aier & Zhang (2021) shows that companies that implement green accounting have better financial performance and higher market value. Another study by Xie et al. (2019) shows that good environmental reporting can improve a company's reputation, increasing firm value. This indicates that companies that pay attention to CSR positively impact the environment and can also increase firm value. These studies show that green accounting and good environmental reporting can positively impact firm value. This can be caused by expanding the company's reputation, which can increase investor and consumer confidence by using green accounting in social responsibility reporting.

Green accounting and CSR are not only beneficial for the environment and society but also have a positive impact on firm value. Firm value is likely not a mediator but is directly influenced by both. For several reasons, companies with strong green accounting and CSR practices are considered more attractive investments for investors. Good environmental practices can help companies avoid future environmental cleanup costs and fines. A good company reputation regarding environmental and social practices can attract more customers and investors. For example, green accounting and CSR initiatives can lead to operational efficiency by reducing energy use. Therefore, companies wanting to increase firm value must seriously consider implementing green accounting and CSR practices. Green accounting, CSR, and firm value strengthen each other. Companies that want to improve their value attractiveness and trust for investors must implement responsible environmental and social practices.

CSR moderates the relationship between green accounting and SDGs

Hypothesis 4 of this study states that CSR can moderate the relationship between green accounting and SDGs. The results of research regarding CSR moderating the relationship between green accounting and SDGs shown in Figure 2 show that this research can prove that there is a positive and significant influence. A significant positive correlation provided further support and verification for Hypothesis 4. In this case, H4 states that implementing CSR as a variable that moderates green accounting on SDGs has a positive and significant effect. Companies can improve their performance in fulfilling SDG-related objectives by efficiently implementing green accounting practices and maintaining a high level of CSR, according to the findings of this study. In sustainable development, this can achieve environmental and social goals.

Several studies have shown a positive influence on the relationship between CSR and SDGs, which can moderate the relationship between green accounting and SDGs. Research conducted by Arifin et al. (2021) shows that CSR plays an essential role as a moderator in the relationship between green accounting and SDGs. The results of their research show that companies that implement green accounting practices effectively and have a high level of CSR tend to perform better in achieving goals related to the SDGs. Another research conducted by Yudarwati et al. (2020) also found similar results. As demonstrated, CSR can increase the relationship between green accounting and the SDGs. Organizations that prioritize corporate social responsibility (CSR) can optimize the advantages of green accounting techniques to accomplish objectives associated with the SDGs. These studies show a positive and significant relationship between green accounting, CSR, and SDGs. Green accounting practices can help companies achieve goals related to the SDGs, and CSR can strengthen the positive impact of green accounting practices on achieving these goals.

Green accounting and Sustainable Development Goals (SDGs) have the same goal: realizing a sustainable future. Green accounting provides essential information about a company's

Table 7. Hypotheses summary

	Hypotheses	Criteria	Sig.	Result
H1:	Greena ccounting positively affects SDGs	<0.05	0.01	Accepted
H2:	CSR positively affects SDGs	<0.05	0.01	Accepted
H3:	Firm value mediates green accounting on CSR	<0.05	0.01	Accepted
H4:	CSR moderates green accounting on SDGs	<0.05	0.01	Accepted

Source: Secondary data processing result (2023)

environmental impact, while the SDGs set ambitious targets for sustainable development. Corporate Social Responsibility (CSR) acts as a connecting bridge. Companies with strong CSR will be committed to reducing their environmental footprint and contributing to achieving the SDGs. The presence of strong CSR practices can strengthen the relationship between green accounting and achieving the SDGs. Accurate information from green accounting can be more effective in driving real change if accompanied by a strong commitment to CSR. Companies with strong CSR will be more motivated to use green accounting data to manage their environmental impact and take concrete action toward achieving the SDGs. Green accounting, CSR, and SDGs are closely related. CSR is important in strengthening the relationship between green accounting and achieving the SDGs. Companies serious about sustainable development need to implement these three elements simultaneously. The summary of the hypotheses is presented in Table 7.

Another research conducted by Yudarwati et al. (2020) also found similar results. As demonstrated, CSR can increase the relationship between green accounting and the SDGs. Organizations that prioritize corporate social responsibility (CSR) can optimize the advantages of green accounting techniques to accomplish objectives associated with the SDGs. These studies show a positive and significant relationship between green accounting, CSR, and SDGs. In this context, green accounting practices can help companies achieve goals related to the SDGs, and CSR can strengthen the positive impact of green accounting practices on achieving these goals.

CONCLUSIONS

Based on the research results, implementing green accounting in energy and transportation companies that produce heavy pollution in Indonesia has a positive relationship with the SDGs. This means that the company has disclosed environmental costs, and it has been proven that this can improve the SDGs. There is substantial evidence that the quality of CSR disclosure positively influences the SDGs. CSR disclosure has demonstrated that it can affect the SDGs to help companies increase their responsibility for their corporate reputation. Firm value controls green accounting and CSR disclosure. It is proven that the implementation of green accounting and CSR not only affects the environment but also increases firm value. The caliber of CSR disclosure can strengthen a correlation between the execution of green accounting and the SDGs. Environmental and financial performance can be enhanced by CSR disclosure.

The limitation of this research is the incompleteness of company data. Not all companies submit annual reports and sustainability reports. Apart from that, not all companies have a PROPER certificate and carry out green accounting disclosures. After carrying out statistical tests, the corrected, adjusted R square was produced, and the firm value variable was relatively small, namely only 0.26. There are very few variables used in this research, namely four variables. Therefore, further analysis can add other proxies and variables related to SDGs. As well as expand the sample and criteria to be studied. Researchers are advised to employ metrics other than PROPER in the future. Alternatives include the entity's attempts to cut emissions and environmental waste through accounting activities. An expanded understanding of the SDGs and their influence on the use of green accounting may be gleaned from the results.

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