Corporate Social Responsibility and Eco-Efficiency: Impact on Firm Value in The Indonesian Manufacturing Sector

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Abstract

Climate change is one of the most widely debated issues in the world. This is mostly because of the rise in greenhouse gas emissions during the industrial revolution. The corporation publishes a Social and Environmental Responsibility Report as a form of corporate responsibility. The authors of this study want to explore how CSR reporting, carbon emissions disclosure, and eco-efficiency applications affect corporate value. The objects under consideration are 55 manufacturing corporations listed on the Indonesian Stock Exchange, with an emphasis on the industrial sector (IDX). SPSS 26 multiple linear regression analysis was used to evaluate the data. According to this study, CSR has a considerable negative impact on corporate value. Furthermore, disclosing carbon emissions has a substantial detrimental impact on the companies' values. The same applies for eco-efficiency, which reduces firm value. This finding demonstrates that CSR, carbon emissions transparency, and eco-efficiency do not affect the enterprise value computed by PBV. The three independent factors investigated had little effect, especially on swings in the company's stock price.

Keywords
Corporate Social Responsibility (CSR), Carbon Emission Disclosure (CED), Eco-efficiency, Firm Value

1. Introduction
Climate change is one of the most debatable and controversial issues around the world. According to Berkeley Earth Monitoring Group researcher Zeke Hausfather, there will be no indicators of climate cooling until 2021 as human activities create more heat (Lodie Tombeg, 2022). The rise in Earth's temperature is mostly due to increased emissions of greenhouse gases into the atmosphere since the industrial revolution, the majority of which are caused by human activities such as the combustion of fossil fuels, which emit carbon dioxide gas. The beginning of the industrial revolution has ramifications for industrial developments in the accounting world, one of which is reporting (Rusmana & Purnaman, 2020). Even though a company's primary goal is to generate a profit, it must nevertheless use its resources as effectively as possible. In Indonesia, there is a Limited Liability Company Law No. 40, Article 74 of 2007, which specifies that firms must be conscious of the need to conserve the environment and be socially responsible while performing industrial operations involving natural resources. The effectiveness of the corporate social and environmental responsibility programme may be measured not only in terms of execution but also in terms of communication. When a company's CSR communication meets or surpasses customer expectations for how CSR should be conveyed, the business reaps more advantages from its CSR initiatives (Kim & Ferguson, 2018). It also tries to lessen the environmental effect of the Minimizing the company's production waste necessitates efforts on the part of the company to guarantee that the waste generated has a low impact on the environment. As a result, implementing the eco-efficiency concept is ideal for a company dealing with its material waste.

The annual report of a company serves as a means of communication between investors and shareholders as well as an evaluation for investors looking to invest in a company. Thus, the following questions may arise. First, where is the long-term commitment of the firm? as well as the results of the company's performance in a year? and how do we track any achievements made by the company in the annual report? However, according to a study (Nur Utomo et al., 2020), the environmental performance has a favourable influence on environmental disclosure and enterprise value, but environmental disclosure has no impact on enterprise value. It does not affect the impact of environmental performance on corporate value. It does not affect the impact of environmental performance on corporate value. As a result, CSR disclosure and revealed components like effective waste management and

carbon emission control have an impact on firm value. Although no regulation specifies which components of CSR should be reported, CSR adds value to companies from the perspective of investors and stakeholders. It is critical for companies operating in the sector, particularly in manufacturing, to have a CSR report where investors and stakeholders can see how seriously corporations take their environmental and social responsibilities. The information in the CSR remains optional. Based on these primary findings, the research is outlined: First, we present a review of recent related research that takes into account the CSR and eco-efficiency aspects pertinent to the creation of this work. This section also emphasises some of the limitations found in the literature as well as the contribution of this study. Second, we outline various theoretical streams of thought addressing the relationship between CSR disclosures, which cover carbon emissions management and components such as effective waste management, which play a role in the impact on company value. Third, we discuss the databases that were used to collect data on each of the research variables. Finally, we go over the empirical analysis of our findings.

2. Literature Review

According to the legitimacy theory, companies are constantly striving to ensure community approval of their activities by adhering to community borders and standards and reaching out to them (C. Deegan & Unerman, 2006). According to the legitimacy theory, companies must respect not only the rights of investors but also the rights of the general public (Ratmono & Juliarto, 2019). CSR actions undertaken by the firm and stated in its annual report might be seen as an attempt to satisfy society's expectations of the company. CSR disclosure is defined by (Gray et al., 1995) as a method of disclosing information to show social responsibility. This might also have an impact on the company's worth. External parties, ranging from stakeholders, the general public, and economic analysts to potential investors, have only recently begun to learn about a company's carbon performance through voluntary disclosure. Then they award (or penalize) corporations based on their carbon performance. Enterprise value is determined by performance (Datt et al., 2019).

The concept of legitimacy argues that a company becomes a sustainable corporation when the community recognises the presence of a corporation and corporate activities with a value system that is congruent with the community's value system. Acceptance and a good reputation in the public are believed to improve the company's worth, which can indirectly boost the company's earnings. When the disclosure of information includes the results of the company's carbon footprint and its attempts to decrease the carbon footprint of each of its productions, the disclosure of information plays a significant role. The following is true: the more the company disclosure of greenhouse gas emissions, the greater the company's value (Gabrielle & Toly, 2019). This motivates existing and new investors to make investments.

2.1 The Effect of Corporate Sustainability Report on Company Value

The CSR perspective is based on the company's goals, which include sustainable management and societal contributions, and are the sources of the company's profit (Hizam et al., 2019). The purpose of CSR is typically a kind of corporate responsibility towards parties directly or indirectly involved and impacted by the company's actions, according to Company Law No. 40 of 2007. In Indonesia, there is no formal standard for reporting on environmentally linked economic operations. However, the Global Reporting Initiative (GRI), an international standards group, assists governments and businesses in communicating their commercial impacts on climate change, human rights, and corruption concerns. The GRI-initiated notion of Corporate Social Responsibility reporting evolved into the concept of sustainable development. Corporate Social Responsibility is measured by taking the company's total net profit and dividing it by 91 GRI-G4 indicators. The GRI-G4 standard divides performance indicators into three categories: economic, environmental, social and labour practices work comfort, human rights, community, and product responsibility (Sopian et al., 2018).

In line with the legitimacy theory, institutions can engage in CSR activities and reporting to maintain, gain and regain their legitimacy (Fernando & Lawrence, 2014). Consequently, the desire to legitimise an organization's operations through CSR disclosure is a predictable motivation driving disclosure-related decisions (C. Deegan, 2002). According to legitimacy theory, there is a "social compact" between commercial entities and their respective societies (C. Deegan, 2006; C. M. Deegan & Samkin, 2013). This social contract relates to whether or not an organisation acts within society's borders, conventions, or expectations. As a result, CSR programmes are developed not merely to meet legal requirements, but also to capture and impact investor opinions that are financially feasible for the firm and, as a result, are reflected in the company's value(Deswanto & Siregar, 2018).

According to the study, CSR disclosure in a firm has a positive and significant influence on corporate value. According to research (Chung et al., 2018), CSR activities influence corporate value, and the firm's CSR activities are fundamentally required for the company to be positively appraised by the market. According to (Tsang et al., 2020), there is a generally positive relationship between CSR performance and future enterprise value, regardless of how CSR success is defined using KLD CSR ranking data. However, in keeping with research (Wirawan et al.,

2020) indicating that CSR disclosure can boost enterprise value, the descriptive analysis results indicate that average CSR disclosure by manufacturing companies in Indonesia is poor. Firm value is also substantially connected with CSR, institutional ownership, and company size, according to (Chen & Lee, 2017). This demonstrates that boosting CSR spending has various advantages: Increasing institutional shareholder ratios and firm scale, which influences profits growth and company value growth.

H1: CSR disclosure affects firm value.

2.3 Disclosure of Carbon Emissions on Company Value

Of course, carbon emissions, or greenhouse gases, are required to keep the Earth's surface warm. The higher the concentration of heat-trapping greenhouse gases in the atmosphere, the more heat from the sun is trapped in the atmosphere. The buildup of heat raises the temperature of the Earth's surface. Rising surface temperatures will induce climate change, such as B. unpredictable weather, ecosystem extinction, and a 10 to 30% decline in water sources in subtropical and tropical places. As a result, global climate change will endanger the sustainability of global ecosystems.

According to (Ongsakul & Sen, 2019), the primary source of climate change is a company's carbon emissions. Significant overall carbon emissions contribute to the possibility of climate change. According to studies (Wei et al., 2019; Xu & Lin, 2017), the manufacturing industry, as a foundation of the national economy, contributes to energy consumption and large carbon emissions. Carbon emissions disclosure is essential to managing industrial carbon emissions. Carbon emissions might be declared in the annual report or the sustainability report of the firm. Where natural carbon emissions are disclosed, some are voluntary (such as the Greenhouse Gases [GHG] and CDP protocols), while others are mandated (such as the EU Emissions Trading Scheme [ETS], Japan's GHG Scheme, and the Integrated Emissions Resource Database) & Generation [eGRID]) (Velte et al., 2020). Organizations are required to act within the bounds of society's values for the company to thrive in the future, according to legitimacy theory (C. Deegan & Rankin, 1997). This leads to the conclusion that there is an implicit social contract between the company and society, in which the kind of social care provided by firms has resulted in the increasing disclosure of important information to satisfy people's expectations(Cormier et al., 2005; Deephouse, 1996; Solomon & Lewis, 2002). Companies are more likely to build organisational structures that can manage carbon emissions, analyse carbon emissions risks, and handle problems since controlling carbon emissions is a crucial component of guaranteeing business sustainability(Kurnia et al., 2021). Companies are more likely to adopt environmental responsibility as public awareness of environmental issues grows (Kılıç & Kuzey, 2019).

There are still variances in the outcomes of research papers on similar themes based on various earlier studies on the disclosure of carbon emissions on business value. Carbon emissions disclosure has a favourable and considerable influence on business value. Companies that are more environmentally conscientious are attracting investors who want to invest in high-quality sectors. According to studies (Yan et al., 2020), carbon performance consistency and carbon information sharing improve goodwill. This effect is stronger in non-state firms and corporations with strong leadership. Carbon emissions disclosure, according to studies (Alifiani & Suryaningrum, 2020; J. Lee et al., 2021), can assist improve business value since carbon disclosures and voluntary corporate disclosures motivate investors to invest in firms that can leverage the value of the company.

Meanwhile, a study (Muhammad & Aryani, 2021) demonstrates that carbon disclosure reduces the value of a firm. According to a study(S. Y. Lee et al., 2015), CDP publication of business carbon information has a considerable negative impact on capital market returns. This demonstrates that investors regard the publication of carbon data as bad news and, as a result, are concerned that the costs of preventing global warming will outweigh the benefits (Hsu & Wang, 2013).

H2: Disclosure of carbon emissions affects firm value.

2.4 Handling of waste to company value

Eco-efficiency, according to Environment Lexicon and the Ministry of Environment of the Republic of Indonesia, is an efficiency concept in which there are natural resource and energy factors that decrease the use of raw materials, energy, and negative environmental effect. Eco-efficiency is one of the company's environmental management attempts to minimize environmental damage while improving economic growth. The public's growing environmental consciousness forces the corporation to consider not only profit but also society and the environment. According to the legitimacy hypothesis, if a corporation can reduce the problem of negative environmental effects and offer information to the public, the community's legitimacy will rise. To implement eco-efficiency, a management system is required that assists in the resolution of problems that have not yet been

regulated, such as resource and energy usage, as well as climate change mitigation and adaptation, as covered in ISO 14001. ISO 14001 is an environmental management system certification that comprises standard requirements and guidance. An ISO 14001-certified firm is dedicated to consistently improving its environmental performance.

There are still differences in research results with similar themes based on several previous studies on waste management by applying eco-efficiency to enterprise value (Kurnianta & Dianawati, 2021; Satrio & Kunto, 2020), which found that eco-efficiency measured by ISO 14001 certification significantly impacts company value. This demonstrates that organisations that practise eco-efficiency have a greater enterprise value than companies that do not practise eco-efficiency. Eco-efficiency, on the other hand, has a negative and negligible relationship with an enterprise value (V. A. Safitri et al., 2019). Eco-efficiency, as reflected by having an environmental management system with an ISO 14001 certificate, has a favourable and considerable influence on the firm's financial performance but is not directly tied to its company, (V. A. D. Safitri & Nani, 2021).

H3: The application of eco-efficiency influences firm value.

3. Methods

To identify the research sample, this study used a non-probability sampling strategy with an intentional procedure based on preset criteria. The following are the sampling criteria utilised by the researchers: (1) firms listed on the Indonesian Stock Exchange (IDX), (2) companies with annual reports for the year 2017-2020, and (3) companies that do not present financial reports in the rupiah currency. The study's subjects were 55 industrial manufacturing enterprises registered on the Indonesian Stock Exchange (IDX). Secondary data gathered indirectly by the researcher were used in this study. The information comes from annual reports or corporate sustainability reports that are available on the Indonesia Stock Exchange website as well as the company's website. Each variable is measured using a separate measure, such as B. Variable y, namely goodwill, which is measured using the Price to Book Value (PBV) ratio. Furthermore, it is assessed for variable x, such as CSR with GRI 4.0, disclosure of Carbon emissions with the Carbon Disclosure Project (CDP), and eco-efficiency using a dummy variable, as evidenced by the company's ISO 14001 certification. SPSS 26 software was used to do multiple linear regression analysis on the data.

4. Result and Discussion

Multiple linear regression was employed in this work to examine numerous conventional acceptance tests, including the normality test, multicollinearity test, autocorrelation test, and heteroscedasticity test. The research hypothesis is then tested using a t-test, f-test, and coefficient of determination.

4.1 Classic Assumption Test

Normality, multicollinearity, autocorrelation, and heteroscedasticity are components of the traditional acceptance test. Table 1 shows the normality test results, which demonstrate that the significance value is 0.068, which is more than 0.05. It is possible to conclude that the residual value is normally distributed or fits the normality criteria. Furthermore, Table 1 illustrates that the tolerance value and the VIF value for all independent variables may be used to determine the outcomes of the multicollinearity test. There is no tolerance value smaller than 0.10, implying that there is no link between independent variables with a value greater than 95%. The VIF value in Table 1 also explains why none of the independent variables is bigger than 10. Based on these findings, it is possible to infer that no multicollinearity exists among the independent variables CSR (X1), Carbon Disclosure Emissions (X2), and Eco-Efficiency (X3). Furthermore, Table 1 summarises the heteroscedasticity test findings. The significance of the CSR variable is 0.297, the Carbon Emission Disclosure variable is 0.869, and the Eco-Efficiency variable is 0.923, implying that all independent variables have a significant value greater than 0.05, indicating that there is no heteroscedasticity between independent variables in the model. Table 1 reveals that the DW value for the last test, the autocorrelation test, is 1.797. The DW value in Table 1 with a confidence level of 5% and a total of 112 N is DL of 1.6187 and DU of 1.766, resulting in 4-DL = 2.382 and 4-DU = 2.234. The calculation results reveal that the DW value of 1.797 falls between the du and (4-du) values of 1.766 and 2.234 (du DW 4-du), indicating that no autocorrelation can be derived from the regression model utilised in this study.

Table 1 The Result of Classic Assumption Test

Description	Result	
Normality Test	Sig. (2-tailed)	.068
Multicollinearity Test	Tolerance	VIF

CSR	.696	1.650
Carbon Emission Disclosure	.601	1.664
Eco-efficiency	.973	1.028
Heteroscedasticity Test	Sig. (2-tailed)	
CSR	.297	
Carbon Emission Disclosure	.869	
Eco-efficiency	.923	
Autocorrelation Test	R^2 .815	DW 1.797

Source: processed using SPSS output in 2022

4.2 Hypothesis Testing

According to Table 2, the independent variable F-test has a computed F of 0.771 and a significant value of 0.513. The significant value in Table 2 is greater than 0.05, indicating that the independent variables (CSR, Carbon Emission Disclosure, and Eco-Efficiency) have no concurrent effect on the dependent variable (Firm Value).

Table 2 also describes the t-test findings, which analyse the effect of the independent factors on the dependent variable. According to the first hypothesis, the t-test significant value for the influence of Corporate Social Responsibility (CSR) on business value is 0.193. This results in a computed t value of 1.309, at a table value of 1.982, and a significance value of 0.193 > 0.05. These findings indicate that H1 is rejected, which is consistent with an earlier study (Crisóstomo et al., 2011; Kusumayanti & Astika, 2016), which found that CSR has no effect on company value since the translation of the information in the CSR report is not particularly clear. This is because there is no CSR implementation programme or agreement on standards, hence CSR is implemented differently by each organisation (Rumambi & Lintong, 2018). According to the findings of the research data sample, only 24 - 25 per cent of manufacturing enterprises in Indonesia report their CSR actions under the GRI 4.0 table. The GRI 4.0 indicator's poor disclosure result is attributable to a high number of enterprises that have not revealed in detail each indication in GRI 4.0, which comprises information on 91 GRI items. The publication of CSR information is only briefly described in the company's annual report. As a result of the firm not correctly disclosing the CSR report, investors did not consider the CSR report when making investment decisions, influencing the computation of the GRI value.

Based on the second hypothesis, the significance value of the t-test for the influence of carbon emissions disclosure on business value is 0.747. This demonstrates that the estimated t-value is -0.323 with a tabular value of 1.982 and a significance value of 0.747 greater than 0.05. These findings support a prior study by (Kurnia et al., 2020), which found that disclosure of carbon emissions did not affect firm value. According to the study's sample data, just 13 corporations publish carbon emissions in their annual reports. This might be due to a lack of disclosure of carbon emissions in Indonesia, particularly in industries, where implementation is costly(Kurnia et al., 2020). Meanwhile, the corporation reduces its operational and manufacturing expenses to increase its earnings. Because the company's costs are high, it has an impact on its profitability as well as its capital. According to the study (Janssen & Reimsbach, 2020), businesses minimise carbon emissions but do not invest in sustainable resources such as renewable energy. B. the installation of solar panels. As a result, this has only a short-term impact on expenses and carbon emissions while providing no long-term advantage to the firm.

Based on the third hypothesis, the t-test significant value for the influence of eco-efficiency on enterprise value is 0.787. The estimated t-value is -0.271, the t-table value is 1.982, and the significance value is 0.787 > 0.05. These findings support a prior study by (V. A. Safitri et al., 2019), which found that eco-efficiency had a negative association with firm value. Only 12 organisations are already ISO 14001 certified, according to the research sample data; nevertheless, having an ISO 14001 certification does not indicate that a company already has an efficient environmental management system for handling waste. Most companies have not specified their methods or how they deal with corporate waste, both from manufacturing and from company operations, according to various company reports that researchers have studied.

Eventually, the coefficient of determination was performed as the final test. Table 2 shows a coefficient of determination of 0.021 based on the value of R square. The independent variables (CSR, Carbon Emission Disclosure, and Eco-efficiency) included in the regression model can only explain 2.1 per cent of the dependent variable (firm value) as a whole.

Table 2 Hypothesis Result

	B	T	Sig	Description
F-test			.513	No effect
t-test				
(Constant)	1.331	3.572	.001	No effect
CSR	1.248	1.309	.193	No effect
Carbon Emission Disclosure	-0,151	-0,323	.747	No effect
Eco-Efficiency	-0,13	-0,271	.787	No effect
Adjusted R2			.021	

Source: processed using SPSS output in 2022

5 Conclusion

The purpose of this research is to determine the relationship between CSR, Carbon Emission Disclosure, Eco-Efficiency and enterprise value. The aim of this research is a manufacturing business specialising in the industrial sector that is listed on the Indonesian Stock Exchange. This study demonstrates that the first hypothesis on the company's disclosure of CSR has a negative and substantial influence on the company's worth. The second hypothesis demonstrates that disclosing carbon emissions has a negative and considerable impact on corporate value. Finally, the third hypothesis demonstrates that the company's eco-efficiency has a negative and considerable influence on its value. The three independent factors under consideration do not influence the company's worth, notably the rise and fall in the company's imminent share price. This suggests that implementing and disclosing CSR, disclosing carbon emissions, and promoting eco-efficiency in Indonesian enterprises with a focus on industry would not boost enterprise value, especially when deciding share prices. The results of company value studies continue to change depending on whatever proxies or indicators are utilised to quantify the variable. This study has a lower sample size since the researcher solely used manufacturing in the industrial sector in this investigation. It is envisaged that additional study would strive to widen the spectrum of business sectors, both to other company sectors listed on the Indonesian Stock Exchange and to firms operating outside the Southeast Asia area. Furthermore, the criteria utilised by researchers while processing sample data might have an impact on the study outcomes. As a result, it is envisaged that future studies would widen the criterion.

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