

# **The Effect of Green Accounting and Carbon Emission Disclosure on Firm Value**

## **(Case Study on Consumer Non Cyclical Company Listing Indonesia Stock Exchange in 2019 - 2022)**

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### **ABSTRACT**

This study aims to analyze the effect of green accounting and carbon emission disclosure on firm value. The sampling method in this study used purposive sampling. The sample used was 13 consumer noncyclicals companies listed on the Indonesia Stock Exchange. The data used in this study was sourced from the annual report and sustainability report of each company obtained from the Indonesia Stock Exchange and the website of each company as well as PROPER issued by the Ministry of Environment and Forestry. The hypothesis of this study was tested using multiple regression analysis. The results of this study show that green accounting has a positive effect on firm value while carbon emission disclosure has a negative effect on firm value.

**Keywords:** Annual Report; Carbon Emission Disclosure; Consumer Non Cyclical; Firm Value; Green Accounting.

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### **1. Introduction**

Investment based on environmental, social, and governance (ESG) principles is currently experiencing significant development. The results of a global survey conducted by PT Schroder Investment Management Indonesia in 2020, investors are interested in investing in ESG due to awareness of sustainable investment that has an impact on the wider environment. A survey conducted by PT Schroder of 23,450 respondents explained that 47% claimed to be interested in investing sustainably because it has a broad impact on the environment, while as many as 42%

expect sustainable investment to provide higher investment returns. Meanwhile, 11% of respondents stated that continued investment in a company does not offer higher returns. In addition, according to Ignasius Jonan stated that the value of shares listed on the Indonesia Stock Exchange will be affected by environmental damage.

The widespread environmental damage caused by environmentally irresponsible businesses demands the government to further strengthen regulations related to environmental protection and corporate social responsibility. This regulation makes the company's mission more concrete, especially for companies that utilize the environment to fulfill corporate social responsibility (Noviani & Alit Suardana, 2019). On various environmental issues reported, companies should focus on environmental missions and nature conservation. Over the past few decades, attention to "green" issues has become a major driving force among industry practitioners and academics (Kraus et al., 2020).

Environmental and climate issues are a serious topic in the G20 Presidency held in Bali, Indonesia in 2022 which requires company stakeholders to carry out sustainable and environmentally friendly accounting practices (Amira & Siswanto, 2022). Accounting and accountants also contribute to environmental damage because they are considered to present information that does not care about environmental factors (Lako, 2016). This results in stakeholders ignoring environmental and social issues. Therefore, more and more companies are starting to consider the link between firm value and the environment. One way to measure the environmental impact of a company's activities is to use green accounting.

Green accounting or environmental accounting is the process of identifying, measuring value, recording, summarizing, reporting, and disclosing information about financial, social, and environmental transactions, events, and/or objects in an integrated manner that helps users evaluate and make economic decisions (Lako, 2016). Ethika et al., (2019) states that environmental accounting has a significant positive effect on the value of the company. This is not in line with research Sapulette & Limba (2021) which states that green accounting has no effect on firm value.

Companies are increasingly aware that high carbon emissions can affect their reputation, increase operational costs and reduce their competitiveness. According to Ramadhani et al., (2022) This phenomenon resulted in companies starting to adopt carbon emission disclosure practices as part of their business strategy. This practice includes reporting and transparency on the amount of greenhouse gas (GHG) emissions produced by companies, as well as the steps taken to reduce those emissions (Hanifah, 2016).

Companies that disclose carbon emissions often involve many related parties, such as investors, consumers, governments, and the general public. According to Jaggi et al., (2018) Carbon emission disclosure practices can help companies build a better reputation in the eyes of stakeholders, increase consumer trust, and meet increasingly stringent regulatory requirements. In line with research Permana & Tjahjadi (2020) that disclosure of carbon emissions is beneficial to stakeholders. This is supported by research Bahriansyah & Lestari Ginting (2022) which explains that the disclosure of carbon emissions has a significant and positive effect on the value of the company.

Companies with high carbon emission reporting result in decreased stakeholder confidence and decreased stock value. This is in line with research Ulum et al. (2020) that carbon emissions have a negative and significant influence on the value of the company. Disclosure of high carbon emissions will affect the value of the company which is reflected in the value of the stock. The company revealed carbon emissions as one of the efforts to face the challenges of climate change

and help protect the environment. While the challenges faced are not easy, carbon emission disclosure practices can help companies build long-term sustainability and support sustainable business growth.

The company's attention to the environment supports the principle of "triple bottom line" or commonly known as the 3P of people, profit, and planet developed by Elkington states that businesses that want to succeed must be ethical both to humans and the environment in addition to ethical to profit. Milton (1970) in Rusmana & Purnaman (2020) states that the sole purpose of social business is to increase profits for shareholders. The purpose of establishing a company is to maximize firm value and improve shareholder welfare so that it can add value in the eyes of external stakeholders such as investors, customers, creditors, and the government.

The value of the company can be reflected in the value of shares which is an important measure in the world of investment (Jaggi et al., 2018). It is undeniable that some companies can damage the surrounding environment in their efforts to achieve higher corporate value. This phenomenon often occurs in various industrial sectors, including in the consumer non-cyclicals industry.

According to Brealiastiti (2021), Consumer Non-cyclicals Company is a company that produces or distributes primary consumer goods. This company is very attached to people's daily lives because this company's products are mandatory needs and cannot be eliminated from daily needs. This type of company will usually experience growth in line with population growth and increased revenue. Examples of consumer non-cyclicals companies are beverages, food and staple retail, and household products. This type of company tends to experience stable growth so that stock prices become the target of the public in times of recession. In fact, these consumer non-cyclicals companies will not be affected by economic conditions be it recession or boom. Unilever is one of the consumer non-cyclicals companies that is actively reducing environmental impact with its pillar, the Unilever Sustainable Living Plan (USLP). Since 2020, Unilever has adopted a zero waste to nature approach, a movement to reduce the environmental footprint generated from the manufacture and use of products while still growing its business. However, are other companies with stable profits and products very close to the community (people) concerned with the preservation of the environment (planet) around it?

## **2. Literature Review**

### *2.1 Legitimacy Theory*

The theory of legitimacy was first introduced by Weber in 1922 and then developed by several experts such as Dowling & Pfeffer (1975) which states that this theory focuses on the company's interaction with the community and states that the company must care about social norms so as to make the company more legitimate so that it does not have an impact as a threat to the continuity of the company's business activities. Grey et. al. (2002) in Research Irwhantoko & Basuki (2016) legitimacy theory can be interpreted as the attempt of companies to maintain their reputation in the eyes of the public by demonstrating that they act in accordance with social values valued by society. Companies that are perceived as having high legitimacy tend to be more successful in retaining support from the community, establishing good relationships with interested parties, and overcoming difficult environmental challenges.

### *2.2 Stakeholder Theory*

Stakeholder theory was first proposed by R. Edward Freeman in 1984 in his book entitled "Strategic Management: A Stakeholder Approach". Freeman (2004) positing that the company not only has the responsibility to maximize the profits of shareholders, but also has the social responsibility to consider the interests of all stakeholders involved in the business.

In relation to corporate value, stakeholder theory emphasizes the importance of considering the interests of all stakeholders in business decision making, not just the interests of shareholders. By considering the interests of all stakeholders, companies can build better relationships with them, reduce reputational, legal risks, increase customer and employee satisfaction, and improve the company's overall long-term performance.

### 2.3 Green Accounting

Green accounting defined as a company concept prioritizing the efficiency and effectiveness of sustainable use of resources in its production process so that it can align the company's development with environmental functions and bring benefits to society (Loen, 2018). Furthermore according to Damayanti & Widyowati (2022) The concept of green accounting in companies is very dependent on the characteristics of the company in understanding environmental problems. Understanding in the environment will direct company policies related to environmental sustainability. Green accounting in this study was measured using the company's achievements in participating in the Environmental Performance Rating Assessment Program (PROPER) of the Ministry of Environment and Forestry of the Republic of Indonesia (Damayanti & Widyowati, 2022).

Table 1. PROPER Rating

Color	Description	Score
Gold	Very good	5
Green	Excellent	4
Blue	Good	3
Red	Bad	2
Black	Very bad	1

Source: Ministry of Environment and Forestry, 2023

### 2.4 Carbon Emissions Disclosure

According to Carbon Disclosure Project (CDP) carbon emission disclosure is information on the level of carbon emissions released by a company from production to consumer use of the product during one year. This information can take the form of corporate actions to mitigate climate change and prevent forest destruction. Companies that disclose carbon emission information are one of the important references for investors in determining the investment period. Through long-term investment, it is expected to reduce pollutant gases as the company replaces new engines, increasing the company's efficiency (Jaggi et al., 2018).

Table 2. Carbon Emissions Disclosure Indicators

Category	Score
Mention global warming or the Kyoto Protocol	1
The company has a plan to tackle global warming	2
Potential cost information to achieve the goal of reducing global warming	3
Information on current costs of reducing carbon emissions	4
Information on the amount of carbon emissions each year	5

Source: (Jaggi et al., 2018)

### 2.5 Firm Value

The value of the company in the investor's perception of the company can be related to the share price (Aryanto & Setyorini, 2019). The high stock price will affect the high value of the company and increase stakeholder confidence in the company's performance in the present and the future (Amaliyah & Herwiyanti, 2019). In addition, according to Rusmana & Purnaman (2020) firm value becomes a benchmark for the company's current or future success. From an investor's perspective, the market price is a picture of the value of a company and the complexity of the risks experienced by the company related to investment, funding, and dividend decisions. Companies with good values encourage investors to invest in these companies. Firm value is viewed using price to book value. Price to book value (PBV) is a financial ratio that compares stock prices with book value per share.

$$PBV_{i,t} = \frac{PS_{i,t}}{BV_{i,t}}$$

### 2.6 The Effect of Green Accounting on Firm Value

Research results Dewi & Narayana (2020) and (Ethika et al., 2019) that the application of green accounting has a positive effect on the value of the company. In line with research Yasrawan & Weraswati et al., (2022) the publication of environmental cost reporting in environmental accounting will certainly help stakeholders evaluate environmental sustainability so that environmental management efficiency can increase to support the continuity of business governance. However, this is not in line with the results of the study Wardhani & Kawedar (2019) and Sapulette & Limba (2021) which states that green accounting has no effect on firm value.

H<sub>1</sub>: Green accounting has a positive effect on firm value.

### 2.7 The Effect of Carbon Emission Disclosure on Firm Value

Research Rusmana & Purnaman (2020) mentioned that the disclosure of carbon emissions has a significant positive effect on the value of the company. In tune with research Permana & Tjahjadi (2020) that disclosure of carbon emissions is more beneficial for stakeholders. However, in research (Ulum et al., 2020) carbon emissions have a negative and significant influence on the

value of the company. If the company has high carbon emissions, it will affect the value of the company which is proxied by the value of shares.

H<sub>2</sub>: Disclosure of carbon emissions positively affects firm value.

### 3. Research Methodology

This type of research is a quantitative research with green accounting research variables, carbon emission disclosure, and firm value in consumer non-cyclicals companies listed on the IDX in 2019 – 2022. The method of sampling used is purposive sampling. The sample used in this study amounted to 13 companies with 52 samples of company years. The analysis techniques used are descriptive analysis and multiple linear regression analysis.

### 4. Results

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#### 4.1 Descriptive Analysis

Table 3. Descriptive Statistical Results

Variable	N	Mi	Ma	Mean	Std. Deviation
	n	x			
Green accounting	52	1.0	6.09	3.447	.50397
	0		2		
Carbon Emissions Disclosure	52	1.0	3.09	2.848	.63973
	0		2		
Firm value	52	.70	4.87	2.341	1.12622
			1		

Souce: SPSS Processed Data (2023)

Table 3 showed that there were 52 samples of company years analyzed using descriptive statistics. Results of analysis of green accounting variables (X1) shows an average value of 3.4472 with a standard deviation of 0.50397. The results of the analysis of the carbon emission disclosure variable (X2) showed an average value of 2.8482 and a standard deviation of 0.63973. The results of the analysis of the firm value variable (Y) showed an average value of 2.3411 and a standard deviation of 1.12622.

#### 4.2 Classical Assumptions

##### 4.2.1 Normality Test

Table 4. Normality Test

Residual Model	p-value	Alpha	Keterangan
Asymp. Sig	0,2	0,05	Normal

Source: SPSS Processed Data (2023)

The normality assumption based on the significance value from table 4 of the Kolmogorov-Smirnov test is  $0.2 > 0.05 (\alpha)$  which means the distribution of data under normal circumstances.

#### 4.2.2 Multicollinearity Test

Table 5. Multikolinearity Test

Collinearity Statistics	Keterangan	
	Tolerance	VIF
Green accounting ( $X_1$ )	1.000	1.000
Carbon Emissions Disclosure ( $X_2$ )	1.000	1.000

Source: SPSS Processed Data (2023)

Based on Table 5, it is obtained that the independent variable is green accounting and disclosure of carbon emissions free from multicollinearity indicated by a tolerance value of  $> 0.10$  and a VIF value of  $< 10$ . This shows that there is no multicollinearity or no correlation between independent variables.

#### 4.2.3 Heterokedasticity Test

In this study using the heterokedasticity test of the White method. The results of the analysis of the heterokedasticity test can be seen in Table 6 below.

Table 6. Heterokedasticity Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.286 <sup>a</sup>	.082	.024	1.38813

Source: SPSS Processed Data (2023)

The calculated value of  $X_2$  is obtained from  $N \times R^2$  which is  $52 \times 0.082$ . Table 9 shows the value of  $X_2$  calculated  $< X_2$  table which is  $4.2264 < 68.6693$ , so it can be concluded that there is no heterokedasticity.

#### 4.2.4 Autocorrelation Test

According to Sulyanto (2011: 141) the Cochran Orcutt method autocorrelation test uses data transformation by entering the autocorrelation coefficient ( $\rho$ ) otherwise known "Rho".

Table 7. Autocorrelation Test

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Durbin-Watson
1	.317 <sup>a</sup>	.100	.063	.83816	1.676

Source: SPSS Processed Data (2023)

After data transformation, the Durbin-Watson value is known to be 1.676 which means greater than the dU value of 1.6334 and smaller than 4-dU or 2.324 so that autocorrelation does not occur.

#### 4.3 Multiple Linear Regression Analysis

Table 8. Multiple Linear Regression Analysis

Variable	Coefficient	$t_{\text{calculate}}$	Sig.
Constant	1.174	1.034	
<i>Green accounting</i> (X <sub>1</sub> )	.647	2.024	.048
Carbon Emissions Disclosure (X <sub>2</sub> )	-.372	-3.041	.004
F calculate	6.568		.003
R Square	.211		

Sumber: Data Hasil Olahan SPSS (2023)

Based on the multiple linear regression test in Table 8, the regression equation is obtained as follows:

$$Y = 1,174 + 0,647X_1 - 0,372 X_2 + e$$

A constant value of 1.174 indicates that if the variables of green accounting and carbon emission disclosure have no change or are constant, then the value of consumer non-cyclycals companies listed on the IDX has a value of 1.174.

The value of the regression coefficient of the green accounting variable (X<sub>1</sub>) 0.647 with a positive value, meaning that every increase in green accounting by 1 time, the company's value will increase by 0.647 assuming other variables are constant.

The value of the regression coefficient of carbon emission disclosure variables (X<sub>2</sub>) 0.372 with a positive value, meaning that every increase in carbon emission disclosure by 1 time, the company's value will be 0.372 assuming other variables are constant.

Error or residual is the difference between the actual value of the dependent variable (the variable you want to predict) and the value predicted by the regression model.

## 5. Discussion

### 5.1 The Effect of Green Accounting on Firm Value

Table 8. shows the result of H<sub>1</sub> with a beta coefficient value of 0.647 with a significance level of 0.048. The significant level is smaller than 0.05 which means H<sub>1</sub> is accepted so it can be said



that green accounting has a significant positive effect on the value of the company. The high and low score of green accounting turns out to affect the value of the company.

Green accounting allows companies to disclose their commitment to maintaining low environmental impact through sustainable practices (Dewi & Narayana, 2020). The company communicates this information transparently so as to build a better reputation as an entity that cares about the environment, which can improve the company's image and strengthen relationships with consumers. In an era of intense competition and increasing consumer awareness of environmental issues, companies that invest in sustainable practices and disclose their positive impact through green accounting tend to be more attractive to consumers (Simon et al., 2023). This can lead to market growth, increased market share, and higher consumer satisfaction, which can ultimately affect the value of the company positively.

Consumer non cyclical companies that manage their environmental impact well and openly disclose their sustainable practices tend to be more attractive to investors who want to invest in companies that have high environmental awareness. Comprehensive green accounting can facilitate collaboration with other stakeholders who have similar environmental goals, including governments and business partners. This kind of collaboration can open up new opportunities, reduce environmental and legal risks, and improve operational efficiency. Amira & Siswanto (2022) states that through green accounting, consumer noncyclical companies can reduce reputational and operational risks that can have a negative impact on firm value.

### *5.2 The Effect of Carbon Emission Disclosure on Firm Value*

Table 8 shows the results  $H_2$ , that carbon emission disclosure variables have a significant negative effect on firm value. It can be seen from Table 12 showing with a significance level of 0.004. The significant level is smaller than 0.05 but the beta coefficient value of -0.372 which means  $H_2$  is rejected so it is said that the disclosure of carbon emissions has a significant negative effect on the value of the company.

Disclosure of carbon emissions negatively affects the value of consumer noncyclical companies because they have complex and extensive operations, with supply chains consisting of various stages of production. Measuring and tracking carbon emissions from the entire supply chain can be a complicated and expensive task. Accurate and transparent disclosure of carbon emissions requires substantial investment in technology, training, and human resources, which can lead to additional costs for the company (Robinson et al., 2018).

According to Irwhantoko & Basuki (2016) Transparent and comprehensive disclosure of carbon emissions can cause consumer noncyclical companies to adopt more environmentally friendly production technologies and practices. While these measures can have a positive impact on the environment, they can also increase production costs and reduce operational efficiency (Downar et al., 2021). This can reduce a company's profit margins and negatively impact the value of the company.

## **6. Conclusion**

Green accounting has a positive and significant effect on the value of the company, indicating that the company can communicate this information transparently, thus building a better reputation as an entity that cares about the environment, improving the company's image and strengthening relationships with consumers. Consumer non cyclical companies that manage

their environmental impact well and openly disclose sustainable practices tend to be more attractive to investors who want to invest in companies that have high environmental awareness. Disclosure of carbon emissions has a negative and significant influence on firm value because companies that have high carbon emission disclosure will be considered "bad news" by investors so that it can reduce investor interest in investing. On the other hand, consumer non-cyclicals companies have complex and extensive operations and long supply chains, requiring companies to adopt more environmentally friendly production technologies and practices that increase production costs and reduce company margins, this will reduce firm value.

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